Please note

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# 1985 Calendar

## January

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New Year’s Day</td>
</tr>
<tr>
<td>2</td>
<td>Swinburne re-opens</td>
</tr>
<tr>
<td>15</td>
<td>HSC results published</td>
</tr>
<tr>
<td>28</td>
<td>Australia Day</td>
</tr>
</tbody>
</table>

## February

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&amp;6</td>
<td>SCT further enrolment period for 1985</td>
</tr>
<tr>
<td>6&amp;7</td>
<td>SIT Engineering re-enrolments commence</td>
</tr>
<tr>
<td>8</td>
<td>SIT new enrolments commence for Round 1 offers through VUAC</td>
</tr>
<tr>
<td>11</td>
<td>SCT semester 1 commences</td>
</tr>
<tr>
<td>15</td>
<td>SIT teaching begins final year engineering degree</td>
</tr>
<tr>
<td>18</td>
<td>SCT all classes commence except full-time Certificate of Business Studies begin</td>
</tr>
<tr>
<td>21</td>
<td>SIT later year teaching begins Applied Science, Arts and Engineering (except final year degree)</td>
</tr>
<tr>
<td>25</td>
<td>SIT later year teaching begins Business</td>
</tr>
<tr>
<td>31</td>
<td>SIT last day for applications for refund of fees</td>
</tr>
</tbody>
</table>

## March

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Labour Day</td>
</tr>
<tr>
<td>31</td>
<td>SIT and SCT last day for applications for refund of fees</td>
</tr>
</tbody>
</table>

## April

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>SIT classes end for Easter break</td>
</tr>
<tr>
<td>4</td>
<td>SCT classes end for Easter break</td>
</tr>
<tr>
<td>5</td>
<td>Good Friday</td>
</tr>
<tr>
<td>8</td>
<td>Easter Monday</td>
</tr>
<tr>
<td>9</td>
<td>Easter Tuesday</td>
</tr>
<tr>
<td>10</td>
<td>SIT classes resume after Easter break</td>
</tr>
<tr>
<td>11</td>
<td>SCT classes resume after Easter break</td>
</tr>
<tr>
<td>12</td>
<td>SIT last day for withdrawal from a first semester subject, unit or course without penalty of failure</td>
</tr>
<tr>
<td>25</td>
<td>Anzac Day</td>
</tr>
<tr>
<td>30</td>
<td>SIT graduation ceremony</td>
</tr>
</tbody>
</table>

## May

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>SIT and SCT classes end mid-semester break</td>
</tr>
<tr>
<td>20</td>
<td>SCT classes resume</td>
</tr>
<tr>
<td>27</td>
<td>SCT classes resume</td>
</tr>
<tr>
<td>30</td>
<td>SCT certificate and award presentation ceremony</td>
</tr>
</tbody>
</table>

## June

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Queen’s Birthday</td>
</tr>
<tr>
<td>24</td>
<td>SIT and SCT; Semester 1 examination period begins</td>
</tr>
</tbody>
</table>

## July

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SIT inter-semester break commences for Art</td>
</tr>
<tr>
<td>5</td>
<td>SCT semester 1 examinations end</td>
</tr>
<tr>
<td>8</td>
<td>SIT inter-semester break commences</td>
</tr>
<tr>
<td>12</td>
<td>SIT examinations end</td>
</tr>
<tr>
<td>15</td>
<td>SIT inter-semester break commences for Applied Science, Arts, Business and Engineering</td>
</tr>
<tr>
<td>22</td>
<td>SCT semester 2 commences</td>
</tr>
<tr>
<td>23</td>
<td>SIT and SCT classes end mid-semester break</td>
</tr>
</tbody>
</table>

## August

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>SIT classes resume</td>
</tr>
<tr>
<td>6</td>
<td>SCT last day for subject variations to enrolments for semester 2</td>
</tr>
<tr>
<td>9</td>
<td>SCT classes resume</td>
</tr>
<tr>
<td>13</td>
<td>SIT last day for amendments to enrolments without penalty of failure</td>
</tr>
<tr>
<td>18</td>
<td>SIT graduation ceremony</td>
</tr>
<tr>
<td>26</td>
<td>Show Day</td>
</tr>
</tbody>
</table>

## September

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>SIT and SCT last day for application for awards for students completing their courses in December 1985</td>
</tr>
</tbody>
</table>

## November

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Melbourne Cup Day</td>
</tr>
<tr>
<td>8</td>
<td>SCT formal classes end</td>
</tr>
<tr>
<td>11</td>
<td>SCT end of year examinations commence (internal and external)</td>
</tr>
<tr>
<td>18</td>
<td>SIT semester 2 examination period begins</td>
</tr>
<tr>
<td>22</td>
<td>SCT examinations end (external)</td>
</tr>
<tr>
<td>29</td>
<td>SCT examinations end (internal)</td>
</tr>
</tbody>
</table>

## December

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>SIT examination period ends</td>
</tr>
<tr>
<td>9</td>
<td>SIT re-enrolments for Art</td>
</tr>
<tr>
<td>13</td>
<td>SIT and SCT re-enrolments for 1986 commence (except SIT Art and Engineering)</td>
</tr>
<tr>
<td>20</td>
<td>Semester 2 ends</td>
</tr>
<tr>
<td></td>
<td>Swinburne closes for Christmas break</td>
</tr>
</tbody>
</table>
swinburne handbook '85
The information given in this handbook is intended as a guide for persons seeking admission to Swinburne Institute of Technology or Swinburne College of TAFE and shall not be deemed to constitute a contract or the terms thereof between Swinburne Institute of Technology or Swinburne College of TAFE and a student or any third party. Both divisions reserve the right to cancel, suspend or modify in any way the matters contained in this document.

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

This handbook is published both as a whole and in separate sections; one for each faculty of Swinburne Institute of Technology and one for Swinburne College of TAFE. These separate sections are available from the Information Office.

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and
Swinburne College of TAFE
John St., Hawthorn, Victoria 3122
Australia
Telex Swinbn AA37769
P.O. Box 218 Hawthorn 3122, Tel: 819 8911

Divisions of Swinburne Ltd
ISSN 0705-1964

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Swinburne

Swinburne was established in 1908 under the name of 'Eastern Suburbs Technical College'. The first students were enrolled in 1909, when classes were begun in carpentry, plumbing and blacksmithing. The institution grew and prospered.

Soon afterwards, a boys junior technical school and the first girls technical school in Victoria, were established.

In 1913 the institution changed its name to Swinburne Technical College to commemorate the Hon. George Swinburne, a former mayor of Hawthorn and a member of the Parliament of Victoria, who was largely responsible for the initial establishment of the college.

In 1965 Swinburne affiliated with the Victoria Institute of Colleges which was established in that year by an Act of the Parliament of Victoria to 'foster the development and improvement of tertiary education in technical, agricultural, commercial and other fields of learning (including the liberal arts and the humanities) in institutions other than in the universities of Victoria'.

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

An extensive re-organisation of advanced education took place in Victoria in the period 1976-78 culminating in the passing of the Victorian Post-Secondary Education Act. Under the Act the Victoria Institute of Colleges was dissolved and the Victorian Post-Secondary Education Commission established. Under the new arrangements, Swinburne Council was given power to grant bachelor degrees. The first of these were awarded at a conferring ceremony held on Thursday 21 May 1981 at the Camberwell Civic Centre.

To facilitate operations, teaching is carried out within two divisions, under the control of one council. They are:

Swinburne Institute of Technology — a college of advanced education offering courses for professional qualifications (diploma and degree of Bachelor) and graduate qualifications (diploma and degree of Master). Enrolments in 1984 were 2,922 full-time and 2,836 part-time students.

Swinburne College of Technical and Further Education — a technical and further education college, offering courses at middle-level or para-professional, trade, technical and Tertiary Orientation Program levels. A number of specialist courses are provided also, for industry and the community. Enrolments in 1984 were 884 full-time and 3,151 part-time students.

Campus

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

Coat of Arms

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

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

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

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

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

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

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

Swinburne Council

Membership as at 30 June 1984

Appointees of the Governor-in-Council
G.W. Fary
R.V. Gilbert, PhD(Macq.), BA(Hons)(N’clic, N.S.W.)
P.M. Edgar, PhD(LeaT.), MA(Stan.), BA, BEd(Hons)(Melb.)
1 vacancy
1 vacancy
Appointee of the Council of the City of Hawthorn
J.A. Wunderlich, MSc(Syd.), Dr Æ Sc(Paris), ARACI
Members elected by the Council of Swinburne
W.J. Braden, BA, BEd(Melb.)
W.R.S. Briggs, PhD, BSc(Hons)(N.S.W.), DipChemEng(STC), ASTC, ARACI, (Vice-President)
K.H. Clarke, MSc(Melb.), ARCS, FInstP, FAIP, FACPSM, MIRME
J.M. Day, BE(Mech and Elec) (Syd.), MIEAust, SME
L.E.A. Orton, MArch(C’nell.), DipArch(DES)(Melb.), LFRAIA, RIBA, (Vice-President)
D.M. Reilly, BA(Mon.), ALAA
M.A. Rose, BE(Mon.), DipCE(SIT), MIEAust
N.P. Watson, AASA, ACIS, (President)
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W.R. Longworth, MSc, PhD(Manch.), CChem, FRSC, FUACI, FACE (Principal Director and Chief Executive Officer)
F.G. Bannon, BCom(Melb.), FASA, ACIS, LCA (Director, Administration)
R.S. Davie, BE(Adel.), CEng, FIProdE, FIEAust, MACE (Director, Swinburne Institute of Technology)
L.M. Jenkins, BCom, DipEd(Melb.), FASA, MACE (Director, Educational Services and Deputy Principal Director)
B.J. MacDonald, BEc(Mon.), DipEd(Rusd.) (Director, Swinburne College of Technical and Further Education)
Member elected by Academic Board
H. Zimmerman, BA(Hons), LLB, DipEd(Melb.)
Member elected by Board of Studies
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Member elected by academic staff, SIT
J.A. Phillips, MSc(Eng)(Melb.), DipEE, DipMechEng(Gord.), CEng, MIEE, MIEAust
Member elected by teaching staff, SIT
D. Kotteck, BE(Elec)(Melb.), DipEd(Mon.), MIEAust, MACS
Member elected by non-academic staff
D.D. Janichen
Member elected by students, SIT
G.W. Dean
Member elected by students, SIT
S. Wooden
Senior staff
Principal Director
W.R. Longworth, PhD, MSc(Manc.), CChem, FRSC, FRACI, FACE
Deputy Principal Director
L.M. Jenkins, BCom, DipEd(Melb.), FASA, MACE
Director, Swinburne Institute of Technology
R.S. Davie, BE(Adel.), CEng, FIProdE, FIEAust, MACE
Director, Swinburne College of TAFE
B.J. MacDonald, BEd(Mon.), DipEd(Rus.)
Director, Administration Division
F.G. Bannon, BCom(Melb.), FASA, ACIS, LCA
Director, Educational Services Division
L.M. Jenkins, BCom, DipEd(Melb.), FASA, MACE

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R.S. Davie, BE(Adel.), CEng, FIProdE, FIEAust, MACE
Dean, Faculty of Applied Science
A.P. Gardner, MSc(Mon.), DipEd(St.And.), MRSC, ARACI
Dean, Faculty of Art
I. McNeillage, DipArt(CIT), TTTC(Haw.)
Dean, Faculty of Arts
L.A. Kilmartin, PhD(LaT.), MA(ANU), MAPSS
Dean, Faculty of Business
M.H. Hunter, BCom(Melb.), MAdmin(Mon.), DipEd(Melb.), FASA
Dean, Faculty of Engineering
L.M. Gillin, PhD(Camb.), MEngSc, BMetE(Melb.), ASMB, FIEAust, AAIP

Swinburne College of TAFE
Director
B.J. MacDonald, BEd(Mon.), DipEd(Rus.), (Acting)
Vice-Principal
P.C. Quail, BSc, DipEd(Mon.), (Acting)
Head, Building Division
G.A. Martin, BA(SIT), BEc(LaT.), MMS, MIE, MAIB
Head, Business Division
P.C. Quail, BSc, DipEd(Mon.)
Head, Engineering Division
R.G. Chamberlain, Trtc, DipMechE, CertEng(Aero)
Head, General Studies Division
G.A. Harrison, BSc(Melb.), DipMechE(CIT), TTTC(Haw.)

Administration Division
Director
F.G. Bannon, BCom(Melb.), FASA, ACIS, LCA
Finance Department
Principal Accountant
D.F. Baker, AASA, ACIS, RCA
Systems Accountant and Deputy to the Principal Accountant
R.N. Devers, BBus(SIT), AASA
Budget Accountant
J.A. Sage, DipBus(GIAE), GradDipAcc, (SIT) AASA
Financial Accountant
N.J. Sutton, BBus(RMIT), AASA

Maintenance Department
Maintenance Officer
A.J. Kibble, CBuild, AAIB
Planning Department
Planning Officer
T. Rosauer, BArch(Melb.), FRAIA
Administrative Officer
R.G. Allingham, TTC(SIT), DTSc(Melb.)

Staff Department
Staff Officer
R.J. Clifford

Catering Department
Catering Manager
P. Boxshall (Acting)

Security Department
Chief Security Officer
S.A. Sharwood

Safety Co-ordinator
G.N. Rowe, BEng(Civil)(Bend.), GradDipED(Haw.)

Swinburne Press
Manager, Swinburne Press
A.D. McNaughton

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

Director
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Registrar
G.L. Williamson, BSc(Adel.)

Swinburne Librarian
W. Linklater, BA, DipLib(N.S.W.), DipEdTech(CNAA), ALAA

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Co-ordinator, Student Health and Welfare Unit
M. Algar, BA(HonsPsych), DipSocStud(Melb.), MAPS

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

Head, Audio-visual Services
D.B. McAdam, BA(SIT)

Manager, Central Technical Workshops
G. Nettleship, D.B.

Registrar's Office
Registrar
G.L. Williamson, BSc(Adel.)

Deputy Registrar and Head of Student Administration
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Assistant Registrar
P.E. Cobis, BSc(Lat.)

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H.M. Ralston, BCom(Melb.)

Admissions Officer
M.J. Foley

Examinations Officer
W. Leishman

Information Officer
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Faculty Secretary, Applied Science
J.J. Ure, BSc(Aberd.,) (CTA)

Faculty Secretary, Arts
C. Hoernel, BA(JohnsH.)

Faculty Secretary, Business
V. Stiles, BA(Melb.)

Faculty Secretary, Engineering
A.L. Dews, ARMIT

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Swinburne Librarian
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Administration
H.J. Sweeney, DipLib(RMIT), ALAA

Acquisitions
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C.A. Durward, ALAA
B. Lamers, BAI(Lat.), AASA, GradDipLib, ALAA

Audio-visual
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M. Hawkins, CertAppScSci (LibTech)

Cataloguing
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D.J. Doherty, BA(Qld), ALAA
J.E. Fizelle, BA(Hons)(Melb.), ALAA
R. McCart, BA(SIT), GradDipLib(RMIT), ALAA
T. McCumstie, BA(N.S.W.), DipLib(BCAE)
J. Farmer, BA(Hons)(Mon.), GradDipLib. (RMIT), ALAA
D.R. Ethell, CertAppSci LibSci (LibTech)
J. Meggerty, CertAppSci LibSci (LibTech)

Periodicals
K.M. McGrath, BA(Mon.), GradDipLib(RMIT), ALAA
D. Zakis, BA(SIT), AssocDipLib(RMIT)

Readers' services
P.G. Simmennauer, BA, DipLib(N.S.W.)

Circulation
E. Carter, BSocSc (Lib'ship)(RMIT)

Reader education
B.J. Donkin, DipArts(SIT), GradDipEd(Haw.), ALAA

Reference
I.A. Douglas, BA(N'cle.), MSc(Strath.)

Reference and reader education
J.M. Ager, BA(Melb.), GradDipLib(BCAE)
B.J. Nichol, BSc(SocSci (Lib'ship))(RMIT)
B.A. Camfield, BA(SIT), AssocDipLib(RMIT)
J.M. Lindner, BSc(SocSci (Lib'ship))(RMIT), DipLibInfoSci(Mon.), ALAA
L. Murdoch, BA(Qld), DipMLibr(N.S.W.)
C. Bates, BA(Lat.)
C. Skinner, BSc(SocSci (Lib'ship))(RMIT)

The reference and lending library is housed in a modern five-storey building with capacity for 650 readers. There are 48 full-time 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 formal course instruction and to provide ample opportunity for recreational and general reading.

In 1983 the collection comprised 208,473 items. In addition, 3,134 periodical titles are received, including a wide range of indexes and abstracts. There is a rapidly growing collection of audio-visual material, including records, audio- and videotapes, slides and films.

Library staff work in close association with teaching staff in developing these resources, and in helping the students by introducing them to a diversified collection of literature and wide range of media on all types of subjects. Formal and informal instruction is given to students on the use of catalogues, reference works and bibliographical aids both in direct connection with their courses, and also in relating their specialist courses to society as a whole. Reciprocal borrowing facilities at other tertiary educational institutions have been arranged to increase the resources available to students and staff.
Rules and procedures

Persons entitled to use the library

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

In addition, any professional people from commerce, industry and the public services in the region of Swinburne, 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 Swinburne Librarian, or the senior staff member on the premises may refuse entry to the library to any person not registered as an approved borrower.

Persons entitled to borrow from the library

Members of the Swinburne Council.

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

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

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

Hours of opening

Normal hours of opening for the library during semesters, are:

- Monday to Thursday inclusive — 8.45am to 10.00pm
- Friday — 8.45am to 8.30pm

Public holidays

<table>
<thead>
<tr>
<th>Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queen's Birthday</td>
<td>8.45am to 10.00pm</td>
</tr>
<tr>
<td>Show Day</td>
<td>2.00pm to 10.00pm</td>
</tr>
<tr>
<td>Cup Day</td>
<td>8.45am to 10.00pm</td>
</tr>
</tbody>
</table>

Closed on all other public holidays.

Mid-semester breaks

<table>
<thead>
<tr>
<th>Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday to Thursday</td>
<td>2.00pm to 10.00pm</td>
</tr>
<tr>
<td>Friday</td>
<td>2.00pm to 8.30pm</td>
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</tbody>
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Inter-semester break

<table>
<thead>
<tr>
<th>Name</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Monday to Thursday</td>
<td>8.45am to 10.00pm</td>
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<tr>
<td>Friday</td>
<td>8.45am to 8.30pm</td>
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</table>

Long vacation

<table>
<thead>
<tr>
<th>Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday to Friday</td>
<td>9.00am to 5.00pm</td>
</tr>
</tbody>
</table>

Closed between Christmas and New Year, and approximately 3 weeks in January.

Saturday 10.00am to 5.00pm

Depending on demand, from early in each semester, up to and including the Saturday at the end of the first week of examinations.

Sunday 1.00pm to 5.00pm

Depending on demand and resources, a limited number of Sundays towards the end of each semester.

Library loans to students

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

General

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

Borrowing periods

Fortnightly loans

The normal loan period for most books, pamphlets and audio-visual material (excluding video-cassettes and slides), is a fortnight. This period may be extended for a further fortnight provided the item has not been reserved and it is not overdue.

3-day loans

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

Overnight loans

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

This material may be borrowed after 4.00pm from the Counter Reserve and should be returned by 9.00am the next week-day. This condition may be varied for part-time students.

Counter reserve collection

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

See the Guide to the Library for further details.

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, and for material located in Stack, at the Enquiries Desk.

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

$0.50 per day or part thereof overdue, to a maximum of $5.00, suspension of borrowing privileges and withholding of examination results.

3-day loans — per item

$1.25 per day or part thereof overdue, to a maximum of $5.00 per item, suspension of borrowing privileges and withholding of examination results.

Overnight loans — per item

First day: $0.50 per hour late. For each day thereafter: a further $2.00 to a maximum of $5.00, suspension of borrowing privileges and withholding of examination results.

Counter Reserve loans (within the library building) per item

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

Lost library material

If an item is lost, the loss must be reported immediately to the Overdues Section, level 2. If after a reasonable search has been made, the item cannot be found, the borrower shall be responsible for the replacement cost plus a processing charge.
Identity cards
Loss of an identity card must be reported immediately to the
Overdues Section, level 2, Library otherwise the library can
take no responsibility for items borrowed on that card. These
are not transferable and are valid only when signed. A current
card must be produced when borrowing otherwise service
may be refused. Lost or damaged cards may be replaced at the
Library at a cost of $1.00.

Rules for general conduct
Eating is not allowed in areas of the library open to the public.
Drinking, except from the drinking fountain, or in the im-
mediate 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 ashtrays
provided.
Bags and cases may be brought into the library, but must be of-
fered 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 areas indicated
and conversation restricted to the areas set aside for this
purpose.
Any person who, in the opinion of a member of the library staff
and the senior staff member on the premises, repeatedly fails
to observe the above rules, or who disfigures or damages a
book, periodical or any other library resource or fitting in any
way, may be excluded from the library for the rest of the day,
and shall be responsible for all damage caused.
Persistent or serious offenders may be reported by the Swin-
burne Librarian to the Swinburne Registrar for disciplinary
action which may include suspension of borrowing privileges,
exclusion from the library, and withholding of examination
results.

Power to alter rules
One or more of the rules for general conduct may be changed
from time to time by the Director, Educational Services, on the
recommendation of the Swinburne Librarian.
At the discretion of the Swinburne Librarian one or more of the
rules may, under special circumstances, be temporarily
suspended. Each suspension shall be reported at the earliest
opportunity to the Director, Educational Services and to the
Library Committee.

Photocopying
Photocopying machines available to staff and students are
located on level one of the library building. Users must note
the relevant provisions of the Copyright Act, and abide by
them.

Swinburne services
Student Health and Welfare Unit
Unit staff
Co-ordinator
M. Algar, BA(HonsPsych), DipSocStud(Melb.), MAPsS
Counselling
M. Algar, BA(HonsPsych), DipSocStud(Melb.), MAPsS
V. Lalonde, BA(HonsPsych)(Alta.), MSc(Calif.), MAPsS
•M. Manton, BA(HonsPsych)(Melb.), MAPsS
K. Olsen, BA, DipSocStud(Melb.)

Careers information
S. Wayth, BA(Melb.), GDipLibStud(WAIT), ALAA

Employment and housing
J. Tyler, BSc(Hons)(Mon.)

Health
S. Clarke MB, BS
J. Fischer, RN, RM(Vic.)
A. Hart, RN(Vic.)

Chaplaincy
W. Hamilton, BA(GIAE), DipTheol(MCD), GDipAppSocPsych
(SIT)

Student health and welfare services
The following services are available to all students:
Counselling
Health
Employment
Housing
Careers library
Chaplaincy

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

Student counselling
Location: room 206, level 2, BA building
Telephone: 819 8025
The counselling service is available to students, staff, prospec-
tive students, parents and partners of students. The service is
free and strictly confidential.
Counselling is concerned with helping people, individually
and in groups, with personal problems, vocational and career
decision and planning, course and career information, finan-
cial concerns and study problems.
Some areas of student concern are: loneliness, adjustment to
life at Swinburne, subject choice, deferment, choosing a
course, examination anxiety, exclusion, vocational decisions,
concern about others, study problems, marital and pre-marital
counselling, relationships, disabilities, sexuality, family, finan-
cial problems, career planning, scholarships and student
allowances.

The counselling service is open from 9.00am to 5.00pm
throughout the year and remains open for part-time students
on Monday evenings until 6.30pm or at other times by ap-
pointment.
Student health  
Location: room 207, level 2, BA building  
Telephone: 819 8483  
The service is available to tertiary students, College of TAFE students and staff (for emergency treatment only) and is free and strictly confidential.  
Services provided include emergency service, general first-aid, advice on medical problems, contraceptive advice, information on sexually transmitted diseases, advice on nutrition, immunisation, eye tests, hearing tests, pregnancy testing, referral service, e.g. dentist, physiotherapist, cardio-pulmonary resuscitation and first-aid lectures.  
The health service is open from 9.00am to 5.00pm; the doctor is available by appointment three hours daily.  

Student housing, part-time and vacation employment  
Location: top floor, Ethel Swinburne Centre (above the Cafeteria)  
Telephone: 819 8541  
The housing service provides addresses of a wide range of accommodation including full board, single rooms, houses and flats, and hostels. Many students also use the service to find other students to share accommodation. Advice on living away from home and the legal and financial problems associated with renting is also available to all Swinburne students.  
Assistance is also provided for students seeking part-time, casual and vacation employment. This service includes advice on techniques of obtaining part-time work, and information on specific vacancies. Students are notified of available work via the part-time and vacation employment notice board.  
The office is open from 8.45am to 5.00pm Monday to Friday, (later by appointment for the convenience of part-time students).  

Student employment  
Location: room 206a, level 2, BA building  
Telephone: 819 8445  
Assistance is provided for students seeking full-time employment.  
Several services are available including:  
— an employment register and placement service for students seeking full-time employment and details of major recruiting campaigns;  
— assistance with job application and interview techniques, individually or in group workshops;  
— personal guidance and support for students in their search for appropriate employment.  
— a campus interview program where a range of employers visit campus to interview final year diploma and degree students;  
— an employment resources library including details of employment prospects and career opportunities with private and public employers;  
The office is open from 8.45am to 5.00pm Monday to Friday, (later by appointment for the convenience of part-time students).  

Careers library  
Location: within the Student Counselling Service, room 206, level 2, BA building  
Telephone: 819 8025  
To assist students and prospective students in their choice of careers and courses, the Careers Information Counsellor maintains a comprehensive library of information on a wide range of courses at Swinburne and elsewhere: apprenticeships, evening classes, middle-level courses in technical colleges, tertiary and postgraduate courses.  
The library is for the use of all Swinburne students and staff, prospective students and schools within the area.  
The Student Employment Office provides more specific information on employers and employment opportunities.  

Students with a disability  
All of Swinburne’s educational, recreational and social/cultural activities are made readily available to students with a permanent or temporary disability.  
Students with special needs are encouraged to contact the Student Counselling Service prior to enrolment. The counsellors can advise on career planning, special study needs, examination arrangements, access to buildings, use of lifts, telephones and parking facilities, etc.  
The Student Counselling Service is located on level 2, Business and Arts building.  
Telephone: 819 8025  

Swinburne chaplain  
Location: room 401a, top floor, Ethel Swinburne Centre (above the cafeteria)  
Telephone: 819 8489  
The chaplain is not employed by Swinburne but has a wide responsibility to students and staff regardless of religious affiliation or lack of it.  
The chaplain is available for confidential counselling but most of his work is done through informal contact with students and staff.  
He is involved in the community life of the institute and takes part in student activities, giving help and support or advice if needed. He also organises discussions and camps.  
Students and staff are invited to drop in at any time. New students, in particular, are invited to come and introduce themselves.  

Student allowances  

Loans  
With the approval of the Loans Fund Committee, long-term and short-term financial assistance may be obtained from the following loan funds:  
Commonwealth Help for Needy Students Loan Fund  
Student Aid Fund  
Student Union Aid Fund  
Rotary Swinburne Bursary Fund  
Enquiries should be made to the Student Counselling Service.  
Telephone 819 8025.
Assistance schemes

Tertiary Education Assistance Scheme (TEAS)
The Commonwealth Government provides financial assistance for full-time study. This includes courses at technician, certificate, diploma, degree and postgraduate diploma level. To be eligible, students must also meet certain requirements regarding previous study, other awards held, etc.

As from 1 January 1985 the following benefits are available subject to a means test:

**Maximum living allowance**
- for dependent students at home: $2,321 p.a.
- for dependent students away from home: $3,581 p.a.
- for independent students: $3,581 p.a.
- maximum allowance for dependent spouse: $2,220 p.a.
- allowance for dependent child: $728 p.a.

**Incentials allowance**
- Institute students: $70 p.a.
- College of TAFE students: $30 p.a.

Applications may be made after enrolment in a course. Pamphlets and application forms are available from the Student Counselling Service room 206, Business and Arts building or the Commonwealth Department of Education, 17 Yarra Street, Hawthorn 3122.

Aboriginal Grants Schemes
These schemes provide assistance to secondary and post-secondary students of Aboriginal or Torres Strait Island descent.

Details are available from the Student Counselling Service room 206, Business and Arts building or the Commonwealth Department of Education and Youth Affairs, 17 Yarra Street, Hawthorn 3122.

Postgraduate awards
The Commonwealth Department of Education provides the following awards for postgraduate study:

- TEAS (for postgraduate diploma courses. See information on TEAS in this handbook)
- Postgraduate awards at the colleges of advanced education
- Postgraduate course awards (at universities)
- Postgraduate research awards

Selection for awards is based on academic merit. Applications should be made to the Registrar of the college/university where you wish to undertake study, in September of the preceding year.

There are a number of other postgraduate awards available, both locally and overseas. Information about these may also be obtained from the Student Counselling Service.

Concession tickets
Concession tickets are available for travel to and from Swinburne on public transport.

Students who wish to purchase these tickets should go to the Student Records office to complete the necessary forms.

For other types of concession tickets, e.g. air travel, students should contact the Student Union or the Sports Association.

Scholarships and awards
The following are general awards for which Swinburne students may be eligible. For specific awards and prizes please consult individual faculty or department entries in this handbook. Details of these and other awards may be obtained from the Student Counselling Service and teaching departments.

**Dafydd Lewis Trust Scholarship**
This is available to male students who will be proceeding with degree level study in 1985; this is subject to a means test and certain conditions of eligibility. Value: $2912 to $4524 p.a. Applications close at the end of November.

**Walter Lindrum Memorial Scholarship**
This is available to a student who is qualified to enter the first year of a degree or diploma course. Value: $500 p.a. Applications close 1 November.

**Cowrie Scholarships**
These are available only to members of the Australian Armed Forces who served in a combat area during the 1939-1945 war, or to their direct descendants. There are (a) postgraduate research scholarships; value: approximately $3500 p.a. for two years, (b) tertiary scholarships; value: $250 p.a. for duration of course. Applications close in October and September respectively.

**Soldiers’ Children Education Scheme**
Benefits and allowances are available only to eligible children of deceased and incapacitated veterans. The scheme ranges from secondary to tertiary courses. Value: from $66-$119 per fortnight.

**Rotary Educational and Vocational Scholarships for Overseas Study**
These are available to outstanding graduates, undergraduates, professional journalists, teachers of the handicapped and to those seeking further experience overseas in technical, artistic or other vocations. Applications close 1 March. Value: covers travel, educational and living expenses for one academic year.

**Wainwright ANA Scholarship**
This scholarship will be awarded in 1985 after consideration of the candidates’ year’s work in the tertiary orientation year. It is tenable for the full length of any approved technical course and carries an allowance of $50 per year. Applications close in early December.
Central Technical Workshops
Manager
G. Nettleship, CEng, MI MechE, 819 8326.
The technical workshop manufactures teaching aids and prepares experimental work for staff and students (in consultation with lecturers).
Equipment available includes lathes, milling machines, sheet metal, welding facilities including aluminium and stainless steel.
The instrument workshop repairs and maintains instrumentation in the electronic, mechanical, electrical, and to a minor degree, optical fields. Some manufacturing for student projects, in consultation with lecturers, is also undertaken.

Child-care Centre
Supervisor
S. Campbell, 819 8519
A co-operative was formed in 1975 to provide child-care facilities at Swinburne for parents in need of this service.
The primary objective of the centre is to meet the needs of the children by providing a secure and happy atmosphere combined with experiences which will foster their development. The aims of the centre do not revolve around giving parents free time to pursue their own interests or serving manpower requirements but rather encouraging a beneficial contact that will produce an understanding of the needs of the individual child and their family.
The Centre's two houses can cater for up to thirty children at one time with six caring staff. The children are not separated into age groups but form one large, if rather noisy, family. Some of the time is structured, for the older children, but the rest is spent in an open-learning environment where the children engage in free-choice experiences. The children are encouraged to go at their own pace, to develop their own style, to find their own solutions and enjoy their own creativity.
The centre caters for children up to five years of age, not only from Swinburne parents, but other members of the community. A sliding scale of fees has been adopted.

Swinburne Press
Manager
D. McNaughton, 819 8123.
The publications department was established in 1952 with a staff of three and one duplicating machine. Over the years this department has developed into the Swinburne Press with a staff of 12 and a full offset printing capacity.
The Press is primarily designed to give a fast print service geared to meet requirements for the production of class notes, student material and various types of administrative stationery. The major requirement is for single colour work but in addition the Press has a limited line colour production capacity. In support of its printing element the Press operates a small bindery to collate, staple and trim publications and a typesetting service with a range of IBM Selectric Composer faces.
Swinburne Press is registered under the Business Names Act 1962 and is a recognised printing and publishing house.

Computer Centre
Manager
M. Plunkett, BSc(Adel.), MACS
Enquiries
Robyn Hodges
Senior Systems Analyst
Lourdes Brent, MSc(Melb.), AACS
Senior Programmer
R. Schorer, BSc(Hons)(Mon.)
Operations Supervisor
L. Gaylard
The Swinburne Computer Centre provides computing and data processing facilities for teaching, research and administrative applications. In 1985 three processors will be made available to handle the total workload.
All machines are located in the McPherson Engineering Building. The main computer room, H110, houses the FACOM M180 N and the IBM 4341 configurations. The FACOM M180 N, installed in 1982 is configured with 2600 mega-bytes of disc storage, one communications processor, a printer, card reader and two tape drives. Real memory of the central processor is twelve mega-bytes. The system supports an extensive terminal network with VDU’s and hard copy devices distributed through the Arts, Business, Applied Science and Engineering faculties.
Batch or interactive access to a large range of programming languages (including BASIC, FORTRAN, COBOL, RPG, LISP, APL and PASCAL) and software packages (including SPSS, SAS, IMSL, NAG, SSLII, TWODEPEP, NASTRAN, FORESIGHT, NET-CODE) is provided. Software relating to Graphics, General Ledger, Financial Modelling and Data Base is used in several courses.
The IBM 4341 is a mainframe system devoted to computer-aided drawing and manufacturing (CAD/CAM). This system, the cornerstone of a generous grant from IBM Australia, supports six high resolution graphics terminals in addition to an increasing number of colour terminals. Software includes CADAM, CATIE and COPICS.
The third machine, a PDP 11/40, is located in H207. This system has an extensive disk space and a network of some twenty-four terminals and dial-up facilities. It is primarily devoted to computer-aided instruction.
The Computer Centre is also responsible for the development, maintenance and production of a number of systems used by the non-teaching sector of the institute. The major applications are Student Records, General Ledger and the Library circulation and cataloguing systems. Basic maintenance of the Institute's terminal network is also administered by staff of the Computer Centre.
Most of a student's computing requirements can be satisfied by using a terminal connected to either the Facom, PDP or IBM systems and the different teaching departments maintain their own internal booking procedures to allow access to those terminals.
Assistance to students is provided through a duty programmer service for those problems that cannot be solved by the teaching staff. In addition, seminars are conducted specifically to ensure that teaching staff and students use the computing facilities in an efficient and co-ordinated manner. The Computer Centre produces a publication 'User News' each month throughout the academic year. Designed to assist and acquaint users in the application of Swinburne's hardware and software facilities 'User News' is commended to all students.
Students may, on application to the Centre, be allocated an account and budget for computer facility usage. The allocation controls disc space, input, output and central processor count and budget for computer facility usage. The allocation is determined according to the requirements of the student's course.

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

**Telephone:** 819 8509.

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**Education Unit**

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

**Education Officer** (educational technology)
K. Anderson, MA(Brad.), BSc(Melb.), DipEE, MIE Aust, MACE, TTTC, 8198384.

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

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**Audio-visual services**

**Head, Audio-visual services**
D. McAdam, BA, 819 8010

**General enquiries** 819 8031

Located in room BA309 of the Business and Arts Building, the audio-visual services are available for use by all full-time and part-time staff and students of both divisions.

Before planning the use of the services, students should consult with their lecturer or instructor and obtain agreement on the planned assignment and bring the signed agreement to audio-visual services.

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

Intending users of audio- and video-studio recording facilities are advised to consult with the staff of audio-visual services well in advance of the recording date.

Also available is the short-term loan of slide projectors, opaque projectors, audio- and video-tape recorders and other audio-visual equipment.

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**Information Office**

**Information Officer**
W. Leishman, 819 8460

**Schools Liaison**
R. Jamieson, 819 8388

**General enquiries** 819 8444

The Information Office directs internal and community relations activities. These duties include writing and compiling the Swinburne Newsletter, staffing the Swinburne Enquiries Office, liaising with the media, placing course advertising, disseminating course information, publicising Open Day and arranging visits to Swinburne by interested groups.

The Information Office also co-ordinates Swinburne’s schools liaison activities.

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**Compensatory and Community Access Unit**

**Co-ordinator**
Miss Jeanette Learmont, BA(Hons), MEd(Melb.), MACE

Individual assistance in English and mathematics is available to students of all courses at Swinburne. The need may arise from difficulties being experienced with the mathematics and English subjects of their courses, or alternatively, be as a result of a weakness in written expression or mathematics which is having an effect on student progress in a variety of subjects of the particular course.

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

The service is provided from the house located at 44 William Street. Understanding staff are available to help you overcome your own special study problem.

Students are strongly advised to take immediate action once they recognise that weakness in English and/or mathematics is affecting the progress in their courses.

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**Student parking**

**Enquiries**
Student Union, 819 8520

Limited car parking facilities are provided for all part-time and full-time students. No charge is made, but a 1985 car park sticker must be clearly displayed on the car. The stickers are available at the Student Union.

Evening students may not leave cars in Swinburne car parks while they attend work during the day.

Convenient parking is provided for motorcyclists and bicycles, the latter under cover.

On-campus parking areas are indicated on the map inside the front cover of this handbook. Additional parking areas which can be used are located immediately behind Hawthorn Football Ground, accessible from Linda Crescent. Only 5 minutes walk from Swinburne, that area provides ample parking.
Swinburne Applied Research and Development Division (SARDD)

Executive Officer
Vacant, 819 8001.

Swinburne was the first college of advanced education in Victoria to appoint an industrial liaison officer to establish closer working relationships with industry, enabling applied research and investigation to be carried out for a wide cross-section of industry and commerce. Industrial liaison centres operate at many tertiary colleges overseas.

SARDD covers consultation, technical information services, testing and research in addition to design and development of special projects.

SARDD is a member of ATICCA (Australian Tertiary Institutions Consulting Companies Association) and IACHEI (International Association of Consultants in Higher Education Institutions).

Swinburne Centre for Computer Aided Design and Manufacture (SCCADAM)

Manager
P. Finlayson, 819 8364

The Centre was established in 1984 to promote the use of computer-aided design and manufacturing techniques in the Australian manufacturing industry. In addition, the Centre will provide an integrated and coordinated facility enabling a high standard of teaching for both advanced education and TAFE at Swinburne.

In particular, the Centre will:
- provide short courses and seminars, at all levels, for industrial personnel; carry out research, development and demonstrations in conjunction with both software houses and industrial users;
- provide a general information and consulting service to industry;
- provide a contact point for visiting members of staff from academic institutions, industrial organisations and government authorities;
- provide access to sophisticated equipment and resources for investigating problems;
- promote the teaching of computer-aided design and manufacturing at all levels.

Swinburne Student Bookshop

Manager
R. Wilkens, 819 8225.

This bookshop has been established for the benefit of all students and staff. The aim is to maintain a high standard of service together with a low as practicable price structure on all books, stationery, calculators and other items sold.

The shop is situated in the Student Union Buildings, John Street. Entrances are from John Street and from the cafeteria quadrangle.

The bookshop provides cheaper books and articles for student use. Miss Lucy Drake’s well-known cookery book is also obtainable.

Student activities

Student Union — Membership and its Aims

The Student Union is an incorporated association under the Victorian Government’s Association Incorporation Act 1981. Under this Act the Student Union is a legal entity whose membership consists of persons who enrol or re-enrol for courses of study offered by Swinburne in a particular year. The purposes for which the Union is established are:

1. To advance the social, educational and general welfare of the student body of Swinburne and to provide services for the student body.

2. To represent and safeguard the students in matters affecting their interests and privileges and to afford a recognised means of communication between the students and the authorities of Swinburne Ltd and other educational bodies.

3. To promote encourage and co-ordinate the activities of student committees and societies.

4. To promote and foster a corporate spirit amongst the student body.

5. To strive for wider recognition and greater appreciation of the standard of all academic awards of Swinburne Ltd.

The executive of the Union consists of: President, Vice-President, Finance Director, Education Director, Media Director and Activities Director. The role of the Executive is to control and manage the business and affairs of the Union. The meeting of the Executive occurs at least once a month from February to November and is open to all members.

The affairs of the Union fall principally into the following areas:

- Education and Welfare,
- Social Activities,
- Media.

These areas are governed by Management Committees, whose responsibility is to develop and implement the policies of the Union in the areas of their activity. The Management Committee consists of: the relevant executive member as chairperson, two to three members from the Union Executive, two to four persons elected from the student body. The Executive shall convene a general meeting to receive and consider the statement submitted by the Union.

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

All student members are eligible to stand and vote in elections and all have the same rights in respect to the Union and thus are entitled to use the services provided by it.
Clubs and societies
Many clubs and societies are in operation providing a wide range of activities for students. Clubs active in 1984 included:

- Telegraphics — Film and Television and Graphics Arts Society
- Japanese Association of Students
- Greek Club
- Fijian Society
- Cinema Association
- Organisation of Laboratory Technician Students (S.O.L.T.S.)
- Jewish Students Society
- Mechanical Engineering Students Society
- Photographic Society
- Environmental Health Society
- Association of Civil Engineering Students
- Biophysics Society
- Malaysian Students Association (M.S.A)
- Overseas Students Association of Swinburne (OSAS)
- Christian Fellowship
- Liberal Club
- Italian Club
- Australian Labor Party Club (ALP)
- Swinburne’s Tertiary Orientation Program Students (S.T.O.P.S.)
- Swinburne League of Business Students (SLOBSS)
- Swinburne Theatrical Group

Any group of students may establish a club or society to further their group’s aims and may apply for affiliation with and financial support from the union.

Personal accident insurance scheme
All students enrolled in both Swinburne Institute and Swinburne College of TAFE who have paid their union fees are automatically covered by insurance.

This insurance scheme covers all accidents, 24 hours a day, worldwide. For further details, please contact the Student Union office.

Orientation
Orientation is held in the first week when classes begin. All students will find it helpful to enter into the activities associated with orientation as it will familiarise them with the various aspects of Swinburne 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 radio co-ordinator at 3SW in the Union Building. 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.

Ethel Swinburne Centre
This is a sound and video lounge which provides video movies and music listening areas. The closed circuit radio 3SW is run by students from this area and also has a sound recording studio.

In the Music Lounge ID cards may be exchanged for headphones to listen to any radio station (including 3SW) or taped music of your choice.

The Video Pit shows three (3) videos a day, each for a week’s duration. The Pit runs from 11 a.m. daily.

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

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

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

Club printing
Clubs and Societies can have their publicity materials printed free at the Media office. Other publicity materials can be produced at minimal cost.

Union shop
The union shop provides a range of articles at cut prices including cigarettes, confectionery, hot and cold drinks, hot take-away food, sandwiches, cakes, cassettes, AM/FM Car Radio Cassette Players, and film processing at discount.

Contact/Activities Centre
This centre is housed in the building on the corner of John Street and Burwood Road. The office is open between 9.30am and 6.00pm. It has an information bank (i.e. course handbooks, time-tables, career guides, and so forth), a games loan service, photocopier, resource books (i.e Choice, Chain Reaction, etc.) and the officer in charge makes appointments for you to see the Legal Adviser. Activities are organised on campus by the Student Union and various clubs and societies to make your stay at Swinburne more enjoyable. These range from bands, barbecues, balls, workshops, cinema, theatre, comedy acts and discos.

The Contact Centre has club rooms and meeting rooms for clubs to hold meetings. There is a lounge which is particularly geared for mature-age and part-time students, although other students have complete access to this room. The lounge is open from 9.00 a.m. to 10.00 p.m. and has daily and weekly newspapers and magazines.

Equipment loan service
The Contact Centre operates as the distribution point for equipment for gardening, automotive repairs, carpentry, camping, leisure activity, and education. Students and staff are entitled to hire the equipment at a small charge. Call in at Contact or the Union Office for details.

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

Legal Adviser
The Student Union provides a free legal service for full- and part-time students. Every week the solicitor is available for your legal queries. Appointments must be made at the Contact/Activities Office.
**Education Research Officer**

The role of the Education Research Officers is to act as advocate for students in areas of dispute. These areas are dealing with problems between students and lecturers/tutors in a confidential manner; advising and assisting students in appeals concerning assessment, course content and course workload; to assist students through the use of course evaluation surveys, and to do educational research for the Union.

The Student Union provides two Education Research Officers, one located at the Union Office to meet the needs of Institute students, and another in SCT Resource and Drop-in Centre for TAFE students.

**Union Office**

This is situated on the fourth level of the Ethel Swinburne Centre. Students use it as a drop-in and discussion centre. Various services are provided at the general office including car parking permits, insurance claims, advice and information. The Student Union diaries, date planners, stickers and badges are available along with the Union windcheaters. There is a meeting room and a games room located next to the Union office. Students may borrow board games to play in the games area. On the third level of the Ethel Centre a lay-back lounge and meeting room.

Come to the Union office if you need any information. If we cannot help you we can at least point you in the right direction.

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**Sports Association**

**Executive Officer**

I. Chesterman, BCom(Melb.), 819 8018

At Swinburne there is a very active Sports Association which promotes and encourages a wide variety of sporting and recreational activities. The Association is run by students and has over twenty affiliated clubs. The Association's office is housed in the Sports Centre which has four squash courts, a very well-equipped weight-training gymnasium and table tennis/recreation room. The aim of the Association is to promote greater awareness of the benefits of physical fitness and involve student and staff in a variety of recreational and sporting activities. A diverse program is available including Recreational Sports such as SCUBA diving, sailboarding, waterskiing, and snowskiiing and traditional sports of football, soccer, netball and basketball etc. A fitness appraisal scheme was introduced in 1984 along with a full-time Physical Recreation Officer to advise all members of the association.

The Association competes in an intercollegiate competition between other Victorian colleges and on a national level it is affiliated with the Australian Colleges of Advanced Education Sports Association, which conducts interstate sporting carnivals. The sports involved in these competitions are athletics, badminton, basketball, football, hockey, netball, soccer, squash, swimming, table-tennis, tennis and volleyball.

In addition to the above sports, there are several other clubs which arrange activities, trips and competitions.

These include the following:

- **Aerobics**
  Classes daily for both men and women at lunchtimes and in the evenings.

- **Car**
  Regular car rallies, motorkhanas, hill-climbs, sprints, films and social evenings.

- **Field and Game**
  Club rifles, shotguns, and reloading equipment available. Regular skeet/trap shoots and hunting trips are held.

- **Gymnasium**
  Well-equipped weight-training gymnasium catering for both men and women; regular instruction available.

- **Martial Arts**
  Both Tae Kwon Do and Tang Soo Do classes are conducted on campus.

- **Motorcycle**
  Regular club rides, competitions, plus use of club room and tools.

- **Sailboarding**
  Sailboarding offers classes, trips and hiring of boards for participants at all levels of this exciting sport.

- **SCUBA diving**
  Classes for beginners and regular dives. The club has its own inflatable dinghy with an outboard. Equipment available for hire.
Snow skiing
Midweek and weekend trips to Hotham, Buller and Falls Creek during the midyear break. Weekend trips during second semester. Ski hire arranged by the club.

Surfing
Regular trips both local and interstate, equipment available.

Water skiing
Offers instruction to beginners as well as experienced skiers. All equipment provided, including boat. Numerous trips during holidays and weekends.

Additional facilities
In addition to the above, the Sports Association operates a sports store which sells a complete range of sporting goods at discount prices and a travel department which handles both domestic and international travel.

The Sports Association Office and sports store are located in the Sports Centre off John Street, north of the railway line.
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general information

swinburne institute of technology

applied science

art

arts

business

engineering

swinburne college of TAFE

building division

business division

engineering division

general studies division

The section indicator denotes the general position in the book of each section.
Swinburne Institute of Technology

Director
R.S. Davie, BE(Adel.), CEng, FIProdE, FIEng Aust, MACE

Dean, Faculty of Applied Science
A.P. Gardner, MSc(Mon.), DipEdSt.And., MRSC, ARACl

Dean, Faculty of Arts
I. McNeileigh, DipArt(CIT), TTTC(Haw.)

Dean, Faculty of Business
M.H. Hunter, BComm(Melb.), MAdmin(Mon.), DipEd(Melb.), FASA

Director, Swinburne Institute of Technology

AS at 30 June 1984

Chairman
Dr W.R. Longworth (Principal Director)

Director, Swinburne Institute of Technology
Mr R.S. Davie

Director, Educational Services
Mr L.M. Jenkins

Deans
Mr A.P. Gardner
Dr L.M. Gillin
Mr M.H. Hunter
Dr L.A. Kilmartin
Mr I. McNeileigh

Heads of teaching departments
Mr N.J. Allport — Accounting
Mr M. Harney — Liberal Studies
Mr R.A. Francis — Graphic Design
Dr J.H. Perry — Mechanical Engineering
Mr G.A.K. Hunt — Computer Studies
Dr I.K. Jones — Applied Chemistry
Mr R.P. Kavanagh — Mathematics
Dr P.L. Love — Humanities
Mr B.G. Robinson — Film and Television
Mr C.D. Robinson — Psychology
Mr J.K. Russell — Manufacturing Engineering
Mr R.B. Sandle — Civil Engineering
Dr R.B. Silberstein — Physics
Dr T. Castleman — Social and Political Studies
Dr D.J. Thomas — Economics
Mr R.W. Treloar — Data Processing and Quantitative Methods
Mr B. Warren — Languages
Mr L.A.J. Zimmerman — Administration and Law
Mr N. Zorbas — Electrical and Electronic Engineering

Director, Administration
Mr F.G. Bannon

Registrar
Mr G.L. Williamson (Secretary)

Swinburne Librarian
Mr W. Linklater

Co-ordinator, Student Health and Welfare
Miss M. Algar

Head, Education Unit
Mr B. Hawkins

Representative, Swinburne College of TAFE
Mr B.C. Macdonald

Representatives, Board of Studies TAFE (2)
Mr R.W. Conn
Mr R.M. Carmichael

Representatives, Swinburne Council
Dr R.V. Gilbert
Miss D.M. Reilly

President, Student Union
Mr S. Woodden

Elected members

Faculty of Applied Science (6)
Dr A.K. Easton
Mr R.A. Evans
Mr J. Fekondo
Vacant (3)

Faculty of Art (2)
Mr W. Thomas
Vacant (1)

Faculty of Arts (4)
Mr C.I. Cook
Mr G.H. Gotts
Mr J. O’Hara
Mr R.H. Smith

Faculty of Business (5)
Mr I.A. McCormick
Mr B. Clarke
Mr G. Leonard
Mr R.P. Crane
Mr R.M. Brown

Faculty of Engineering (8)
Mr F.H. Allen
Mr V. Bulach
Mr J.B. Chapman
Mr P. Higgins
Mr W.J. Lavery
Mr K.J. McMathus
Mr K.A. May
Mr G.L. Price

General representatives
Mr N.R. Garnham
Dr J.S. Humphreys
Miss S. Kelly
Mr H. Zimmerman

Members in a personal capacity
Mr P.D. Stewart
Mr R.S. Walker

Student members
Mr B.A. Edwards
Mr W. Lee
Mr D.C. Holmes
Mr D.L. Jones
Mr R.E.C. Menzies
Mr V.J. Penna
Courses offered

Undergraduate Degrees

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

Bachelor of Applied Science (BAppSc)
Applied Chemistry
Biochemistry
Biophysics
Computer Science
Instrumental Science
Mathematics
Bachelor of Arts (BA)
Economics
Graphic Design
Historical and Philosophical Studies
Italian
Japanese
Literature
Media Studies
Political Studies
Psychology
Sociology

The course in graphic design is offered by the Faculty of Art; the remainder by the Faculty of Arts.

Bachelor of Business (BBus)
Accounting
Applied Economics
Data Processing
Bachelor of Engineering (BEng)
Civil Engineering
Electrical Engineering
Manufacturing Engineering
Mechanical Engineering

Diplomas

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

Diploma of Applied Science (DipAppSc)
Environmental Health
Diploma of Art (DipArt)
Film and Television
Graphic Design
Diploma of Building Surveying

Associate diploma

Associate Diploma in Private Secretarial Practice (AssocDiplPSP)
Entrance requirements and application procedure

Undergraduate

Entrance requirements: SIT undergraduate courses

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

1. To satisfy the general entrance requirements and to be considered for admission to the first year of a degree or diploma course a student must have satisfied one of the following:

1.1 Completed successfully a Year 12 course of study accredited by the Victorian Institute of Secondary Education (VISE), or completed a course deemed equivalent by VISE;

1.2 Satisfied the requirements of an approved Tertiary Orientation Program at a Victorian technical school or TAFE college;

1.3 Obtained, prior to 1979, grades of D or higher in at least four subjects at the Victorian Higher School Certificate examination or satisfied the requirements of Victorian adult matriculation;

1.4 Gained a qualification deemed by the Institute to be the equivalent of any of the above.

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

3. Each faculty may specify criteria for special entry schemes, covering applicants who may not hold the necessary formal entry qualifications but who in the course selection officer's view have the motivation and potential to successfully complete, the course concerned.

Application procedure

Full-time

First year

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

Applications must be made on the appropriate VUAC form:

Form N

For students studying at HSC or TOP level at present, copies of the form are made available through the schools and colleges concerned. Students should consult the VUAC publication, Guide for Prospective 1985 Students.

Form E

For all other applicants, copies of the form, and the Guide for Prospective 1985 Students in which it is enclosed, are obtainable from VUAC.

Special provisions

Swinburne College of TAFE students

Tertiary Orientation Program

Students who undertook the Tertiary Orientation Program at Swinburne College of TAFE in 1984; who completed their Year 11 studies at a technical school in the Eastern or Maroondah region in 1983 and who intend to apply only for a course of study at Swinburne, should apply directly to the faculty concerned. Students in this category who intend to apply for courses other than or in addition to those offered at Swinburne Institute of Technology, must apply through VUAC.

Tertiary Orientation Program students other than those in the category mentioned above should consult the Head of the Division of General Studies, Swinburne College of TAFE, with regard to application procedure.

Special entry

Applications for all courses must be made to the Registrar on a Swinburne application form.

Second year and higher

Applications should be made directly to Swinburne and not through VUAC. Forms can be obtained from the Admissions Officer, 819 8386.

Closing dates for full-time places in second and higher years are:

- Applied Science: 11 January 1985
- Art – Film and Television: 26 October 1984
- Graphic Design: 16 November 1984
- Arts: 11 January 1985
- Business: 18 January 1985
- Engineering: 11 January 1985

Part-time

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

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

Closing dates for part-time places are:

- Applied Science: 11 January 1985
- Arts: 11 January 1985
- Business: 18 January 1985
- Engineering: 11 January 1985

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

Deferred entry

Students who are offered a place in first year for 1985 may apply for a deferment until 1986. Applications must be addressed to the Registrar, and must be made at the time an offer is received.

Deferment of up to one year will be virtually automatic for those students who apply as soon as they receive an offer. Students who have been granted deferment will be informed in writing by the faculty concerned.

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

If a student who has been granted a deferment applies to another faculty or to another college or university, the offer of a reserved place will lapse.
Overseas students

Approval to study in Australia must first be granted by the Australian government. Prospective students must, in the first instance, contact the Australian High Commission or the Embassy nearest their home in April or June of the year before they wish to commence their studies.

Applications to enter first year at Swinburne Institute of Technology (or any other college of advanced education, institute or university in Victoria) should be made before the end of October, to the Victorian Universities Admissions Committee (VUAC).

Applications to enter later years of tertiary courses should be made direct to the Registrar.

Governments of some countries have special requirements for their nationals who wish to study in Australia; information should be obtained from the Australian High Commission or the public service in that country.

Private overseas students have to pay a charge ranging between $2500 and $1850. This charge will be levied by the Commonwealth Department of Immigration and Ethnic Affairs and not by Swinburne.

Postgraduate

Entrance requirements

Applicants for admission to postgraduate courses normally are expected to have completed a degree or diploma.

The specific requirements vary from course to course: some are open to those with any tertiary qualifications, others may require a qualification in a specific discipline or range of disciplines.

Provision is made for admission of applicants who have qualifications other than or less than the normal requirements outlined above but whose employment position or experience indicates an ability to benefit from the course.

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

The statute for the degree of Master is set out below.

Application procedure

All applications for enrolment in postgraduate courses must be made directly to the Registrar. Application forms are obtainable from the Admissions Officer, 819 8386.

Applications for admission to postgraduate courses should be received by:

- Applied Science: 11 January 1985
- Art: 9 October 1984
- Applied Social Psychology: 26 October 1984
- Japanese: 23 November 1984
- Urban Sociology: 23 November 1984
- Business: 18 January 1985
- Engineering: 11 January 1985

*Late applications will be considered if places are available.

All applications for enrolments in a course leading to the degree of Master should be addressed to the Registrar. Application forms are available at the Registrar's office.

A copy of the statute for the degree of Master (by research) is below.

Statute for the Degree of Master (by research)

1. Definitions

In this statute:

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

2. Title of degree

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

- Master of Applied Sciences MAppSc
- Master of Arts MA
- Master of Business MBA
- Master of Engineering MEng

3. Grading of degree

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

4. Admission to candidature

4.1 Entry requirements

A person wishing to be admitted to candidature shall have:

4.1.1 qualified, at a sufficiently meritorious standard, for a degree of the Institute (in a field relevant to the work proposed) or such other degree as the Committee may deem equivalent for this purpose; or

4.1.2 qualified for an award judged by the Committee to be of relevant character and appropriate standard; and have experience which the Committee deems to be a suitable preparation for the applicant's proposed field of study.

4.2 Application

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

4.3 Supervision and facilities

An applicant shall be admitted to candidature only if the Committee is satisfied, on advice supplied by the faculty board, that the proposed program is a suitable study in the discipline or area concerned and that adequate facilities and supervision are available.
5. Program
The candidate shall carry out a program of research, investigation or development involving the submission of a major thesis embodying the results of that program carried out during the period of candidature by the candidate, in:

5.1 a department of the Institute, or
5.2 industrial, commercial, government, educational or research organisation; approved by the Committee, or
5.3 a combination of 5.1 and 5.2

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

6. Duration
The candidate may undertake the program on a full-time or part-time basis. Excluding any periods of intermission as set out below, the duration of candidature shall be:

6.1 for a candidate whose degree under 4.1.1 or whose award under 4.1.2 involved not more than three years full-time study (or its part-time equivalent): not less than 21 months, and not, under normal circumstances, more than 36 months of full-times study.
6.2 for a candidate whose degree under 4.1.1 or whose award under 4.1.2 involved not less than four years full-time study (or its part-time equivalent): not less than 15 months and not, under normal circumstances, more than 36 months of full-time study.

6.3 where a student undertakes the Master's degree program (or any portion thereof), by part-time study, the maximum time shall normally be not more than 72 months.

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

7. Supervision
For each candidate the Committee shall appoint, on the recommendation of the faculty board, and on such terms and conditions as the Committee determines, one or two supervisors, one of whom shall be a member of the academic staff of the Institute.

If the program is carried out within the Institute, at least one supervisor shall be a member of the academic staff of the department in which the program is conducted.

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

8. Progress
Each supervisor shall provide to the Committee a progress report on the candidate's work at the expiry of twelve months from the date of admission to candidature and at such other times as the Committee may decide. At the time of submission of the thesis each supervisor shall provide the Committee with a written statement indicating whether the thesis is ready for examination.

Where the Committee is of opinion that a candidate's progress is not, prima facie, of a satisfactory level, a candidate may be required to show cause why the candidature should not be terminated.

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

9. Thesis

9.1 Three copies of the thesis shall be submitted to the Committee.

9.2 The thesis must be typed 1½ spaced, in English, on A4 size paper, be bound and conform to any other specifications prescribed by the Committee.

9.3 The bound copies of the thesis shall include:
   (a) a summary of approximately 200 words, and
   (b) a certificate signed by the candidate to the effect that the work has not previously been submitted in whole or in part in respect of any other academic award, and
   (c) a list of publications (if any) produced by the candidate as a result of the project.

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

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

10. Examination
The Committee shall appoint on the recommendation of the faculty board, on such terms and conditions as the Committee determines, at least two examiners in respect of each candidate's thesis. The candidate's supervisor shall not normally be appointed as an examiner. At least one examiner shall be external to the Institute.

The name of the examiners shall not, without the approval of the Committee, be disclosed to the candidate.

Each examiner shall provide a report to the Committee on the standard of the candidate's thesis and recommend one of the following courses of action:

   (a) that the thesis be passed;
   (b) that the thesis be failed.

Each examiner should indicate whether the report is to be made available to the candidate in whole or in part.
11. Patents and registered designs
The patent rights or right to register a design for any device, process, chemical or the like which has been invented or developed by a candidate for the degree of Master in the course of the program being undertaken for the degree shall, unless otherwise determined by Council on the advice of the Committee, be the property of Swinburne Limited.

12. Confidentiality
On receipt of a request in writing from the candidate and supported by a statement in writing from the Head of Department, the Committee may order that, for a period of up to three years from the date of that order, the copies of the thesis forwarded to the Swinburne Library and to the department shall be made available only to researchers or readers specifically authorised in writing by the Committee.

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

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

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

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

2. Other statements are available, on request, at the fees shown:
   (a) List of all results and all passes  $5.00*
      *(2 documents)
   (b) A list of subjects completed and a statement indicating completion of course $10.00
   (c) A list of subjects passed plus a list of those remaining to be passed for the completion of the course. $10.00
   (d) A special letter indicating some matter requested by the student. $5.00
   (e) A statement certifying enrolment at Swinburne at date of certificate No charge

Reports
   (a) A breakdown of marks $10.00
   (b) A detailed report of (final) examination $30.00

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

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

Awards
Applications for degree and diploma
Students eligible to be admitted to a degree or to be awarded a diploma, graduate diploma or certificate are required to apply for the award on the form prescribed. Forms are available from and must be lodged at, the Student Records office, administration building.

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

Definitions

In this section:

Enrolment includes ‘re-enrolment’.

Enrolment form includes ‘re-enrolment form’

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

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

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

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

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

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

Conditions of enrolment

Enrolment at Swinburne Institute of Technology is conditional upon:

the information which is supplied by the applicant to the institute upon which an offer of a place is based being accurate;

the approval of the head of the awarding department (or his nominee) of the subjects concerned;

the completion of the requisite enrolment and statistical information forms required by the institute;

the undertaking of the student to abide by the regulations procedures and standards of conduct of Swinburne Institute of Technology and to grant to the Registrar the authority to provide appropriate authorities who have permitted a particular student to enrol at the institute, details of that person’s academic progress as may be required as a condition of approval by that department or authority;

the payment of the prescribed general service fee;

the lodging of all documents required by the Registrar at the Cashier’s Office or the Student Records Office as appropriate to the procedure being followed.

General Service Fee

All enrolling students are required to pay a general service fee. At the time of printing, fees for 1985 had not been determined. As a guide those for 1984 were:

<table>
<thead>
<tr>
<th>Type of Student</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>more than one semester academic $75.00</td>
</tr>
<tr>
<td></td>
<td>at least one semester work experience $46.00</td>
</tr>
<tr>
<td>Part-time</td>
<td>$28.00</td>
</tr>
</tbody>
</table>

For all institutes purposes a part-time student is one enrolled for subjects which require a total class, tutorial and/or laboratory contact time of less than 75% of the full-time course load.

Students studying under the cooperative format are considered to be full-time students. They qualify for the special rate only in those years which include work experience. These are:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Science degree</td>
<td>2nd and 3rd years</td>
</tr>
<tr>
<td>Applied Science diploma</td>
<td>2nd and 3rd years</td>
</tr>
<tr>
<td>(Environmental Health)</td>
<td>3rd year</td>
</tr>
<tr>
<td>Art (Graphic Design) degree</td>
<td>3rd year</td>
</tr>
<tr>
<td>Civil, Electrical and Electronic</td>
<td>3rd and 4th years</td>
</tr>
<tr>
<td>Manufacturing Engineering degrees</td>
<td></td>
</tr>
</tbody>
</table>

Late enrolment fees

Students who do not attend for enrolment (including any required review of second semester subjects) on the date and at the time specified by their faculty or awarding department, will be required to pay a late fee of $10.00 (where re-enrolment is completed before the commencement of the following semester’s teaching); of $20.00 (where re-enrolment is completed after the commencement of teaching for the semester).

Additional fees

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

Refund of fees

Later VUAC offer

A student who has enrolled as a result of an offer made through the Victorian Universities Admissions Committee (VUAC) and who receives a later offer from VUAC for a higher course preference, may receive a refund of all fees paid if notice of the withdrawal and application for the refund is lodged at the Student Records Office, administration building, prior to 30 March 1985.

No later VUAC offer

A student who withdraws and does not receive a higher preference offer from VUAC may receive a refund of fees, less a $5.00 service charge, if notice of the withdrawal is lodged at the Student Records Office, administration building, prior to 30 March 1985.

No refunds of fees will be made where a student withdraws after 30 March 1985.

No refunds of fees will be made under any of the provisions set out above unless the student returns to the Swinburne Library with the notice of withdrawal, his or her 1985 student identity card.

Confirmation of Institute records

The Institute recognises that errors can be made in the transcription of enrolment details from original copies of enrolment forms to the computer-kept files. It is also realised that such errors can cause a great deal of inconvenience to students (and staff) if not detected.

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

To assist in the checking process, a computer-printed statement of enrolment will be posted to each student approximately four weeks after the commencement of each semester.

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

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

- for subjects concluding at the end of the first semester, Friday 12 April 1985
- for subjects concluding at the end of the second semester: Friday 6 September 1985

Result of fail

After that date any withdrawal will result in a fail being recorded except with the prior approval of the Dean.

Permission to withdraw required

Any withdrawal after the dates set out above will be made only where special circumstances exist and the amendment is approved by the Dean of the faculty concerned, and the Registrar, and an amendment fee of $5.00 per subject has been paid.

After 17 May 1985 (for semester 1) and 11 October 1985 (for semester 2) an additional processing fee of $20.00 shall also be paid.

Addition of subjects

No subject may be added to a student’s record without the approval of the awarding and the teaching departments.

After 12 April 1985 (for subjects concluding at the end of the first semester) or 6 September 1985 (for subjects concluding at the end of the second semester) the amendment will be permitted only where special circumstances exist and the amendment is approved by the Dean of the awarding faculty and the Registrar and an amendment fee of $5.00 per subject has been paid.

After 12 May 1985 (for semester 1) and 11 October 1985 (for semester 2) an additional processing fee of $20.00 shall also be paid.

Leave of absence

Students who have enrolled in a course and who wish to take leave of absence should apply on an Amendment to enrolment form.

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

The rule set out in the clause relating to ‘Procedure’ under ‘Amendments to enrolments’, applies to leave of absence sought after the dates specified in that clause.

Withdrawal from all study

A student who intends to withdraw from all study must lodge an Amendment to enrolment form to indicate this intention and return his or her identity card.

The rule set out in the clause relating to ‘Procedure’ under the ‘Amendments to enrolments’, applies to withdrawal from all study after the dates specified in that clause.

A student who abandons all study will be recorded as having failed all subjects and units for which he or she was enrolled.

Amendments to personal details

A student who changes his or her name, address or place of employment should complete an Amendment to personal details form which is available from the Student Records Office.

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

Identity cards

All students enrolling or re-enrolling at the institute will be issued with a 1985 identity card.

Initial issue will be from the Library enquiries counter. These are not transferable and are valid only when signed. A current card must be produced when borrowing or photocopying, otherwise service may be refused.

A student who loses the card should:

a) notify the Reader Services Librarian as soon as possible after discovery of the loss as the card holder may be held responsible, under library rules, for any transaction on his or her card up to the time of notification of the loss.

b) apply to the Reader Services Librarian for the issue of a replacement card (cost $1.00).

A student who wishes to withdraw from, or take leave of absence from, his or her course must return the card to the Swinburne Library.

A student who abandons all study will be recorded as having failed all subjects and units for which he or she was enrolled.
Assessment regulations

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

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

1. Definitions and interpretation

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

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

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

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

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

Chief Examiner
The Chief Examiner is the Principal Director of Swinburne. Responsibilities of Chief Examiner are, for the time being, delegated to the Director, Swinburne Institute of Technology.

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

Convener
The person designated to convene meetings of the particular subject panel established under section 4 of these regulations.

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

Examination Notice Board
A public notice board on the Swinburne campus designated by the Registrar for the purpose.

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

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

Head of Teaching Department
The person who holds the position of head or chairman of the department at Swinburne Institute of Technology which is responsible for the teaching of a particular subject.

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

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

Subject Panel
A panel of members of the academic staff of Swinburne Institute of Technology established under section 4 of these regulations.

Student Records Office
Room AD109 in the Administration Building.

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

2. The objectives of assessment

These regulations shall, in any question of interpretation, be read subject to the following objectives:

2.1
For the purpose of these regulations the main functions of assessment are:

2.1.1
The facilitation of learning which includes such matters as:
(a) helping to establish learning situations appropriate to the needs, abilities and potentialities of the individual student;
(b) enabling the diagnosis and alleviation of specific learning difficulties;
(c) motivating and directing learning experiences;
(d) developing and maintaining skills and abilities.

One of the most effective ways of facilitating learning is to provide the student with ‘feedback’, that is, to let the student know, as soon as possible after they are discerned, any specific errors, misunderstandings and shortcomings, and then to assist in overcoming them.

2.1.2
The certification of the level of achievement which students have reached in subjects and/or courses at Swinburne Institute of Technology.

2.1.3
Assistance with the evaluation and review of course content and objectives;
2.1.4 Assistance with the evaluation and review of methods of instruction.

2.2 Although these regulations concentrate chiefly on the certification aspect of assessment, the Academic Board considers that the other functions of assessment stated in 2.1 above are of even greater importance in the educative process.

3. Forms of assessment

3.1 Without limiting the generality hereof, assessment of students enrolled in a subject may be undertaken in any of the following, or any combination of the following:

3.1.1 examination at the conclusion of the duration of the subject;
3.1.2 formal or informal tests conducted at any time from the commencement of the subject to the end of the examination period designated under these regulations;
3.1.3 assignment, project work, field work, essay, report or such other activities as the subject panel shall see fit.

4. Subject panels

4.1 For each subject for which a result is required there shall be a subject panel (hereafter called the panel) comprising at least two members of the academic staff of Swinburne Institute of Technology.

4.2 The panel shall be appointed by the head of the teaching department not later than the end of the second week of the semester in which teaching of the subject commences for that particular year.

4.3 The panel shall be reported to the teaching and awarding faculty boards for noting, in the case of subjects commencing in the first semester, no later than the April meeting of the Faculty Boards and, in the case of subjects commencing in the second semester, no later than the August meeting of the Faculty Boards.

4.4 The dean of the awarding faculty or head of the awarding department, where such faculty or department is not also the teaching faculty or department may nominate one person to be a member of a panel for courses for which he or she is responsible.

4.5 The panel shall, subject to these regulations:

4.5.1 After consultation with the head of the teaching department—

4.5.1.1 determine, prior to the issue of the first test or assignment or test for the subject of the year, the form or forms of assessment to be used.
4.5.1.2 determine the assessment categories to be used for the particular year.

4.5.2 Ensure that each panel member and each person teaching the subject is familiar with the content and objectives of the subject.

4.5.3 Ensure that all students enrolled in the subject are informed of the procedures for assessment and allocation of marks for the subject prior to the issue of the first assignment or test for the subject for the year.

4.5.4 Be satisfied as to assessment solutions or statements prepared by or for the convener under regulation 4.6.6 prior to the issue of the particular assignment or test.

4.5.5 Determine whether electronic calculators may be used in an examination or test and, if so, the level of sophistication of the calculators which may be used and whether or not the room supervisors shall indicate on a candidate’s examination script that a calculator has been used.

4.6 The convener of the subject panel shall, subject to these regulations:

4.6.1 Ensure that the Registrar is notified, in writing, of the form of assessment to be used for the subject and semester.

4.6.2 Ensure that the Registrar is notified, at least one week prior to the commencement of the examination period for the semester, of any subject for which pass/not pass results only are required.

4.6.3 Ensure that assessment for the subject is conducted.

4.6.4 Allocate and supervise the drafting of examination papers and assignments as required by the subject panel.

4.6.5 Ensure that all examination and test papers for the subject are error-free prior to their issue to candidates.

4.6.6 Be empowered to require written solutions to assessable materials, or a statement of minimum qualities acceptable for assessment purposes from the teaching staff responsible for writing or otherwise determining a part of the assessment.

4.6.7 Be present, or his nominee shall be present, in each examination room at the beginning of each examination in the subject to:

4.6.7.1 answer any questions which may arise regarding the subject matter of the examination;
4.6.7.2 check each electronic calculator in the possession of a candidate to ensure that such instrument does not exceed the level of sophistication approved by the subject panel.

4.6.8 Ensure that examination scripts and assignments are promptly marked and the results are accurately recorded.
4.6.9 Ensure that a review of the examination script is conducted for any candidate for whom an application for special consideration has been lodged.

4.6.10 Ensure that a review of the examination script is conducted for any candidate whose initial result is a fail or on the borderline between assessment categories.

4.6.11 In the event of the subject panel being unable to reach agreement in respect of any of the matters listed under section 4.5, in consultation with the head of department, resolve the issue in question.

5. Candidature

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

5.2 A student who withdraws from a subject later than nine weeks prior to the commencement of the examination period of the semester in which the final assessment takes place, shall be deemed to have failed that subject, unless special permission has been given by the dean of the awarding faculty.

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

5.4 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 a prerequisite to that student obtaining a passing grade in that subject.

It is within the power and responsibility of a subject panel to set minimum standards of work which a student must reach or specific requirements which a student must complete in order to be notified to a faculty board as a pass in the subject.

6. Examination

6.1 Examination period

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

6.2 Time-tables

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

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

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

6.3 Conduct of examinations

Unless otherwise stated on the time-table, morning examinations will commence at 9.05 a.m. and afternoon examinations at 1.35 p.m.

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

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

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

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

6.4 Examination discipline

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

At the conclusion of the examination the Chief Examiner will decide whether or not there has been an irregularity.

If he decides that there has been an irregularity, he shall convene a meeting of the following persons:

(a) the student concerned;

(b) the subject convener; and

(c) the heads of the awarding and teaching departments to decide whether any penalty shall be imposed upon the student.

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

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

The appeals committee shall consist of five persons, of whom:

(a) one shall be the nominee of the Chief Examiner;

(b) one shall be a student of the Institute nominated by the President of the Student Union;

(c) one shall be the convener of the subject or his nominee;

(d) two shall be nominated from the academic staff of the Institute;

provided that no member of the appeals committee shall have been a party to the original investigation.
7. Results

7.1 Result categories

7.1.1 The following assessment categories only may be used to record a student’s performance in a subject:
- High distinction (HD)
- Distinction (D)
- Credit (C)
- Pass (P)
- Not pass (N)

7.1.2 Where it is not appropriate for results in a subject to be issued through the full range of categories authorized by these regulations, two categories only shall be used:
- Pass (P)
- Not pass (N)

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

7.1.3 The following notations are applicable in special circumstances:
- Special exam (SPX)
- Deferred (DEF)
- Continuing (CON)
- Exempt (EXM)

7.1.4 In courses in engineering and applied science for which block passing schemes have been approved by the Academic Board the following results only may be used for ‘Faculty Result’ subjects:
- Pass (P) where all individual subjects have been passed;
- Faculty pass (FP) where one or more subjects have been failed but the student is permitted to proceed to the next stage without being required to repeat the subject or subjects failed;
- Not pass (N) where one or more subjects have been failed and the student is required to repeat all or some of the subjects undertaken in the stage for which the faculty result of ‘Not pass’ was obtained.

7.2 Processing results

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

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

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

7.2.1.3 A signed subject report in a form approved by the awarding faculty board, including:
(a) certification that these regulations have been carried out;
(b) a statement of the assessment procedure followed;
(c) copies of all examinations, tests and assignments;
(d) where appropriate, copies of solutions or statements of minimum qualities; and
(e) an appraisal of the subject as a whole.

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

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

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

7.3 Deferred results

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

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

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

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

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

7.4 Continuing notation

The notation ‘continuing’ may be used:
(a) in those subjects in which enrolment will normally extend for more than one year;
(b) in cases where a result is determined on submission of a report or thesis, and
(c) in cases where a student may be required to extend his or her enrolment in a subject for longer than the normal duration of the subject without a failing result being recorded for the earlier period of enrolment.

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

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

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

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

7.5.4 No results will be given over the telephone.

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

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

7.6 Reports

Any student may, on application to the Student Records Office within 30 days of the publication of the result of assessment for a subject, and after payment of the fee prescribed, obtain a report on any material formally assessed as follows:

(a) a statement showing marks gained for each question or part of question;
(b) a detailed report by the examiner.

Fees for such reports shall be determined from time to time by the Director.

7.7 Alteration to results

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

Where an alteration to examination result, other than finalising a result for which an extension of time to complete has been granted under section 7.3.3 or 8.4, is submitted more than two months after publication of the original results, the alteration must be approved by the awarding faculty board before the Alteration to Result form is forwarded to the Student Records Office and the approval of the awarding faculty board obtained.

8. Special examinations

8.1 A special examination may be granted by the Chief Examiner:

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

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

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

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

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

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

8.6 The Student Records Office shall notify the dean of the awarding faculty of any results which are outstanding for more than two months from the date of publication of the original results. The faculty board must deal with the matter at its next meeting.
9. Retention of assessed work
The head of department shall arrange for the retention of all examination scripts for a period of three calendar months after the publication of results.

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

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

An application for special consideration must be accompanied by appropriate evidence such as a medical certificate, a letter from a student counsellor, etc.

Applications should be lodged at the Student Records Office not later than midday on the third working day after the conclusion of the day of the examination. Where no examination is held, application must be made before the end of the first week of the examination period.

No application will be considered after the publication of results.

11. Appeal
Any student or group of students has the right of appeal to the head of the appropriate teaching department about any aspect of the assessment procedure in any subject.
The Centre for Urban Studies

Enquiries: 819 8825, 819 8837
Chairman
I.R. Palmer, Department of Civil Engineering, 819 8127

The Centre for Urban Studies was established at Swinburne to co-ordinate and promote the involvement of teaching staff in the urban studies field. The management committee is composed of staff from Sociology, Psychology, Mathematics, Economics and Civil Engineering, which reflects the multi-disciplined approach at the Centre. A program of short courses, seminars and research forms the basis of activities. Short courses have included Landscape Design and Local Area Traffic Management, and seminars, where outside specialists have been invited as guest speakers, included The Informal Economy and the City and The Local State.

More recently, the Centre has become increasingly involved in urban research. The Inner East Housing Study, funded by the Department of Community Welfare Services, examined the changing demographic trends of the Inner East Region and the implications for housing provision and local housing policy. A study on Youth Housing Policy for the Australian Housing Research Council focused on the need, demand and supply of housing for youth in Melbourne, Sydney and a country region. Other continuing research includes a study of the development, location and impact of public housing in Melbourne; preparation of a series of publications for the Institute of Family Studies on contemporary housing and its impact on the Australian family, and liaison with visiting fellow, Dr Jack Goodman from the Urban Institute, Washington.
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- Computer Science/Chemistry ......................... AS9
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Scientific Instrumentation ............................. AS14
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Industrial Microbiology ................................ AS15
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The section indicator denotes the general position in the book of each section.
Faculty of Applied Science

Dean
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Faculty Secretary
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J.V. Culka, PhD, BSc(Hons)(Melb.)
J.W. Davis, DipPHIR(MIT), MAIHS, MRSH
J.V. Fecundo, MSc(Melb.), BSc(Hons)
G. Lonergan, BSc(Hons)(W.Aust)
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D. Pape, BAppSci(SIT)

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J.F. Pidgeon, BA, DipEd(Mon.)

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G. Clarke, PhD, BA(Hons)(Mon.)
C. Fox, PhD(ANU), BSc, DipEd(Mon.)
F. Ghotb, PhD, MSc(Wash.)
E. Hausler, MSc(Oxon), DipEE, TTTC
J.C. Herzeli, PhD, BA(Melb.)
M.N. Hunter, MSc(Melb.)
D. Mainwaring, MSc, DipEd(LaT.)
T. Peachey, BSc(Hons)(Melb.)
B.R. Phillips, MSc(SocSci)(St'On), BSc, BEd(Melb.)
P.J. Robb, BA(Melb.), MSc(LaT.), TTTC, MACS
J. Sampson, BSc(Mon.), GradDipDP(CIT), DipSurv(RMIT), TTTC
J. Steiner, PhD, BSc(Hons)(Mon.)
S.E. Weal, MA(Lanc.), BAppSci(RMIT)
P. Zeephongsekul, PhD(W.Aust.), BSc(Hons)(Melb.)

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A.W. Wood, PhD(Lond.), MSc(E.Anglia), MAIP

Lecturers
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P.J. Cadusch, PhD, BSc(Hons)(Melb.)
J. Hennessy, BSc(Melb.), DipMet(CBM), MAIP, TCert(Dept. LNS)
D. Lamb, BSc(Hons)(LaT.), DipEd(Melb.), MAIP
R.G.D. Roberts, MSc, DipEd(Adel.), DipT(ATC)
J.M. Venema, BSc, BEd(Melb.), DipEE(TCT), TTTC(Haw.)
A.M. Williams, MEngSc(Melb.), MIBME

Senior Tutors
**Applied Science courses**

**Degree of Bachelor of Applied Science**

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

**Diploma of Applied Science (Applied Chemistry)**

These diploma courses are being phased out. No new students will be accepted but students already enrolled may continue their courses.

**Diploma of Applied Science (Biochemistry)**

These diploma courses are being phased out. No new students will be accepted but students already enrolled may continue their courses.

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

This is the only recognised training for health surveyors in Victoria and is available for both full-time and part-time study. The full-time course extends over seven semesters (three-and-a-half years) and includes two semesters of work experience. Part-time students can complete the academic work of the course over a five-year period, and are also required to arrange for and undertake one year’s relevant work experience.

**Graduate Diploma courses**

The Faculty of Applied Science offers graduate diploma courses in the following areas of study:

- Applied Colloid Science
- Biomedical Instrumentation
- Computer Simulation
- Industrial Microbiology
- Scientific Instrumentation

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

**Higher degrees**

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

**Professional recognition**

The courses leading to degrees in applied science with a double major in applied chemistry or biochemistry and the diplomas in applied chemistry and biochemistry are recognised by the Royal Australian Chemical Institute. The courses leading to a degree and including the major in computer science are recognised by the Australian Computer Society as satisfying the academic requirements for membership.

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

The course leading to a degree and including majors in Biophysics and Instrumental Science is recognised by the Australian Association of Physical Scientists in Medicine as satisfying the academic requirements for membership.

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**Faculty of Applied Science**

The course leading to the diploma in applied science (environmental health) is recognised by the Health Commission of Victoria and the Australian Institute of Health Surveyors.

**Career potential**

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

**Applied Chemistry**

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

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

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

**Biochemistry**

Biochemistry is the study of the chemistry of living matter and is based on the principles of organic and physical chemistry. Biochemists study the chemical composition of living organisms and the physical and chemical processes of the living cell. Applied biochemistry encompasses the chemistry of fermentation, nutrition, agriculture and medicine.

Graduates are employed in industry particularly in the manufacture of drugs and pharmaceuticals; in the food industry, in milk, butter and cheese production, and in the stockfeed industry. They are also employed in medical clinics, hospitals, pharmaceutical and veterinary laboratories, and in medical research.

**Biophysics**

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

Graduates may take up careers as hospital scientists or technologists. Their duties may involve biomedical research, routine clinical responsibility, the development of specialised electronic equipment and the maintenance of equipment already in operation. They are employed in most hospital departments including cardiology, neurology, thoracic medicine, physical sciences, anaesthesiology and medical electronics.

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 students with a sound basis of measurement and instrumentation principles and their use in the development of instrumentation for the various areas of applied science and technology.
The range of instrumentation studied includes nuclear, chemical, ultrasonic and optical instrumentation. Emphasis is on analogue and digital electronic techniques, signal processing and on the interfacing of instruments with microprocessors and computers.
This field of study is unique to Swinburne and is an appropriate major to be combined with biophysics, chemistry, computer science or mathematics.

Mathematics
Mathematics is the foundation and language of science and technology. Increasingly it is also playing a key role in business and the social sciences such as sociology, psychology and medical research. Mathematical solutions to problems have become a significant reality with the advent of modern computers.
The main thrust of this course is Operations Research which is the application of scientific methodology to solving the problems of Industry, Commerce, and Government. 'OR' is supported by the study of applied statistics which deals with the collection and interpretation of data, and by the study of traditional mathematics itself. A feature of the course is the pre-professional consulting experience obtained by working on real practical projects.
The major provides valuable experience for potential operations researchers, management scientists, project leaders, statisticians, economic analysts, quality control scientists, systems analysts, computer scientists and teachers.

Health Surveying
The majority of health surveyors are employed by local government authorities and by the State Health Department, but many work with statutory authorities such as the Environment Protection Authority, 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.
Opportunities also exist in industry, particularly the food industry, where health surveyors assist with quality control work and in complying with health and pollution laws. The number of these opportunities is increasing.

Entrance requirements

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

Applied Chemistry, Biochemistry
Year 12
Prerequisite Group 1 subjects: Chemistry and a branch of Mathematics. Recommended Group 1 subjects: English and Physics.

Tertiary Orientation Program
Students who have satisfactorily completed subjects equivalent to the above will be considered.

Biophysics/Instrumental Science
Year 12
Prerequisite Group 1 subjects: Physics and a branch of Mathematics. Recommended Group 1 subjects: English and Chemistry. Students who have taken accredited Group 2 subjects will be considered for admission.

Tertiary Orientation Program
Students who have satisfactorily completed subjects equivalent to the above will be considered.

Computer Science/Instrumental Science
Year 12
Prerequisite Group 1 subjects: A branch of Mathematics, Physics and English. Students who have taken accredited Group 2 subjects will be considered for admission.

Tertiary Orientation Program
Students who have satisfactorily completed subjects equivalent to the above will be considered.

Mathematics/Computer Science
Year 12
Prerequisite Group 1 subjects: A branch of Mathematics.
Recommended Group 1 subjects: English, Pure Mathematics, Applied Mathematics
Tertiary Orientation Program
Students who have satisfactorily completed subjects equivalent to the above will be considered.

For specific entrance requirements for courses other than those above, please contact the Faculty Secretary on 819 8481.
Swinburne College of TAFE students who have satisfactorily completed the Science/Engineering Tertiary Orientation Program course will be given automatic entry to the first year of all degree courses in Applied Science.
Diploma of Applied Science (Environmental Health)
Standard entry to the first year of the course requires satisfactory completion of a year twelve (sixth form) course of study in a Victorian secondary school, or its equivalent, or other evidence of capacity to succeed in the course.

Year 12
Recommended Group 1 subjects: English, General Mathematics, Chemistry and Physics. Students who have taken accredited Group 2 subjects will be considered for admission.

Tertiary Orientation Program
Students who have satisfactorily completed subjects equivalent to the above will be considered.

Swinburne College of TAFE students who have satisfactorily completed the Science/Engineering course will be given automatic entry to the first year.

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

Graduate Diploma in Applied Colloid Science
Entry is open to applicants with a first tertiary qualification in engineering or science. An applicant whose experience in chemistry is considered to be inadequate is required to undertake a course in physical chemistry prior to admission.

Graduate Diploma in Biomedical Instrumentation
Entry is open to applicants with a first tertiary qualification in a scientific or medical discipline. An applicant whose position or experience indicates an ability to succeed in the course may be accepted with other qualifications or with less than the usual entry qualifications.

Graduate Diploma in Computer Simulation
Entry is open to applicants with a first tertiary qualification in engineering, science or economics. An applicant whose position or experience indicates an ability to succeed in the course, may be accepted with other qualifications or with less than the usual entry qualifications.

Graduate Diploma in Industrial Microbiology
Entry is open to applicants with a first tertiary qualification in science or engineering. An applicant whose position or experience indicates an ability to succeed in the course may be accepted with other qualifications or with less than the usual entry qualifications.

Graduate Diploma in Scientific Instrumentation
Entry is open to applicants with a first tertiary qualification in a scientific or engineering discipline. An applicant whose position or experience indicates an ability to succeed in the course may be accepted with other qualifications, or with less than the standard entry qualifications.

Special entry
Special provision is made whereby applicants may be accepted to the first year of the undergraduate courses with less than the normal entry requirements.
This scheme is normally not available to students who have within the last three years failed any of the formal entry assessments. Selection is based on the applicant's technical background, employment and, in borderline cases, an interview.

Applicants for special entry 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 particular cases.

Normally the number of special entry scheme admissions would not exceed 10% of any new intake in any year.

Admission with advanced standing
Certain subjects passed at another institution, or at a university may provide advanced standing in the above courses. Each application will be considered individually by the heads of the appropriate departments in consultation with the Applied Science Faculty Board.

Diploma/degree conversion courses
Holders of recent chemistry and biochemistry diplomas who wish to study for degrees in applied science (applied chemistry and biochemistry) may apply, preferably before 1 November, for admission to the degree courses. Such applications are individually considered by the Head of the Department of Applied Chemistry in consultation with the faculty board.
Conversion course students are required to pass appropriate subjects from the degree course and undertake a project.

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

Laboratory material requirements
Students are expected to provide laboratory coats, safety spectacles, practical notebooks, and minor equipment such as spatulas.

Other laboratory equipment and a locker are provided for student use on payment of a deposit of $20.00. Lockers are allocated by the chemistry laboratory manager to whom application for a locker must be made at the time of enrolment.

Laboratory and practical work requirements
In all appropriate subjects a student must perform satisfactorily in practical or laboratory work in order to gain a pass. Each enrolling student must either complete adequately the laboratory work relevant to the current year, or obtain re-approval for work previously completed at Swinburne or elsewhere.

Students seeking such reapproval should consult the lecturer in charge of the subject.
Mentor scheme
Each undergraduate student, whether part-time or full-time is allocated to a particular member of staff who is known as the student's mentor. These mentors are responsible for guidance on student difficulties, courses, exemptions and re-enrolments.

Re-enrolment
Re-enrolling students who require advice about their courses should consult their mentors. If an old syllabus is being followed (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 mentors before attempting to re-enrol.

Assessment of student performance
Student performance is assessed by various methods e.g. formal examinations, tests held during the semester, project work, assignments and laboratory reports. A statement of the workload requirements and the assessment program for each course is given to all students early in each semester.

The Applied Science Faculty Board operates a scheme of passing by years or semesters which applies to all students enrolled in full-time and cooperative undergraduate courses, and to all students enrolled in first-year undergraduate courses arranged in the standard format.

Under this scheme the Board, in assessing a student's performance, considers the results obtained in all subjects and decides whether or not the student has passed on the year's work.

Subjects are assessed and results issued in the following assessment categories:

- HD High Distinction
- D Distinction
- C Credit
- P Pass
- N Not Pass

The student's overall progress during the year (or semester) is assessed, and issued as a faculty result in the following categories:

- P Pass; where the student has passed all subjects undertaken.
- FP Faculty pass: where the student has failed one or more subjects but is considered by the Board to merit an overall pass (normally a weighted average result is calculated using the product of the subject assessment value and the formal contact hours for each subject, and where this average result has a pass value, a faculty pass is granted).
- N Not pass; where the student is not permitted to proceed to the next stage of the course.

The faculty result is issued at the end of the year for first-year students and at the end of each academic semester of study for later-year students.

Unsatisfactory performance
(a) Failed students may be permitted to repeat the year's (or the semester's) work as full-time students. If the repeat year or semester is failed students may continue study only as part-time students.

(b) Failed students may be permitted to enter part-time study in order to rehabilitate themselves and will be permitted to retain credit for subjects passed and re-admitted to full-time study at such time as they become capable of entering a full-time year (or semester) without carry-over of subjects from an earlier year (or semester).

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 complete professional education.

Students benefit educationally as they are provided with practical experience in solving real problems under authentic conditions using the theoretical concepts learned in the classroom. They are given an appreciation of the structure and purpose of the various organisations concerned, enabling them to make more realistic decisions regarding the area of the profession in which they wish to become involved. There are also financial benefits to students enrolled in first-year undergraduate courses arranged in the standard format.

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

The students are visited regularly by academic staff during their industrial semesters. Some students may have the opportunity to obtain work experience overseas. In such cases, academic staff from local educational institutions visit the students at their places of work. Programs of exchange with the University of Surrey, England and the University of Victoria, Canada, have been of particular value to chemistry students.

Students without permanent residence status should be aware that while the Faculty will assist them in finding an industrial placement, it is frequently impossible to find local employment for students in this category. These students are advised to seek placement in their home country. The Faculty will provide information on academic institutions capable of providing supervision there.

Faculty of Applied Science Prizes and Scholarships

Eric Bode Prize
A bronze plaque and a prize of $50, donated by Dr E.H. Bode, are awarded by the Applied Science Faculty Board to the best student in the final year of the degree courses in Applied Science.

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

T.G.O. Jordan Memorial Prize
Reference books to the value of $50 donated by the Australian Institute of Health Surveyors (Victorian Division) are awarded by the Applied Science Faculty Board to the best student in the final year of the diploma course in environmental health.

The A.F.E. Tylee, the J. Smith Memorial and the K. Kennewell Memorial prizes
These are awarded in the fields of social science and mathematics.

Dow Chemical Scholarship
A scholarship to the value of $1,000 per annum awarded to a student entering 2nd, 3rd or 4th year of the degree course majoring in Applied Chemistry or Biochemistry.
Course details

Degree of Bachelor of Applied Science
(1983 syllabus)

To qualify for a degree, a student must complete successfully one of the following courses:
1. double major in applied chemistry,
2. biochemistry combined with chemistry;
3. chemistry combined with instrumental science;
4. computer science combined with chemistry;
5. computer science combined with computer science;
6. mathematics combined with chemistry;
7. mathematics combined with computer science.

The various degree course structures are described below. Some combinations of major studies may not be offered if student demand is insufficient.

All the degree courses may be studied on a part-time basis. The availability of evening classes depends on student demand. Details of part-time programs are available from the Faculty Secretary and from the heads of the teaching departments.

1 Double major in Applied Chemistry

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

Full-time course

(1983 syllabus)

<table>
<thead>
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<th>Semester 1</th>
<th>Hours week</th>
<th>Hours semester</th>
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<tbody>
<tr>
<td>SC114 Chemistry</td>
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<tr>
<td>SC184 Biology</td>
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<td>SK114 Computer Science</td>
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<td>SM114 Mathematical Methods</td>
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<td>SP114 Physics</td>
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<td>Semester 2</td>
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<td>SC115 Chemistry</td>
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<td>SC185 Biology</td>
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<td>SK117 Computer Science</td>
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<td>or SP117 Instrumental Science</td>
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<td>SM116 Mathematics</td>
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<td>or SP116 Physics</td>
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<td>AT291 Complementary Studies</td>
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<td>SA201 Industrial Case Studies</td>
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<td>SC217 Chemistry</td>
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<td>SC219 Practical Chemistry</td>
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<tr>
<td>SC259 Practical Chemistry</td>
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<td>54</td>
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</tbody>
</table>

Part-time course

(1983 syllabus)

The part-time course is structured to enable students to complete it in six years. Students must also acquire two semesters of relevant work experience. The Institute does not arrange for work experience for part-time students.

<table>
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<tr>
<th>Semester 1</th>
<th>Hours week</th>
<th>Hours semester</th>
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<tr>
<td>SC184 Biology</td>
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<td>SK114 Computer Science</td>
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<td>SM114 Mathematical Methods</td>
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2 Biochemistry/Chemistry

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

**Full-time course**

*(1983 syllabus)*

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**Part-time course**

*(1983 syllabus)*

The part-time course is structured to enable students to complete it in six years. Students must also acquire two semesters of work experience. The Institute does not arrange for work experience for part-time students.

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3 Chemistry/Instrumental Science

Modern chemical laboratories use a wide range of complex scientific equipment and there is at present a shortage of chemists with a detailed knowledge of the design and the operation of this equipment. This combination of major studies, unique to Swinburne, provides training for instrumental chemists.

The course combines a study of chemistry with nuclear and optical instrumentation, control and measurement theory and microprocessor operation and applications, with emphasis on the applications of digital and analogue electronics.
Full-time course
(1983 syllabus)

Semester 1
SC114 Chemistry 5 90
SC184 Biology 4 72
SK114 Computer Science 5 90
SM114 Mathematical Methods 5 90
SP114 Physics 5 90

Semester 2
SC115 Chemistry 12 216
SM118 Mathematics 4 72
SP113 Instrumental Science 4 72
SP116 Physics 4 72

Semester 3
AT291 Complementary Studies 2 36
SC217 Chemistry 6 108
SC219 Practical Chemistry 4 72
SM263 Mathematics 4 72
SP217 Analogue Instrumentation 4 72
SP218 Digital Instrumentation 4 72

Semester 4
SA209 Work Experience

Semester 5
SA309 Work Experience

Semester 6
SC317 Chemistry 6 108
SC319 Practical Chemistry 3 54
SP305 Physics 3 54
SP307 Signals and Systems 4 72
SP317 Scientific Instrumentation 4 72
SP318 Digital Systems 4 72

Semester 7
BS495 Business Studies 4 72
SA409 Special Project 4 72
SC417 Chemistry 5 90
SC419 Practical Chemistry 3 54
SP417 Analogue Systems 4 72
SP418 Advanced Instrumentation 4 72

4 Biophysics/Instrumental Science

This combination is unique to Swinburne and is designed to produce research and development staff for hospitals and industry. The course offers the student a firm grounding in instrumental and life sciences. The biophysics has a clinical orientation and consists of two parallel streams, human physiology and biophysical instrumentation.

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

Full-time course
(1983 syllabus)

Semester 1
SC114 Chemistry 5 90
SC184 Biology 4 72
SK114 Computer Science 5 90
SM114 Mathematical Methods 5 90
SP114 Physics 5 90

Semester 2
SC116 Chemistry 4 72
SM118 Mathematics 4 72
SP113 Instrumental Science 4 72
SP115 Physics 8 144
SP123 Biophysics 4 72

Semester 3
AT291 Complementary Studies 2 36
SC201 Industrial Case Studies 2 36
SM263 Mathematics 4 72
SP217 Analogue Instrumentation 4 72
SP218 Digital Instrumentation 4 72
SP227 Bioelectric Phenomena 4 72
SP228 Contractile Dynamic Systems 4 72

Semester 4
SP307 Signals and Systems 4 72
SP308 Physics 4 72
SP317 Scientific Instrumentation 4 72
SP318 Digital Systems 4 72
SP327 Respiratory and Renal Adapations 4 72
SP328 Physiological Control Systems 4 72

Semester 5
SA301 Clinical Experience

Semester 6
SA302 Clinical Experience

Semester 7
AT493 Brain and Behaviour 4 72
SA409 Special Project 4 72
SP417 Analogue Systems 4 72
SP418 Advanced Instrumentation 4 72
SP427 Sensory Systems 4 72
SP428 Higher Cortical Functions 4 72

5 Computer Science/Chemistry

Computers are of increasing importance in chemistry. They allow the storage of large amounts of chemical information (including abstracts of scientific papers), the retrieval of information from these data-bases, the storage and processing of data from scientific instruments, the simulation of experiments, and computer-assisted instruction.

The computer science major provides the computer background and techniques for the development of these applications. The chemistry major provides the chemical knowledge which is needed for an understanding of the use of computers in chemistry.

Full-time course
(1983 syllabus)

Semester 1
SC114 Chemistry 5 90
SC184 Biology 4 72
SK114 Computer Science 5 90
SM114 Mathematical Methods 5 90
SP114 Physics 5 90

Semester 2
SC115 Chemistry 12 216
SC116 Computer Science 8 144
SM116 Mathematics 4 72

Semester 3
AT291 Complementary Studies 2 36
SC217 Chemistry 6 108
SC219 Practical Chemistry 4 72
SM263 Mathematics 4 72
SK203 Computer Science 8 144

Semester 4
SA209 Work Experience

Semester 5
SA309 Work Experience

Semester 6
SC317 Chemistry 6 108
SC319 Practical Chemistry 3 54
SP305 Physics 3 54
SP307 Signals and Systems 4 72
SP317 Scientific Instrumentation 4 72
SP318 Digital Systems 4 72

Faculty of Applied Science
6 Computer Science/Instrumental Science

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

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

Full-time course
(1983 syllabus)

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<td>SP418 Advanced Instrumentation</td>
<td>4</td>
<td>72</td>
</tr>
</tbody>
</table>

7 Instrumental Science/Mathematics

The mathematics major concentrates on the operations research approach to problems in business, industry and government. Mathematical and statistical models such as linear programming, network analysis, queuing theory and regression analysis are used to solve problems in inventory control, resource planning, allocation and other areas.

A thorough appreciation of instrumental philosophies and techniques is offered in instrumental science. Areas of study in this major include nuclear and optical instrumentation together with a strong emphasis on information processing, and digital and analogue electronics.
8 Mathematics/Chemistry
As the mathematics major concerns the study of operations research techniques — such as network analysis, linear programming and statistical analysis, the combination of these with the chemistry major provides the opportunity of linking the managerial and the chemical aspects of the chemical industry. The combination of these mathematical techniques with chemistry also adds a further dimension to the study of the industrial applications of chemical processes.

Full-time course
(1983 syllabus)

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC114 Chemistry</td>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>SC184 Biology</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SK114 Computer Science</td>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>SM114 Mathematical Methods</td>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>SP114 Physics</td>
<td></td>
<td></td>
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<tr>
<td>BS197 Business Studies</td>
<td>5</td>
<td>10</td>
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<tr>
<th>Semester 2</th>
<th>Hours</th>
<th>Hours</th>
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<tbody>
<tr>
<td>SC115 Chemistry</td>
<td>12</td>
<td>216</td>
</tr>
<tr>
<td>SK116 Computer Science</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SM155 Operations Research 1</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SM156 Applied Statistics 1</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SM157 Mathematics 1</td>
<td>3</td>
<td>54</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT291 Complementary Studies</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SA201 Industrial Case Studies</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SC217 Chemistry</td>
<td>6</td>
<td>108</td>
</tr>
<tr>
<td>SC219 Practical Chemistry</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SK213 or SK214 Computer Science</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SM255 Operations Research 2</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SM256 Applied Statistics 2</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SM257 Mathematics 2</td>
<td>3</td>
<td>54</td>
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<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Hours</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>SA209 Work Experience</td>
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<table>
<thead>
<tr>
<th>Semester 5</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA309 Work Experience</td>
<td></td>
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<table>
<thead>
<tr>
<th>Semester 6</th>
<th>Hours</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>SC317 Chemistry</td>
<td>6</td>
<td>108</td>
</tr>
<tr>
<td>SC319 Practical Chemistry</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SK313 Computer Science</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SM355 Operations Research 3</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SM356 Applied Statistics 3</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SM357 Mathematics 3</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SP305 Physics</td>
<td>3</td>
<td>54</td>
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<table>
<thead>
<tr>
<th>Semester 7</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS495 Business Studies</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SM409 Special Project</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SK403 Computer Science</td>
<td>8</td>
<td>144</td>
</tr>
<tr>
<td>SM455 Operations Research 4</td>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>SM456 Applied Statistics 4</td>
<td>3</td>
<td>54</td>
</tr>
</tbody>
</table>

Part-time course
(1983 syllabus)

The part-time course is structured to enable students to complete it in five years. Students must also acquire two semesters of relevant work experience. The Institute does not arrange for work experience for part-time students.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC114 Physical Science</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SK114 Computer Science</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SM114 Mathematical Methods</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>BS114 Business Studies</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SP114 Physics (if chosen)</td>
<td>2</td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK114 Computer Science</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>SM114 Mathematical Methods</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>BS114 Business Studies</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SP114 Physics</td>
<td>3</td>
<td>54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK115 Computer Science</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>SM156 Applied Statistics 1</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>SM157 Mathematics 1</td>
<td>1</td>
<td>54</td>
</tr>
<tr>
<td>BS115 Business Studies</td>
<td>4</td>
<td>72</td>
</tr>
</tbody>
</table>

Faculty of Applied Science

<table>
<thead>
<tr>
<th>Faculty of Applied Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics/Computer Science</td>
</tr>
</tbody>
</table>

The solution of many problems faced by business, industry and government can be facilitated by the use of mathematical and statistical models. The mathematics major concentrates on the operations research approach to problems such as inventory control and resource planning or allocation. Since many operations research and statistical studies result in, or use, computer-based systems, this course is complemented by the computer science major.

The computer science major involves the study of algorithms used in the solution of mathematical, engineering and business problems and the implementation of these in a suitable algorithmic or business-oriented language. The work is supplemented during the latter years of the course by studies in logic, programming techniques and systems science.
Diploma of Applied Science
(Environmental Health) (1976 syllabus)

This takes the form of a three-and-a-half year program of cooperative education in which students attend the Institute for a total of five semesters and gain practical work experience for two semesters. For students in the full-time course, Swinburne arranges the work experience.

Full-time course

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT191</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>ED101</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SC181</td>
<td>6</td>
<td>90</td>
</tr>
<tr>
<td>SC191</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SM121</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SI13</td>
<td>5</td>
<td>75</td>
</tr>
</tbody>
</table>

Semester 2

| AT192 | 2 | 30 |
| BS192 | 2 | 30 |
| EA122 | 1 | 15 |
| ED102 | 3 | 45 |
| SC182 | 6 | 90 |
| SC192 | 5 | 75 |
| SM122 | 1 | 15 |
| SI12  | 4 | 60 |

Semester 3

| BC210 | 2 | 36 |
| BS293 | 3 | 54 |
| CE223 | 2 | 36 |
| CE235 | 3 | 54 |
| EA222 | 3 | 54 |
| SC283 | 5 | 90 |
| SC293 | 4 | 72 |
| SM213 | 2 | 36 |

Semester 4

<table>
<thead>
<tr>
<th>SA208</th>
<th>Work Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA308</td>
<td>Work Experience</td>
</tr>
</tbody>
</table>

Semester 5

| BS390 | Law | 3% | 63 |
| BA321 | Industrial Processes | 3 | 54 |
| ME349 | Environmental Engineering | 3 | 54 |
| SC311 | Seminars, visits, etc. | 2 | 36 |
| SC384 | Microbiology | 3 | 54 |
| SC385 | Epidemiology | 3/2 | 63 |
| SC391 | Chemistry | 6 | 108 |

Semester 7

| BS497 | Office Systems and Administration | 1 | 18 |
| BS499 | Law | 3/2 | 63 |
| CE401 | Health Engineering | 3 | 54 |
| EA421 | Industrial Processes | 4 | 72 |
| ME449 | Environmental Engineering | 3 | 54 |
| SC402 | Environmental Health | 6 | 108 |
| SC411 | Seminars, visits, etc. | 3% | 63 |

Part-time course

The part-time course is designed so that the academic work may be completed in five years by students who attend for twelve hours (one afternoon and two evenings) per week.
In addition to the academic work listed below, part-time students are required to include SA208 Work Experience and SA308 Work Experience in their course. Students in the part-time course must arrange for their own work experience. This experience must be for one year under supervision of a qualified health surveyor.

At least eight weeks of this experience must be completed before commencing the final year of the course.

**1st year**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT19</td>
<td>Health Society</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SC191</td>
<td>Chemistry</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>SP111</td>
<td>Physics</td>
<td>5</td>
<td>75</td>
</tr>
</tbody>
</table>

**2nd year**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED101</td>
<td>Engineering Drawing and Sketching</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SC181</td>
<td>Biology</td>
<td>6</td>
<td>90</td>
</tr>
<tr>
<td>SM121</td>
<td>Mathematics</td>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

**3rd year**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS293</td>
<td>Law</td>
<td>3</td>
<td>53</td>
</tr>
<tr>
<td>SC293</td>
<td>Environmental Science</td>
<td>4</td>
<td>72</td>
</tr>
</tbody>
</table>

**4th year**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC210</td>
<td>Building Practices</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>CE235</td>
<td>Health Engineering</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SM121</td>
<td>Mathematics</td>
<td>2</td>
<td>36</td>
</tr>
</tbody>
</table>

**5th year**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Hours</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE401</td>
<td>Health Engineering</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>SC403</td>
<td>Environmental Health</td>
<td>6</td>
<td>108</td>
</tr>
</tbody>
</table>

**Postgraduate courses**

**Graduate Diploma in Applied Colloid Science (1980 syllabus)**

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

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

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

**Semester 1**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC30</td>
<td>Properties of Colloids</td>
</tr>
<tr>
<td>Semester 2</td>
<td>Colloid Experimental Techniques</td>
</tr>
<tr>
<td>Semester 3</td>
<td>Elective Subject</td>
</tr>
<tr>
<td>Semester 4</td>
<td>Elective Subject</td>
</tr>
</tbody>
</table>

*The elective subjects are chosen from the following list:

- SC332 Emulsion Technology
- SC333 Polymer Flocculation
- SC334 Mineral Processing Chemistry
- SC335 Detergency
- SC336 Surface Coatings
- SC337 Corrosion and Protection of Metals*

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

**Graduate Diploma in Biomedical Instrumentation (1983 syllabus)**

This course is designed to serve the needs of graduates working in the biomedical area. It offers training in instrumentation and quantitative techniques together with the biomedical applications of these techniques.

The program is structured as a set of independent units, each of sixty hours duration and taught one evening per week for one semester. To qualify, a candidate must complete eight units, at least six of which must be at the advanced level, including the project unit and at least two biomedical units. (Students may take more than two introductory units, but credit will only be given for a maximum of two.)

Enrolment in introductory units must be approved by the Head of Physics.

**Biomedical units**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP55</td>
<td>Introduction to Biophysical Systems</td>
</tr>
<tr>
<td><strong>Advanced</strong></td>
<td>Biophysical Systems and Techniques</td>
</tr>
<tr>
<td>SP532</td>
<td>Clinical Monitoring Techniques</td>
</tr>
<tr>
<td>SP533</td>
<td>Aspects of Metabolic Measurements</td>
</tr>
<tr>
<td>SP534</td>
<td>Neurophysiological Techniques</td>
</tr>
</tbody>
</table>

The first and second years are interchangeable as are the third and fourth.
Instrumentation units

Introductory
SP551 Instrumentation Principles and Techniques 4 60
SP552 Introduction to Scientific Instrumentation 4 60
SP553 Introduction to Instrumentation Electronics 4 60
EE554 Electronic Systems 4 60

Advanced
SP541 Signal Processing 4 60
SP542 Optical Instrumentation 4 60
SP543 Vacuum Systems 4 60
SP544 Nuclear Instrumentation 4 60
SP545 Instrument Programming and Interfacing 4 60
SP546 Instrumentation Electronics 4 60
SC551 Chemical Instrumentation 4 60
SK531 Computer Programming Techniques 4 60
SK533 Computer Simulation 4 60
EE541 Control Theory Applications 4 60
EE542 Applications of Computer Devices 4 60
EE543 Data Transmission 4 60

Project unit
SP535 Project 4 60

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

Graduate Diploma in Computer Simulation (1982 syllabus)

This course is intended for graduates in engineering, applied science, environmental and biological sciences or economics, who have a professional interest in mathematical modelling and simulation. It is also suitable for recent graduates in appropriate disciplines who wish to gain theoretical knowledge and practical experience of these techniques.

The program is designed as a two-year part-time course, although a longer period may be taken if desired, the timetable specifying eight hours per week. It is expected that applicants will have a knowledge of mathematics and statistics at a tertiary level. In some cases a preliminary unit in mathematical methods may be prescribed.

Semester 1
SK512 Digital Simulation Languages 45
SK513 Computer Techniques Digital 30
SM511 Mathematics Simulation Techniques 45

Semester 2
SK511 Methodology of Simulation 40
SK522 Digital Simulation Languages 40
SM512 Mathematical Simulation Techniques 40

Semester 3
SK523 Computer Techniques 60
SK532 Analog/Hybrid Digital Simulation Languages 30
SK519 Project Work 30

Semester 4
SK536 Project Work/Case Studies 75
SM513 Mathematical Simulation Techniques 45

Graduate Diploma in Scientific Instrumentation (1984 syllabus)

This course is primarily intended for graduates in a scientific or engineering discipline who require a detailed knowledge of the design, construction and operation of modern laboratory instrumentation.

The program is designed as a two-year part-time course, the normal attendance requirements being eight hours per week (two evenings) for four fifteen-week semesters.

The course is based on a unit structure, each of which comprises sixty hours of class time (one evening per week for one semester). Not all units will be available in any one year, student demand being taken into account in determining which units are offered in any semester.

Moreover, there is some choice between introductory units and advanced units, the former being designed to prepare the student for the latter when this is necessary. The project unit is compulsory.

To qualify for the award, a student must complete eight units, at least six of which must be at the advanced level, including the project unit. (Students may take more than two introductory units, but credit will only be given for a maximum of two.) Enrollment in introductory units must be approved by the Head of Physics.

Introductory units

SP551 Instrumentation Principles and Techniques 4 60
SP552 Introduction to Scientific Instrumentation 4 60
SP553 Introduction to Instrumentation Electronics 4 60
EE554 Electronic Systems 4 60

Advanced units
SP541 Signal Processing 4 60
SP542 Optical Instrumentation 4 60
SP543 Vacuum Systems 4 60
SP544 Nuclear Instrumentation 4 60
SC551 Chemical Instrumentation 4 60
SK533 Computer Simulation 4 60
EE541 Control Theory Applications 4 60
EE542 Applications of Computer Devices 4 60
EE543 Data Transmission for Instrumentation 4 60

Project unit
SP536 Scientific Instrumentation Project 4 60
Faculty of Applied Science

Graduate Diploma in Industrial Microbiology (1979 syllabus)

This course is for graduates or diplomates in chemistry, biochemistry or other life sciences, or engineering (though it is not necessarily restricted to these fields), whose professional activities require a practical knowledge of industrial microbiology.

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

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

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

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours week</th>
<th>Hours semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC541 Microbiology</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SC542 Practical Work</td>
<td>4</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 2</th>
<th>Hours week</th>
<th>Hours semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC543 Microbiology</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SC544 Practical Work</td>
<td>4</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Hours week</th>
<th>Hours semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC545 Microbiology</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SC546 Practical Work</td>
<td>4</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4</th>
<th>Hours week</th>
<th>Hours semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC547 Microbiology</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>SC548 Practical Work</td>
<td>4</td>
<td>60</td>
</tr>
</tbody>
</table>

Applied Science subject details

Reading guides

In most subjects, conveners will issue detailed reading guides during the first week of classes. However, reading material is listed under individual subject entries according to the following definitions:

Preliminary reading

Introductory material which students are expected to read before classes commence.

Textbooks

Material essential to the subject.

References

Material that will be referred to throughout the duration of the subject.

Unless otherwise specified, students are advised not to purchase textbooks or references until classes commence.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Department or Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA114</td>
<td>Physical Science</td>
</tr>
<tr>
<td>SA115</td>
<td>Physical Science</td>
</tr>
<tr>
<td>SA201</td>
<td>Industrial Case Studies</td>
</tr>
</tbody>
</table>

SA114 Physical Science

Five hours per week for one semester

A first-semester subject for degree students majoring in mathematics and computer science.

This subject, designed for students with little scientific background introduces them to scientific thought, principles and methodology and the applications of these methods in various disciplines of the physical sciences.

SA115 Physical Science

Four hours per week for one semester

Prerequisite: SA114 Physical Science

A second-semester subject for degree students majoring in mathematics and computer science.

This subject continues and develops the studies undertaken in SA114.

SA201 Industrial Case Studies

Two hours per week for one semester

A second-year subject in the degree courses in applied science except for students majoring in chemistry combined with computer science or instrumental science.

The subject is an introduction to real industrial problem-solving by means of case studies and relevant literature (e.g. professional journals). Students generally study problems related to their areas of major study, and the implementation of the solutions of the problems in a real situation.

Strong emphasis is on communication skills and to this purpose students are expected to present both written and verbal reports on their work.
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 Bachelor of Applied Science. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SA301  Clinical Experience  
A six-month period of hospital or industrial work experience occurring as part of the third year of the course leading to the Degree of Bachelor of Applied Science for those students majoring in biophysics. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SA302  Clinical Experience  
A six-month period of hospital or industrial work experience occurring as part of the third year of the course leading to the Degree of Bachelor of Applied Science for those students majoring in biophysics. Students are supervised by a member of the academic staff and are required to submit a report to their employer and to their supervisor.

SA303  Applied Research/Project Management  
Three hours per week for one semester  
Prerequisite: satisfactory completion of the first five semesters of the course.

The subject comprises individually assigned work and involves oral and/or written presentation in the areas of applied research, project management and work study.

References  
References will be supplied in class.

SA304  Applied Research/Project Management  
Two hours per week for one semester  
A major subject in the part-time degree course in applied science.  
The subject contains topics from the areas of project management and work study.

References  
References will be supplied in class.

SA305  Industrial Project  
Two hours per week for one semester  
A major subject in the part-time degree course in applied science.  
The subject involves students either individually and/or as a group in case studies.

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 Bachelor of Applied Science. Students are supervised by a member of the academic staff, and are required to submit a report to their employer and to their supervisor.

SA409  Special Project  
Four 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 of the course.

SC114  Chemistry  
Five hours per week in one semester which includes thirty hours of laboratory work.

A first-semester subject in the degree courses in applied science.

This subject centres on the theme of chemical reactions, their properties and applications. It includes quantitative aspects of chemical reactions, properties of chemical reactions (equilibria, conductance and kinetics), energy from chemical reactions (thermochemistry and hydration), applications of organic reactions, and the chemistry of metals (their extraction and uses, bonding and environmental aspects).

SC115  Chemistry  
Six hours of theory and six hours of laboratory work per week  
Prerequisite SC114

A second semester subject for degree students majoring in chemistry.  
The subject covers the following areas:  
Bonding: electronic structure of atoms and molecules.  
Physical chemistry: thermodynamics – work, heat, first and second laws, thermochemistry, free energy.  
Organic chemistry: preparations, reactions and uses of the major classes of compounds with an emphasis on mechanisms and understanding the underlying concepts.  
Analytical chemistry: precipitation equilibria, gravimetry, complex ion equilibria, effect of complex formation on solubility of sparingly soluble salts, application of complex formation in analysis.  
Inorganic chemistry: ionic bonding, intermolecular bonding, chemistry of the elements.

SC116  Chemistry  
Four hours per week including laboratory work.

A second semester subject for degree students majoring in biophysics.

The syllabus consists of the following areas:
Thermochemistry of chemical reactions and biological oxidation, bonding theory, organic chemistry and the chemistry of proteins and enzymes.

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 course which covers the basic elements of human biology listed below:  
Cell structure and function. Types of tissues.  
Basic principles of the functioning of the skeletal, muscular, nervous, respiratory, digestive, urinary, and reproductive systems.  
References  
For details concerning prescribed text book, references, etc. consult the lecturer.
SC219 Practical Chemistry

Four hours of practical chemistry per week for one semester. Prerequisite: the completion of first-year chemistry or its equivalent.

Chemistry

The subject of theory and three hours of practical work per week in the diploma course in applied science.

Analytical Chemistry

Instrumentation and variables that affect the analysis of compounds, their structures, and their composition. The chemistry of acids, bases, and salts. Spectroscopy, including UV-visible and infrared spectroscopy. Organic analysis, including extraction and purification techniques. Chemical analysis, including gravimetric and volumetric analysis.

Physical Chemistry

Thermodynamics of chemical reactions, reaction rates, and equilibrium. The behavior of solutions, including colligative properties and osmosis. The nature of light and its interaction with matter, including atomic and molecular spectroscopy. The electrical properties of matter, including conductivity and dielectric constant.

Industrial Chemistry

Basic knowledge of industrial processes and their applications. The chemistry of raw materials and their transformation into useful products. The chemistry of fuels and energy sources. The chemistry of materials, including polymers and ceramics.

Biological Chemistry

The role of enzymes in biological processes. The chemistry of proteins and nucleic acids. The chemistry of metabolites and their transformation in living systems. The chemistry of bioenergetics and the flow of energy in biological systems.
In A Case Study, Part Open University. Principles of Chemical Processes. Polyvinyl Chloride: production of polyvinyl chloride. Some of the physico-chemical principles involved in industrial processes will be illustrated by a major case study based on the characteristics of polyvinyl chloride and its properties. Emphasis is on understanding and applying the techniques involved in developing an awareness of situations in which each could be successfully applied. Some hours are devoted to practical sessions during which a selection of the techniques considered is used.

References

SC257 Chemistry
Four hours theory per week for one semester
A second-year subject for degree students majoring in applied chemistry. Isolation and identification of organic compounds (18 hours) This unit reviews and introduces techniques commonly used to isolate and identify organic compounds. Emphasis is on applying the techniques and developing an awareness of situations in which each could be successfully applied. Some hours are devoted to practical sessions during which a selection of the techniques considered is used.

References
No one text is suitable. Specific articles in various texts will be referred to in lectures.
Polymer chemistry (9 hours)
Classification of polymers. Introduction to polymerisation reactions Characteristic properties of polymers and their measurement.

References
To be outlined in lectures.
Carbocations (9 hours)
Formation and reactions of carbocations. Industrially important rearrangements reactions.

References
To be given by lecturer.

SC258 Industrial Chemistry
Three hours per week for one semester
A second-year subject for degree students majoring in applied chemistry. Topics to be discussed in this subject include: the chemical industry and its relationships with other industries, chemical raw materials, energy sources (coal, oil, natural gas, nuclear), location of industry, solids and liquids handling, separation and purification, and utilities. Some of the physico-chemical principles involved in industrial processes will be illustrated by a major case study based on the production of polyvinyl chloride.

References

SC259 Practical Chemistry
Three hours of practical chemistry per week for one semester
Prerequisites are the completion of first year chemistry or its equivalent and the completion of, or concurrence with, SC219.
A second-year subject for degree students majoring in applied chemistry. Analytical: extension of SC219, further volumetric analysis, electrodeposition and a project in quantitative analysis.
Organic: extension of SC219; Preparations, recrystallisation, extraction, separation by column chromatography, identification by IR, measurement with UV/visible spectrophotometry. Physical experiments: kinetics and spectroscopy.

SC277 Biochemistry
Three hours theory and five hours practical work per week for one semester
Prerequisite, completion of the common first year A second-year subject for degree students majoring in biochemistry. The following topics will be studied: chemistry of biological compounds including an introduction to protein structure; ATP structure and function; enzyme kinetics; metabolism of carbohydrates, glycolysis; fats and fatty acids as fuels; tricarboxylic acid cycle, electron transport and oxidative phosphorylation; protein catabolism, urea cycle; biochemical techniques.

References

SC279 Practical Biochemistry
Four hours laboratory work per week for one semester
Prerequisites is the completion of common first year. A second-year subject for degree students majoring in biochemistry. Students become practised in the handling of biochemicals, tissue preparation, extraction techniques, cellular fractionation, separation methods, preparation and assay of enzymes, colorimetry, spectrophotometry and centrifugation.

SC283 Microbiology
Five hours per week for one semester
A second-year subject in the diploma course in applied science (environmental health).
An introduction to the biology of viruses, bacteria, fungi and algae with emphasis on the interactions of micro-organisms with organisms, particularly man. An extension of the basic aspects of the biology 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: 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.
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).
This course develops an understanding of the specific scientific principles which have been applied towards the specific tasks of the health surveyor. Considerable emphasis is placed on sanitation, particularly in relation to food and food processing, and the techniques employed in maintaining healthy and hygienic premises.
Food chemistry; food as the basic energy source. Types of foods and suitability for nutritional value. Role of vitamins and minerals. Metabolism of food.
Food processing; principles of food preservation. Heating, cooling, canning, drying and chemical preservation.
Toxicology; biological action and use of the various chemicals introduced for control of insects and vermin of public health importance. Methods of laying baits and contrivances with these chemicals and the hazards involved in their use.

SC297  Microbiology
Two hours of theory and one hour of practical work per week for one semester
A second-year subject for degree students majoring in biochemistry.
An introduction to the basic concepts and terminology of microbiology. Historical aspects commence the course and these are followed by a per week for one semester.
Concomitantly with studies in biochemistry, aspects of microbial nutrition, growth and biosyntheses by microbes are detailed. An Introduction to the concepts of control of microbes by sterilisation, disinfection, and by treatment with antimicrobial agents. Introductory aspects of immunology and serology are also included. The microbiology theory is reinforced in appropriate practical classes in which the basic skills and techniques of microbiology are taught.
Students must gain a pass in these sessions (i.e., must demonstrate adequate manipulative skill) before being considered eligible for a pass in the subject.

Textbooks

SC311  Seminars and visits
Thirty-six hours in one semester
A third-year subject in the diploma course in applied science (environmental health).
Time is devoted to interrelating the various disciplines studied in the course and the students’ work experience. Professional health surveyors and other experts attend the seminars when a topic in which they have a particular expertise is being discussed. This develops a relationship between the students and practising professionals and leads to a heightened appreciation of the role of a health surveyor in the community.
Each student presents a paper which is critically examined by the visiting professionals, academic staff and students.

SC317  Chemistry
Six hours theory per week for one semester
A subject in semester 6 of the applied science degree course for students majoring in chemistry.

Co-ordination chemistry (18 hours)
Co-ordination compounds, uses, occurrence, structure, stability, nomenclature and properties.

References
Basolo, F. and Johnson, R. C. Coordination Chemistry. N.Y., Benjamin, 1964
Orgel, L. E., An Introduction to Transition Metal Chemistry: Ligand Field Theory, 2nd edn. Lond., Methuen 1966

Electrochemistry (18 hours)
Thermodynamics of electrochemical equilibria; electrodes and phenomena occurring on them; cells and their functioning.

References
Consult the lecturer in charge

Ion exchange and solvent extraction (18 hours)
Principles and applications in industrial, laboratory and biochemical situations.

References
Paterson, R. An Introduction to Ion Exchange. Lond., Heyden, 1970

SC319  Practical Chemistry
Three hours per week for one semester
Prerequisite, SC219
A third-year subject for degree students majoring in chemistry.

Organic techniques: recrystallisation, syntheses, identification and characterisation using chemical tests, physical measurements, gas chromatograph, infra-red spectrometer and polarimeter. Selected techniques in electrochemistry and surface chemistry.
SC357 Chemistry

Three hours per week for one semester

A third-year subject for degree students majoring in applied chemistry.

Colloid chemistry
Origin of the electrical double layer, potentials at interfaces, potential determining ions and ionic adsorption, description of the electrical double layer, electrokinetic phenomena, colloid stability.

Electrochemistry
Electrode kinetics - extension of the Butler-Volmer equation to multistep electrode reactions; experimental methods - potentiostatic and galvanostatic electrolysis; mass transport control of electrode reactions - steady state and transient techniques, convective mass transport; design of industrial electrochemical cells.

Organic synthesis
Planning and design of syntheses. Practical aspects and synthetic techniques. Industrial versus academic syntheses. Syntheses of commercially significant natural products.

References
Hiemenz, Paul C. Principles of Colloid and Surface Chemistry. N.Y., Marcel Dekker, 1970
Shaw, D. J. Introduction to Colloid and Surface Chemistry. 2nd edn, Lond., Butterworths, 1970
Adamson, A. W. Physical Chemistry of Surfaces. 3rd edn, N.Y., Interscience 1976

SC358 Industrial Chemistry

Two hours per week for one semester

A third-year subject for degree students majoring in applied chemistry.


References

SC359 Practical Chemistry

Three hours per week for one semester

A third-year subject for degree students majoring in applied chemistry.

Extension of the techniques covered in SC319.

SC377 Biochemistry

Three hours of theory per week for one semester

A third-year subject for degree students majoring in biochemistry.

The course covers the following topics: mitochondrial formation of ATP; biosyntheses of carbohydrates, lipids, porphyrins, nucleic acids and proteins; structure and function of porphyrins and bile salts; formation of bile pigments; control mechanisms and the regulation of metabolism.

References
Newsholme, E. A. and Start, C. Regulation in Metabolism. Lond., Wiley, 1977

(Additional references and reading materials will be specified during the course.)

SC378 Analytical Biochemistry

Two hours of theory per week for one semester

A third-year subject for degree students majoring in biochemistry.

The course covers the following topics: radio isotopes in biochemistry; automation in biochemistry; ultrafiltration; preparative centrifugation, lyophilisation, assays involving immunological techniques, protein chemistry, (including immunochemistry) and techniques of protein analysis.

References
References and reading material are specified during the course

SC379 Practical Biochemistry

Five hours of laboratory work per week for one semester

A third-year subject for degree students majoring in biochemistry.

Students design and/or conduct experiments involving the extraction, purification and assay of proteins and enzymes, induction of a bacterial enzyme, uptake of oxygen by mitochondria and continuous flow assays. Apparatus used by students includes the recording spectrophotometer, gel electrophoresis apparatus, chromatographic apparatus, orbital incubators, shaking water baths, autoclave, centrifuges, oxygen-sensitive electrode and autoanalyser.

SC384 Microbiology

Three hours per week for one semester

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

A study of applied microbiology.

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.

SC391 Chemistry

Six hours per week for one semester

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, pollutants in air, water and soil, and food chemistry.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours/Week</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC341</td>
<td>Microbiology</td>
<td>Three hours</td>
<td>A subject of semester four of the graduate diploma course in microbiology. Cases studies drawn from the following areas: bacterial taxonomy, virology, bacteriology, and mycology. The laboratory part of the course is designed to provide students with the necessary skills to conduct experiments related to these fields.</td>
</tr>
<tr>
<td>SC342</td>
<td>SC343</td>
<td>Three hours</td>
<td>A subject of the graduate diploma course in industrial microbiology. The practical work includes the isolation and identification of microorganisms from environmental samples. An introduction to microbial physiology, biotechnology, and bioinformatics.</td>
</tr>
<tr>
<td>SC344</td>
<td>SC345</td>
<td>Three hours</td>
<td>A subject of the graduate diploma course in microbial physiology and biotechnology. The laboratory part of the course focuses on the study of microbial metabolism, genetics, and molecular biology.</td>
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<td>A subject of the graduate diploma course in microbial biotechnology. The laboratory part of the course focuses on the application of biotechnology in various industries.</td>
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<td>A subject of the graduate diploma course in microbial biotechnology. The laboratory part of the course focuses on the application of biotechnology in various industries.</td>
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<td>A subject of the graduate diploma course in microbial biotechnology. The laboratory part of the course focuses on the application of biotechnology in various industries.</td>
</tr>
</tbody>
</table>
A final-year subject for degree students majoring in applied chemistry.

**Process analysers (8 hours)**
Their use for process control.

**Reference**

**Free energy relationships applied to metal extraction**
(10 hours)
Thermodynamic basis of free energy relationships.

**References**
Selley, N.J. Chemical Energetics. Lond., Arnold, 1971
Keynes, M. Zinc – A Case Study. Lond., O.U.P., 1975

**Surface coatings**
(18 hours)
Applications of protective organic surface coatings; non-convertible and convertible surface coatings, their chemistry and properties.

**Selected chemical processes**
(36 hours)
This 2-hour section of the course is divided into two parts.

The first nine weeks deals with the catalysts used in the large scale industrial production of organic chemicals. The concepts of organometallic chemistry to a level sufficient to allow an understanding of the design, preparation and mechanisms of such catalysts is also presented.

In the second half, the students select a topic of interest to them, divide it into individual areas of responsibility and each presents a talk and written report on his/her area. This is combined with a suitable industrial visit.

**SC459 Practical Chemistry**
Seventy-two hours of practical work in one semester
Prerequisites, SC319, SC359
A final-year subject for degree students majoring in applied chemistry.

**Extension of SC419**

**SC475 Industrial Biochemistry**
Two hours per week for one semester
A final-year subject for degree students majoring in biochemistry.

**Industrial fermentations** – the commercial biosynthesis of chemicals, antibiotics, vitamins, steroids and vaccines. The present and future application of the technology of recombinant DNA for production of specific proteins.

The chemistry of the production of beer, wine and cheese.

**SC476 Physical Biochemistry**
Two hours of theory per week
Prerequisites, SC217, SC377, SC378
A final-year subject for degree students majoring in biochemistry.

This course establishes an understanding of a number of basic physical and chemical techniques as applied to biochemical analyses.

**Determinations**
- Molecular weight
- Adsorption
- Enzyme activity
- Enzyme inhibition
- Enzyme kinetics
- Enzyme stability

**SC477**
A final-year subject
Extension of SC476
**SC532 Emulsion Technology**
An elective subject in the graduate diploma course in applied colloid science — one hundred and twenty hours

Principles
Basic properties and characteristics of emulsions. The theory of emulsion stability — surface chemical factors, applicability of the DLVO theory, the role of macromolecules as emulsion stabilisers, stabilisation by finely divided solids, the properties of thin films.


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

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

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

Principles

Applications
General principles of water treatment — selected case studies (e.g. iron removal, removal of 

**SC534 Mineral Processing Chemistry**
An elective subject in the graduate diploma in colloid science — one hundred and twenty hours

Principles
Mineral analysis — XRF, XRF, electron microprobe. Particle liberation — crushing, grinding, classifying (brief coverage of these areas).

Mineral flotation — wetting, hydrophobicity. Activators, frothers, collectors and depressants — solution properties, behaviour. Flotation of sulphides — semiconductor properties of the mineral; action of collectors and metal ions. Coal flotation. Floation of silicates, oxides etc.

Chemistry of mineral slurries. Flocculation of minerals — selective flocculation, fine particle recovery etc.

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

**SC535 Detergency**
An elective subject in the graduate diploma in applied colloid science — one hundred and twenty hours

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

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

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

**SC536 Surface Coatings**
An elective subject in the graduate diploma in applied colloid science — one hundred and twenty hours

Principles

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

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

**SC537 Corrosion and Protection of Metals**
An elective subject in the graduate diploma in applied colloid science — one hundred and twenty hours

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


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

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

SC541 Microbiology
Three hours of theory per week for one semester
A subject of semester one of the graduate diploma course in industrial microbiology.
Introduction to microbiology; eukaryotic and prokaryotic microbes; algae, protozoa, fungi, bacteria, cyanobacteria. The viruses; Microbial anatomy — introductory biochemistry of microbes. Methods of microbiology.

SC542 Practical work
Four hours of practical work per week for one semester
A subject of semester one of the graduate diploma course in industrial microbiology.
The practical work complements the theory and develops the skills of students in the handling of micro-organisms.

SC543 Microbiology
Three hours of theory per week for one semester
A subject of semester two of the graduate diploma course in industrial microbiology.

SC544 Practical work
Four hours of practical work per week for one semester
A subject of semester two of the graduate diploma course in industrial microbiology.
The practical work complements the theory and develops the students’ skills further in the techniques used by microbiologists.

SC545 Microbiology
Three hours of theory per week for one semester
A subject of semester three of the graduate diploma course in industrial microbiology.
Infection and infectivity. Basic immunology and serology; serological techniques; toxin and vaccine productions. Laboratory safety and design. Microbiology in food, pharmaceutical and other institutions; food spoilage, food poisoning, food legislation and recommendations. Microbial genetics, genetic engineering.

SC546 Practical work
Four hours of practical work per week for one semester
A subject of semester three of the graduate diploma course in industrial microbiology.
The practical work complements the theory and develops the students’ skills further in the techniques used by microbiologists.

SC547 Microbiology
Three hours of theory per week for one semester
A subject of semester four of the graduate diploma course in industrial microbiology.
Industrial fermentations; biotechnology; use of computers in biotechnology. Enzymes and fermentation control; microbial assay and monitoring; microbial ecology, biodeterioration, waste treatment.

SC548 Practical work
Three hours of theory per week for one semester
A subject of semester four of the graduate diploma course in industrial microbiology.
In addition to extending their technical skills, students undertake a project relevant to their employment or major area of interest.

SC551 Chemical Instrumentation
Four hours of theory and practical work for one semester
A subject of the graduate diploma course in biomedical instrumentation.
Topics to be covered will include: Atomic absorption, infrared and ultraviolet spectrophotometry; electrochemistry; gas and liquid chromatography; mass spectrometry; NMR and ESR spectroscopy; X-ray techniques and associated equipment.

SK114 Computer Science
Five hours per week for one semester
A compulsory first-semester subject for degree students.
The subject introduces the student to general concepts of scientific computing and incorporates teaching the use of a modern, block-structured programming language such as Pascal or Ada. Programming assignments are an integral part of the course.

References
Students should consult their lecturer about suitable textbooks and reference materials.

SK115 Computer Science
Eight hours per week for one semester
Prerequisite, SK114
A second-semester subject for degree students majoring in Computer Science.
The subject extends the programming concepts and techniques which were studied in SK114 and includes programming in a data processing environment and studies in the fundamentals of computer science.

References
Students should consult their lecturer about suitable textbooks and reference materials.

SK116 Computer Science
Four hours per week for one semester
Prerequisite, satisfactory completion of the first semester of the course
A second-semester subject for students majoring in instrumental science/ mathematics or mathematics/chemistry.
The subject extends the programming concepts and techniques which were studied in SK114 and includes an introduction to the techniques of programming in a data processing environment.

References
Students should consult their lecturer about suitable textbooks and reference materials.
SK117 Computer Science
Two hours per week for one semester
Prerequisite, satisfactory completion of the first semester of the course
An optional second-semester subject for students majoring in applied chemistry or biochemistry.
The subject covers computer programming in the language BASIC and introduces the concepts and techniques of computer simulation and control. It emphasises the role and use of computers in association with laboratory equipment.

References
Students should consult their lecturer about suitable textbooks and reference materials.

SK203 Computer Science
Eight hours per week for one semester
Prerequisite, SK115
A second-year subject for degree students majoring in computer science.
An introductory study of the major aspects of computing principles and techniques during which students obtain programming practice and complete assignments which are assessed as an integral part of the course.
Topics covered include: structured programming; software engineering; operating system principles; introduction to computer organisation; file organisation and handling; data structures; assembler programming; simulation and modelling.

References
Students should consult their lecturer about suitable textbooks and reference materials.

SK213 Computer Science
Two hours per week for 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 mathematics and chemistry or instrumental science.
The subject includes study of computer programming techniques and an introduction to computer simulation and modelling.

References
Students should consult their lecturer about suitable textbooks and reference materials.

SK214 Computer Science
Two hours per week for one semester
Prerequisite, satisfactory completion of the common first year or equivalent qualification and some experience in the use of computers in business, engineering and science.
An elective second-year subject for students majoring in mathematics and chemistry or instrumental science.
The subject provides an introduction to systems science, some aspects of computer design and construction and a relatively advanced course on computer simulation and modelling.

References
Students should consult their lecturer about suitable textbooks and reference materials.

SK303 Computer Science
Nine hours per week for one semester
Prerequisite, SK203
A third-year subject for degree students majoring in computer science.
Studies at an advanced level are conducted in computing principles and techniques, during which students gain computing experience and complete assignments which are assessed as an integral part of the course.
Topics covered include: software engineering (including participation in a software hut); data structures and algorithms; computer organisation and architecture; non-procedural programming languages; operating systems; computer graphics; and units from the following list of computer applications: real-time systems; simulation and modelling; computer communications; data-base system design.

References
Students should consult their lecturer about suitable textbooks and reference materials.

SK313 Computer Science
Three hours per week for one semester
Prerequisite, SK213 or SK214 or equivalent experience in the use of computers in business, engineering or science
A third-year subject for students majoring in mathematics and chemistry or instrumental science.
The subject covers an introduction to systems science, some aspects of computer design and construction, and a relatively advanced course on computer simulation and modelling.

References
Students should consult their lecturer about suitable textbooks and reference materials.

SK403 Computer Science
Eight hours per week for one semester
Prerequisite, SK303
A final-year subject for degree students majoring in computer science.
A rounding-off of the study of computing principles and techniques undertaken in SK203 and SK303. Students obtain further computing practice and complete assignments which are assessed as an integral part of the course.
Topics covered include: theory of computation; software engineering organisation of programming languages; systems programming; computer graphics; computer communications; and units from the following list of computer applications: real-time systems, simulation and modelling, data-base system design.
The above applications units are not all offered in any one year. Their availability is determined in response to student requirements.

References
Students should consult their lecturer about suitable textbooks and reference materials.
SK511  Methodology of Simulation
Forty hours in one semester
A subject of semester two of the graduate diploma course in computer simulation.
This is a study of the methods available for the analysis of systems, the translation to a satisfactory model and the validation and analysis of results. The underlying concepts are highlighted by a series of lectures covering the nature of formal deductive systems and scientific theories, models and prediction.
Topics covered include fundamentals of modelling: systems models -- continuous and discrete methods; model translation; software tools for model construction; validation and analysis -- statistical methods, the regenerative method; design of computer simulation experiments; formal logic, scientific theories, models and prediction, models and understanding.
References
Students should consult their lecturer about suitable textbooks and reference materials.

SK512  Digital Simulation Languages
Forty-five hours in one semester
A subject of semester one of the graduate diploma course in computer simulation.
This is a study of the use of general purpose languages for the solution of discrete and continuous simulation problems. Several practical exercises in a particular language are undertaken.
References

SK513  Computer Techniques -- Digital
Thirty hours in one semester
A subject of semester one of the graduate diploma course in computer simulation.
This is a study of simulation models which are to be implemented on a digital computer although not necessarily in a special purpose language. The subject is primarily concerned with aspects of the design of such models, for example, the choice between deterministic and stochastic methods, the method of time advance (unit time versus event advance), problems involved in transient phenomena, search techniques and feedback loops. The student undertakes practical work as an integral part of this subject.
References

SK519  Project Work
Thirty hours in one semester
A subject of semester three of the graduate diploma course in computer simulation.
In this subject each student undertakes, under supervision, practical work in simulation. Each student is encouraged to undertake problems from a wide range of disciplines as possible, but emphasis is upon projects which relate to the student's own areas of interest. Students must submit for approval an initial brief proposal of the project work they intend to undertake.
Satisfactory completion of the project work is a necessary condition for completion of the course.
This project work continues in SK520.

SK520  Project Work/Case Studies
Seventy-five hours in one semester
A subject of semester four of the graduate diploma course in computer simulation.
In this subject the student completes the project commenced in SK519, and gives a presentation of the project that is being undertaken. Additionally, a number of other case of simulations are examined. Each study consists of a detailed examination of some industrial or scientific problem, the understanding of which has been enhanced by the methods of computer simulation and which involves the origin of the problem, its formulation into a model, the problems associated with the implementation of the model and finally, the ultimate degree of success of the problem's solution.

SK522  Digital Simulation Languages
Forty hours in one semester
Prerequisite, SK512
A subject of semester two of the graduate diploma course in computer simulation.
This is a study of the advanced use of general purpose languages for the solution of discrete and continuous simulation problems. Special purpose languages for the solution of continuous systems are studied (e.g. DAREP, ASP) and several exercises in the use of these special purpose languages are undertaken.

SK523  Computer Techniques — Analogue/Hybrid
Sixty hours in one semester
A subject of semester three of the graduate diploma course in computer simulation.
The analogue computer is a parallel processor specially suited to simulation of problems in dynamics. The course deals with the components of an analogue computer, programming, scaling, hard-wiring and obtaining suitable displays. Practical experience is provided through workshop sessions using a variety of analogue computing machines. The subject extends to controlling analogue functions by hardware logic elements.
A hybrid computer is a combination, through a high speed communication interface, of a digital computer (a serial processor) and an analogue computer (a parallel processor). This combination provides the best features of each machine; the speed of the analogue computer with the accuracy of the digital machine. The subject covers the following topics
1 Hybrid computer hardware digital processor, analogue processor, communication interface, analogue-to-digital and digital-to-analogue converters
2 Hybrid computer software Interactive Hytran Operation Interpreter (HOI), FORTRAN Compiler, hybrid linkage routines, graphics plotting routines
3 Hybrid computer applications micro programs using stand-alone analogue and digital processors, synchronisation of analogue and digital processors, data conversion through AID and D/A converters, closed loop hybrid operations, program control of simulation studies via both interactive and stand-alone program mode
This subject includes lecture, demonstration and practical sessions on hybrid computer theory and applications
References
Students should consult their lecturer about suitable textbooks and reference materials.

References
Students should consult their lecturer about suitable textbooks and reference materials.
SK531 Computer Programming Techniques
Sixty hours in one semester
Prerequisite, the student is expected to be competent in the use of some programming language to implement solutions to simple numeric and non-numeric problems
A subject of the graduate diploma course in biomedical instrumentation.
This subject involves the study of
(i) modern concepts of program design using a language such as Pascal;
(ii) the implementation of programs using FORTRAN at an advanced level, and
(iii) the characteristics of the software required to support instrumentation interfaces.
One half of the time is allocated to lectures or tutorials, the other half is devoted to practical work, which is an integral part of the course.
References
Students should consult their lecturer about suitable textbooks and reference materials.

SK532 Digital Simulation Languages
Thirty hours in one semester
A subject of semester three of the graduate diploma course in computer simulation.
This subject studies the use of special purpose simulation languages for the solution of discrete systems, such as CPSS, INS, CSL, and one of these languages will be studied in detail. Several practical exercises are undertaken in this language.
References
Students should consult their lecturer about suitable textbooks and reference materials.

SK533 Computer Simulation
Sixty hours in one semester
Prerequisite, knowledge of a scientific programming language, Mathematics SM263 or equivalent
A subject of the graduate diploma course in biomedical instrumentation.
This subject provides the student with an understanding of the use of computers to implement simulation models. It comprises a consideration of: computer simulation techniques, random number generation and pseudo-random numbers, time-step methods, analogue and hybrid computation, numerical solution techniques for ordinary and partial differential equations, principles of modelling and software packages useful for simulation.
Forty hours of the course are devoted to lectures or tutorials while the remaining twenty hours involve practical work, which is an integral part of the course.
References
Students should consult their lecturer about suitable textbooks and reference materials.

SM114 Mathematical Methods
Five hours per week for one semester
A subject in the degree course in applied science. The following topics are covered:
Mathematics of finance
Errors and their propagation
Solution of equations, including numerical solution
Functions, relations and graphs in Cartesian co-ordinates
Limits and continuity
Elementary functions and their inverses
Differentiation and its applications, including optimisation
Integration and its applications, including numerical integration and improper integrals
Differential equations: first order separable and linear; second order linear with constant coefficients. Numerical solution.
References
References will be supplied in class.

SM116 Mathematics
Four hours per week for one semester
Prerequisite, a satisfactory standard in SM114
A subject in the degree course in applied science
Linear algebra, functions of many variables, data presentation, probability, inferential statistics.
References
References will be supplied in class.

SM118 Mathematics
Four hours per week for one semester
Prerequisite, a satisfactory standard in SM114
A subject in the degree course in applied science
2D polar co-ordinates, complex numbers, Boolean algebra, linear algebra, vectors, functions of many variables, data analysis and presentation, probability.
References
References will be supplied in class.

SM121 Mathematics
Three hours per week for one semester
A subject in the diploma course in applied science (environmental health).
The course introduces and consolidates the basic mathematical techniques needed by students and practitioners of environmental health.
Topics will be chosen from:
(a) basic mathematical operations; indices and logarithms; algebraic manipulations; trigonometric functions;
(b) numerical methods; use of calculators, rounding errors and their consequences;
(c) functions and graphs (algebraic, logarithmic and exponential functions), tabulation, interpolation, curve fitting, 'least square' criterion;
(d) elementary calculus; differentiation and applications, partial differentiation, integration and applications, differential equations of first order, approximate integration using Simpson's rule.
Students are expected to have a background of general mathematics. It is recommended that each student has the use of a calculator and the lecturers, on request, will advise on its purchase.
References
References will be supplied in class.

SM122 Mathematics
Fifteen hours in one semester
A subject in the diploma course in applied science (environmental health).
An introduction to probability and descriptive statistics, including:
(a) tabular and graphic presentation of observed data, frequency distributions, histograms, ogives;
(b) mean and standard deviation and other measures of central tendency and dispersion;
(c) probability theory; independent events, mutually exclusive events, conditional probability.
References
References will be supplied in class.

AS27
SM154  Mathematical Methods

Five hours per week for one semester

A subject in the degree courses in applied science

The following topics are covered:

- Mathematics of finance
- Errors and their propagation
- Solution of equations, including numerical solution
- Functions, relations and graphs in Cartesian co-ordinates
- Limits and continuity
- Elementary functions and their inverses
- Differentiation and its applications, including optimisation
- Integration and its applications, including numerical integration and improper integrals
- Differential equations: first order separable and linear; second order linear with constant coefficients. Numerical solution.

References

References will be supplied in class.

SM155  Operations Research 1

Two hours per week for one semester

Prerequisite, SM114

A major subject in the degree course in applied science.

Methodology of Operations Research
- Linear programming
- Inventory control

Workshops

References

References will be supplied in class.

SM156  Applied Statistics 1

Three hours per week for one semester

Prerequisite, SM114

A major subject in the degree course in applied science.

Data presentation: ordering, summarising and understanding data. Relationships between variables; measures of association; summarising relationships, index numbers.

- Probability: standard discrete distributions; conditional probability;
- Markov processes; acceptance sampling.
- Inferential statistics: continuous distributions; sampling distributions; estimation; hypothesis testing.

References

References will be supplied in class.

SM157  Mathematics 1

Three hours per week for one semester

Prerequisite, SM114

A major subject in the degree course in applied science.

- Polar co-ordinates in two dimensions.
- Linear algebra: matrices, determinants and systems of linear equations.
- Vectors and geometry in two and three dimensions; three-dimensional co-ordinate systems.
- Functions of many variables: graphs, partial differentiation; directional derivatives; optimisation.
- Multiple integrals and applications.
- Vector fields; line and surface integrals; vector calculus.

References

References will be supplied in class.

SM213  Mathematics

Two hours per week for one semester

Prerequisites, SM121 and SM122

A 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 normal;
- (b) sampling theory: means, difference of means, t, x² 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 of independence.

References

References will be supplied in class.

SM255  Operations Research 2

Three hours per week for one semester

Prerequisite, SM155, SM157

A major subject in the degree course in applied science

Network analysis.

Simulation.

Forecasting.

Case studies: students working in groups tackle unstructured problems related to practical situations.

References

References will be supplied in class.

SM256  Applied Statistics 2

Two hours per week for one semester

Prerequisite, SM156

A major subject in the degree course in applied science

Inferential statistics: types I and II errors; enumerative data analysis.

Regression analysis; correlation; ordinary least squares; time series analysis.

References

References will be supplied in class.

SM257  Mathematics 2

Three hours per week for one semester

Prerequisite, SM157

A major subject in the degree course in applied science.

Introduction to formal mathematics: generalisations, types of proof.

Sequences and series; limits, convergence and divergence; infinite series; simple tests of convergence; Taylor series.

Ordinary differential equations: First and higher order equations of standard types; use of substitution and integrating factors.

Introduction to Laplace transforms and series solution. Difference equations of first and second order.


Linear algebra: linear dependence of vectors, vector spaces; Rank, nullspace and range of matrices; eigenvalues and eigenvectors with applications.

References

References will be supplied in class.
SM263  **Mathematics**  
Four hours per week for one semester  
Prerequisite, completion of the first year.  
A subject in the degree course in applied science.  
Topics include — sequences and series, tests for convergence,  
complex numbers, functions, derivatives, conformal mappings,  
multiple integrals, Stoke's and Gauss' theorems. Differential  
equations, linear, homogeneous, non-homogeneous, Power series  
References will be supplied in class.

SM355  **Operations Research 3**  
Four hours per week for one semester  
Prerequisite, SM255, SM256, SM257  
A major subject in the degree course in applied science  
Linear and integer programming.  
Classical optimisation.  
Markov chains and queueing theory.  
Industrial projects: students, working in groups and supervised by a  
staff member, undertake consultancy projects for outside  
organisations.  
References will be supplied in class.

SM356  **Applied Statistics 3**  
Three hours per week for one semester  
Prerequisite, SM256  
A major subject in the degree course in applied science  
Regression and analysis of variance.  
Violation of the basic assumptions for ordinary least squares.  
Nonparametric statistics.  
Sampling methods.  
Sample surveys.  
References will be supplied in class.

SM357  **Mathematics 3**  
Two hours per week for one semester  
Prerequisite, SM257  
A major subject in the degree course in applied science.  
Multidimensional space: algebra, geometry and calculus.  
Functional analysis: Banach space, transforms, functionals.  
Combinatorial analysis: arrangements, selections, partitions.  
Introduction to algebra: applications in coding.  
Calculus of variations.  
References will be supplied in class.

SM363  **Mathematics**  
Three hours per week for one semester  
Prerequisite, SM263  
A subject in the degree course in applied science.  
The topics covered in this subject may be varied to accommodate  
the needs and interests of the students undertaking the subject.  
The core will include the following: modern algebra with applications  
to self-correcting codes and generation of pseudo-random numbers,  
partial differential equations (with emphasis on numerical aspects),  
selected topics in statistics and/or operations research.  
References will be supplied in class.

SM455  **Operations Research 4**  
Five hours per week for one semester  
Prerequisite, SM355, SM356, SM357  
A major subject in the degree course in applied science.  
Dynamic programming.  
Inventory control.  
Advanced forecasting.  
Financial modelling.  
Replacement.  
Scheduling.  
Industrial projects: students, working in groups and supervised by a  
staff member, undertake consultancy projects for outside  
organisations. Seminars: students present a seminar, comprising an  
overview plus a case study, on an agreed topic.  
References will be supplied in class.

SM456  **Applied Statistics 4**  
Three hours per week for one semester  
Prerequisite, SM355, SM356, SM357  
A major subject in the degree course in applied science  
Simultaneous equation models: definition; identification; methods.  
Sampling methods.  
Sample surveys: practical projects; lectures from practitioners.  
References will be supplied in class.

SM511  **Mathematical Simulation Techniques**  
Three hours per week for one semester  
Prerequisites, SM511  
A subject in the graduate diploma in computer simulation.  
Topics include: probability, frequency distributions, confidence  
intervals, goodness of fit tests, sampling from distributions, random  
number generators, pseudo-random numbers, tests for randomness.  
References will be supplied in class.

SM512  **Mathematical Simulation Techniques**  
Forty hours in one semester  
Prerequisite, SM511  
A subject in the graduate diploma in computer simulation.  
A survey of methods used in the numerical solution of ordinary and  
partial differential equations.  
References will be supplied in class.

SM513  **Mathematical Simulation Techniques**  
Three hours per week for one semester  
Prerequisite, SM511  
A subject in the graduate diploma in computer simulation.  
The topics covered may be varied to accommodate the needs and  
interests of the students undertaking the subject. The core comprises  
the following:  
analytic and simulation approach to operations research. The design,  
testing and validation of simulation models, output of results, length  
of run, steady state, variance reduction techniques.  
These techniques are applied to queuing and inventory models.  
Further models in forecasting, allocation, sequencing and  
replacement may be discussed.  
References will be supplied in class.
SP111 Physics
Three hours of theory and two hours of practical work per week for one semester
Continuous assessment by tests and practical work
A first-year subject in the diploma course in applied science (environmental health).
Properties of matter: gases, liquids, solids, change of state, calorimetry, temperature measurement.
Acoustics: waves, vibratory motion.
Electricity: electromagnetism, electrical measurements (DC and AC).

References
Consult the lecturer in charge.

SP112 Physics
Two hours of theory and two hours of practical work per week for one semester
Prerequisite, SP111
Continuous assessment by tests and practical work
A first-year subject in the diploma course in applied science (environmental health).
The atom: emission and absorption of radiation, X-rays.
The nucleus: radioactivity, nuclear reactions, radioactivity measurements.
Electromagnetic waves, geometric and physical optics, signals and signal processing, transducers, instrument principles, Laser applications, Industrial meteorology.

References
Consult the lecturer in charge.

SP113 Instrumental Science
72 hours in one semester
Prerequisite, satisfactory completion of the first semester of the course
A second semester subject for degree students majoring in instrumental science.
An introduction to the principles of measurement and instrumentation involving electronic information coding and decoding, both analogue and digital.
Laboratory work includes workshop experience and assessment is by theory tests and laboratory/workshop reports.

SP114 Physics
Five hours per week of theory, practical work and tutorial classes
Assessment by assignments, practical work and examination
A first semester subject for degree students.
Motion and forces, thermal physics, optical systems, atomic and nuclear physics, DC circuits.

Textbooks
Consult the lecturer in charge.

SP115 Physics
Eight hours per week of theory, practical work and tutorial classes
Prerequisite, SP114
Assessment by assignments, practical work and examinations
A second semester subject for degree students majoring in biophysics and instrumental science or computer science and instrumental science.
Electricity and magnetism, vibrations and waves, structure and properties of matter, modern physics A.C. circuits, nuclear physics.

Textbooks
Consult the lecturer in charge.

SP116 Physics
Four hours per week of theory, practical work and tutorial classes
Prerequisite, satisfactory completion of the first semester of the course
Assessment by assignments, practical work and examination
A compulsory second semester subject for degree students majoring in instrumental science and chemistry or mathematics and an optional subject for students majoring in applied chemistry or biochemistry.
Electricity and magnetism, vibrations and waves, properties of matter, modern physics.

Textbooks
Consult the lecturer in charge.

SP117 Instrumental Science
36 hours in one semester
Prerequisite, SP114
Assessment is continuous by test and practical work reports
An optional second semester subject for degree students majoring in biophysics.
Biophysics in clinical practice, physics in physiological systems.
Structural anatomy, kinesiological aspects.
Control system interactions, control in physiological systems, endocrine, reproductive and metabolic aspects.

References

SP123 Biophysics
Four hours per week for one semester
Prerequisite, SP114
Assessment is continuous by test and practical work reports
A second semester subject for degree students majoring in biophysics.
Biophysics in clinical practice, physics in physiological systems.
Structural anatomy, kinesiological aspects.
Control system interactions, control in physiological systems, endocrine, reproductive and metabolic aspects.

References

SP217 Analogue Instrumentation
Four hours per week for one semester
A third-semester subject for students majoring in instrumental science.
Topics include AC circuit theory, power supplies, semiconductor devices and circuits — diodes, transistors, op amps, other semiconductors, commonly used components — construction of instrumental circuits.

SP218 Digital Instrumentation
Four hours per week for one semester
A third-semester subject for students majoring in instrumental science.
Topics include measuring instruments and control instrumentation, sensors, filters, combinational logic, logic family characteristics, data busses, flip-flops and counters, MSI devices and memory devices.

SP227 Bioelectric Phenomena
Four hours per week for one semester
Prerequisites: SP123 or equivalent
Continuous assessment by tests and practical work
A third-semester subject for students majoring in biophysics.
Electrodes in biomedical applications.

References
SP228 Contractile Dynamic Systems
Four hours per week for one semester
Prerequisite: SP123 or equivalent
Continuous assessment by tests and practical work
A third-semester subject for students majoring in biophysics.
Ionic and dynamic relations in skeletal, smooth and cardiac muscle.
Blood rheology.
References
Davson, H., and Segal, M.B. Introduction to Physiology. Vol. 1, 2

SP305 Physics
Three hours per week for one semester
A third-year subject for students majoring in biophysics or in chemistry.
Quantum physics, nuclear physics, properties of solids, radiation physics, acoustics.
References
Consult the lecturer in charge

SP307 Signals and Systems
Four hours per week for one semester
Assessment is continuous by tests and assignments
A fourth or sixth-semester subject for students majoring in instrumental science.
Signal analysis techniques for optical and instrumental systems.

SP308 Physics
Four hours per week for one semester
A fourth or sixth-semester subject for students majoring in biophysics.
This subject develops a thorough appreciation of the physical principles involved in the operation of solid state electronic devices. Topics covered include electromagnetic radiation, statistical mechanics, quantum optics, many-body quantum mechanics and solid state physics.

SP317 Scientific Instrumentation
Four hours per week for one semester
A fourth or sixth-semester subject for students majoring in instrumental science.
Topics include operational amplifiers, ideal and non-ideal behaviour, stability of amplifier circuits, oscillators and waveform generation, multipliers and logarithmic circuits, characteristics of scintillation and Geiger counters, measurement of nuclear radiation and preparation of sources, and pulse counting and analysis.

SP318 Digital Systems
Four hours per week for one semester
A fourth or sixth-semester subject for students majoring in instrumental science.
Topics include the characteristics of logic families, sequential circuit design and implementation, memories, microprocessor bus timing and microprocessor input/output programming.

SP327 Respiratory and Renal Adaptations
Four hours per week for one semester
Prerequisite: SP227 or SP228
Continuous assessment by tests and practical work
A fourth-semester subject for students majoring in biophysics
Respiratory mechanics and respiratory function testing.
Pulmonary pathophysiology. Anaesthesia. Renal biophysics including dialysis. Foetal and neonatal development and monitoring.
References
West, J.B. Respiratory Physiology, 2nd edn, Bail., Williams and Wilkins, 1979

SP328 Physiological Control Systems
Four hours per week for one semester
Prerequisite: SP228
Continuous assessment by tests and practical work
A fourth-semester subject for students majoring in biophysics.
References

SP355 Physics
Six hours per week for one semester
Assessment is continuous by tests and practical assignments
A third-year subject for students majoring in applied chemistry.
Quantum mechanics, nuclear physics, radiation physics, concentrating on the properties and instrumentation of the main regions of the electro-magnetic spectrum of interest to chemists. Instrumentation physics.
References
Consult the lecturer in charge.

SP417 Analogue Systems
Four hours per week for one semester
A final semester subject for students majoring in instrumental science.
Topics include interference, noise and noise coupling; analogue to digital and digital to analogue conversion instrument systems; control systems, modelling, electrical and mechanical systems; transfer function, open and closed loop systems, negative and positive feedback, root locus techniques, compensation techniques, computer control systems.

SP418 Advanced Instrumentation
Four hours per week for one semester
A final semester subject for students majoring in instrumental science.
Topics include algorithmic state machines, the general purpose interface bus, asynchronous communications direct memory access, 16-bit systems, custom integrated circuits, radiation measurements, radiometric and photometric units, colourimetry, colour systems and measurement, monochromator and spectrometer design, infra-red and ultra-violet sources and measurement.
SP427  Sensory Systems
Four hours per week for one semester
Prerequisites: Either SP327 or SP326 and SP227
Continuous assessment by tests and practical work
A final semester subject for students majoring in biophysics.
Topics include receptor functions, psychophysics, somatic sensation, auditory and vestibular operation, chemical senses, volume conductor theory.
References

SP428  Higher Cortical Functions
Four hours per week for one semester
Prerequisites: Either SP327 or SP328 and SP227
Continuous assessment by tests and practical work
A final semester subject for students majoring in biophysics.
Topics include imaging, vision, motor control and higher cortical activity.
References
Wells, P.N.T. The Scientific Basis of Medical Imaging. Edin., Churchill Livingstone, 1982

SP531  Biophysical Systems and Techniques
Four hours per week for one semester
Prerequisites: Either SP327 or SP326 and SP227
Continuous assessment by tests and assignments
A final semester subject for students majoring in biophysics.
Topics include imaging, vision, motor control and higher cortical activity.
References
Wells, P.N.T. The Scientific Basis of Medical Imaging. Edin., Churchill Livingstone, 1982

SP532  Clinical Monitoring Techniques
Four hours per week for one semester
Continuous assessment by tests and assignments
A final semester subject for students majoring in biophysics.
Topics include imaging, vision, motor control and higher cortical activity.
References
Wells, P.N.T. The Scientific Basis of Medical Imaging. Edin., Churchill Livingstone, 1982

SP533  Aspects of Metabolic Measurements
Four hours per week for one semester
Assessment by assignment and tests
An advanced subject of the graduate diploma course in biomedical instrumentation.
References

SP534  Neurophysiological Techniques
Four hours per week for one semester
Assessment by assignments
A final semester subject for students majoring in biophysics.
Topics include imaging, vision, motor control and higher cortical activity.
References
Wells, P.N.T. The Scientific Basis of Medical Imaging. Edin., Churchill Livingstone, 1982

SP535  Project
Four hours per week for one semester
Assessment by project work, report and presentation.
A subject of the graduate diploma course in biomedical instrumentation.
The development, construction and commissioning of a biomedical instrumentation system.

SP536  Project
Four hours per week for one semester
Assessment by project work, report and presentation.
A subject of the graduate diploma course in biomedical instrumentation.
The development, construction and commissioning of a biomedical instrumentation system.

SP541  Signal Processing
Four hours per week for one semester
Assessment by assignments
A subject of the graduate diploma course in biomedical instrumentation and scientific instrumentation.
(1) Linear and non-linear systems, response functions, functions, Volterra and Wiener expansions, system kernels.
(2) Signals, spectra, mean square estimation, orthogonality, principle component analysis, probability, stationary and non-stationary stochastic processes.
(3) Data, smoothing, windows, averages, filters, digital filters, recursive filters, auto-correlation, cross-correlation.
(4) System estimation, spectral analysis, correlation and coherence white noise methods, system kernel estimation.
(5) Digital processing review of DFT, FFT, Z-transform, Hilbert transform.
(6) Information theory Codes and encoding techniques
Redundancy and efficiency, error correction and detecting codes Signal transmission mutual information
Channel capacity, band limited signals noisy channels, signal detection.
References
Consult the lecturer in charge
SP542  **Optical Instrumentation**
Four hours per week for one semester
A subject in the graduate diploma courses in biomedical instrumentation and in scientific instrumentation.
- Radiometry and photometry
- Sources and detector characteristics
- Spectroscopy and spectrometer design
- Lasers
- Imaging
- Lens design
- Fibre optics
- Optical transform Techniques
- Holography

References
Consult the lecturer in charge

SP543  **Vacuum Systems**
Sixty hours in one semester
A subject of the graduate diploma course in biomedical instrumentation.
- Pressure measurement and gauges. Leak detection. High vacuum pumping techniques. Application of vacuum systems.

SP544  **Nuclear Instrumentation**
Sixty hours in one semester
A subject of the graduate diploma course in biomedical instrumentation.

SP545  **Instrument Programming and Interfacing**
Four hours per week for one semester
A subject of the graduate diploma courses in biomedical instrumentation and scientific instrumentation.
- Interfacing peripheral devices
  - Programming and interfacing techniques for microprocessor peripheral support (IC’s) — 110 ports, serial communications, graphics, direct memory access controller.
  - Techniques for controlling instruments using standard bus modules.
- General purpose instrumentation Bus (IEEE-488)
  - Structure, functions of talkers, listeners and controllers, timing, electrical characteristics. Interfacing a controller chip set to an intelligent instrument. Assembler programming, system programming. Example of a programmable instrumentation system.
- Hardware and software tools
  - Logic analysers, developments system facilities including emulators, cross-assemblers, characteristics of real-time operating systems.
- Instrumental systems
  - Examples of scientific systems — nuclear instrumentation system, data acquisition system, optical imaging system. Reliability.

References
Consult the lecturer in charge.

SP546  **Instrumentation Systems**
Four hours per week for one semester
Assessment by practical work reports and examination
A subject of the graduate diploma courses in biomedical instrumentation and in scientific instrumentation.

- Data acquisition systems
  - (a) Analog systems
    - Transducers, signal conditioning
    - Scanners, multiplexers, visual display devices, graphic recording, Magnetic tape storage
  - (b) Digital systems
    - Analogue to digital and digital to Analogue conversion, digital recorders.
- Interference and noise
  - Thermal and quantum noise, noise power spectrum, equivalent noise power, noise coupling, electric field shielding, magnetic field shielding, grounding, guarding, contact noise, filters and filtering, noise reduction techniques.

References
Consult the lecturer in charge.

SP551  **Instrumentation Principles and Techniques**
Four hours per week for one semester
Assessment by practical work reports, assignments and examination.
A introductory subject of the graduate diploma courses in biomedical instrumentation and scientific instrumentation.

- Measurement principles
  - The role of measurement, the units of measurement, standards, systematic and random errors particularly as applied to the traceability of standards, limit of detection and resolution, sensitivity, noise, analogue and digital readout — discussion of the above principles.
- Transducers
  - Precision DC measurement — techniques, measurements, problems.
  - Floating and guarded measurement. Principles of transducer operation. Transducers — AC or DC, active or passive, activator or sensor. A selection from the above groupings to cover the broad range of transducers available.
  - The interfacing of transducers — signal processing applications, transmitting applications.
- Instrumental practice
  - Theoretical and practical course based on —
    - (i) Instrument components and mechanisms, e.g. servomotors, stepper motors, galvanometers, electric components.
    - (ii) Printed circuit board techniques, e.g. artwork, negative, manufacture, drilling, soldering.
    - (iii) Prototyping techniques, e.g. wire wrap, bread board

References
Consult the lecturer in charge.
SP552 Introduction to Scientific Instrumentation

Four hours per week for one semester
Assessment is by practical work reports, assignments and examination

An introductory subject in the graduate diploma course in biomedical instrumentation and in scientific instrumentation.

Basic nuclear physics: basic nuclear properties, nomenclature, stable and unstable nuclides, radiations, interaction with matter. Table of isotopes, decay schemes.

Detectors: general survey, including Geiger, scintillation and solid state detectors.

Instrumentation: NIM system, pre-amplifiers, main amplifiers, discriminators, single channel analysers, counters, timers, ratemeters, sweeps, recorders, multi-channel analysers.

Safety hazards, precautions, sealed and unsealed sources, monitoring.

Chemical/atomic instrumentation

Atomic structure, atomic weight and atomic number, Avogadro's number, kinetic theory, solids, ionic lattices, molecules, molecular weights, electrochemistry, conductance, acids and bases, cells, redox reactions, thermodynamics.

Optical instrumentation

Waves and particles, refractive index, reflection, lens and mirrors, polarisation, diffraction, interference, prisms and gratings, interferometers, sources of radiation, detectors.

References
Consult the lecturer in charge

SP553 Introduction Instrumentation Electronics

Four hours per week for one semester
Assessment by practical work reports and examination.

An introductory subject in the graduate diploma courses in biomedical instrumentation and in scientific instrumentation.

DC circuits
Voltage, current, OHMS law, power, resistances in series and parallel, Kirchhoff's laws, Thevenin's theorem, Norton's theorem, series and parallel combinations of voltage and current sources, non-linear resistances.

AC circuits
Sine waves, AC power, capacitance, inductance, impedance, RLC circuits, tuned circuits, integrator and differentiator circuits, mutual inductance, transformers.

Diodes
Semiconductor materials, the pn junction, diode specifications, Zener diodes, special types of diodes.

Power Supplies
Rectification, voltage and current regulation

Amplifiers and semiconductor devices

(a) Theory of amplifiers
Sources of electrical signals, voltage amplifiers, current amplifiers, gain impedance relationship, feedback, input and output impedances.

(b) Transistor Circuits
Small signal characteristics, gain, input impedance, output impedance, bias current and voltage feedback, darlington pairs, current mirror, differential pairs, AC and DC coupled amplifiers, bias and gain of multiple transistor circuits, power amplifiers.

(c) Field effect transistors
Small signal characteristics, J-Fets, mosfets, bias and gain, fet amplifiers.

(d) Semiconductor devices
Unijunction circuits, SCR and triac circuits

Digital systems
Numbers in digital systems
Digital logic
Digital devices

References

SP555 Introduction to Biophysical Systems

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

An introductory subject in the graduate diploma course in biomedical instrumentation, for students with an inadequate background in the biological aspects of biophysics.

Cell physiology, membranes and excitability, nerves and muscles.

Bion energetics. Flow and pressure. Biological control systems.

References

AT191 Health and Society

Two hours per week for one semester
Assessment is continuous

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

Psychological principles in human behaviour are examined, covering such areas as: genetic determinism in behaviour; learning principles applied to human 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 ages, backgrounds and sexes.

Textbook

AT192 Health and Society

Two hours per week for one semester
Assessment is continuous

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

Emphasis in this course will be on topics in psychology such as: motivation, adjustment, personality and social behaviour. Attention will also be given to coping with environmental stress and anxiety.

Textbook

AT291 Complementary Studies

Two hours per week for one semester
Assessment is continuous

A second year subject in all degree courses in applied science.

This course has two objectives. The first is to train students in business communications and report writing. The latter will give students experience in literature searching, constructing a bibliography and conducting an investigation leading to the preparation of a report. The second objective is to expand students' understanding of Australian society.

Current social issues — such as unemployment, immigration and automation — will be examined against a background of information and theory concerning the functions of our social, economic and political systems, as a means of developing communication skills.

References
Consult the lecturer in charge
AT393 Communication Studies
One hour per week for one semester
A third-year subject for degree students majoring in applied chemistry.
Training in the presentation of oral reports. Each student is expected to present two oral reports. One on work experiences, the other a critical assessment of a scientific or technical topic. A satisfactory standard of presentation and participation is required for a pass in this subject.

AT394 Report Writing
One hour per week for one semester
A third-year subject for degree students majoring in biochemistry.
Training in the presentation of oral reports. Each student is expected to present two reports. One on work experiences, the other a critical assessment of a scientific or technical topic. A satisfactory standard of presentation and participation is required for a pass in this subject.

AT493 Brain and Behaviour
Four hours per week for one semester
A final-year subject in the degree course in applied science for students majoring in biophysics.
The course provides an introduction to areas of human behaviour which are outside of, but complementary to, the study of biophysics. The topics range over such areas as: neuroanatomy, learning theory, memory, stress, and social theories of abnormal behaviour. The practical aspects of the course are emphasised by using lecturers from a range of academic disciplines and professional practice. Students are also introduced to some behavioural and communication skills which should be of benefit both in their private and professional lives.

References
Reading and other resources will be given where appropriate.

BC210 Building Practices
Thirty-six hours in one semester
A second-year subject in the diploma course in applied science (environmental health).
Building construction in relation to health surveying is studied and building sites are visited. Uniform building regulations are covered, fire engineering is examined, and basic plumbing is taught.

BS115 Business Studies
Four hours per week for one semester
A second-year subject for degree students majoring in economics and computer science.
The course objectives are:
to provide students with an appreciation of economics and accounting;
to enable students to communicate with executive business staff;
to understand some of the concepts behind many business decisions;
to appreciate the link between economics and accounting.
Topics covered in the accounting section include: the cost and management accounting process, product costing methods, standard costing, the preparation and use of budgets, capital expenditure analysis and decision-making.

Accounting references
Barton, A.D. The Auditors of Accountancy. 2nd edn, 1977, St Lucia, University of Queensland Press
McDonald, R.C., Cooper, R.G. and Askill, B.J. Accounting for the Non-Finance Executive. Methuen, N.Z., 1979

Economics textbooks
Davies, J. and Hughes, S. Managerial Economics. Plymouth, McDonald and Ewers, 1979

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.
The role of the common law in protection of health and the environment.
The application of techniques of statutory interpretation to legislation affecting the environment, e.g. the Litter Act 1964, Navigable Water (Oil Pollution) Act 1960.
A second-year subject in the diploma course in applied science (environmental health).

An introduction to:
(a) legal procedures in the investigation of summary offences 
(b) common law remedies relating to environmental health 
(c) the Environment Protection Act 1970, the Health Act 1958 and 
the Food Act 1984

BS390 Law
Sixty-three hours in one semester
Prerequisite, BS293

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

An analysis of the rules of procedure and an introduction to the laws of evidence and problems of proof.

A detailed examination of the rules of professional conduct and ethics in the context of the Magistrates Court.


BS495 Business Studies
Four hours per week for one semester

A final-year complementary study for degree students.

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. A more detailed statement of the subject material, and references, is provided by the lecturers.

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 is given to record-keeping and its relevance to evidence for prosecutions.

BS499 Law
Sixty-three hours in one semester
Prerequisite, BS390

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

An examination of legislation relevant to the health surveyor and to environmental health protection. Particular problem areas, applicable to municipal and other public bodies. Particular attention is given to record-keeping and its relevance to evidence for prosecutions.

CE223 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, Victorian planning structure and legislation, map techniques, the preparation of planning data, regional concepts, neighbourhood planning. The practical tutorial work includes visits to new development sites within the metropolitan area and an introduction to the preparation of planning reports.

References
To be advised by the lecturer

CE235 Health Engineering
Three hours per week for one semester

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

This subject gives the student a basic knowledge of fluid mechanics, and a practical understanding of urban drainage and sewerage systems.

Hydrology
The hydrologic cycle. Rainfall measurement; intensity-frequency-duration charts.
Runoff processes; losses, estimation of runoff by the rational method.

Hydraulics
Bernoulli's equation, continuity of mass, energy forms, application to simple examples; chutes, Pitot tube, orifices, weirs.

Drainage
Pipes — capacity, location, installation, grades, sizes, materials. Pipe flow formulae, use of charts for pipe selection.
Introduction to drainage system design. Open drains — Manning's formula.

Sewerage
Volumes and composition of sewage. Collection methods, plumbing details. Sewers: pipe location, grade, capacity, materials, appurtenances. The decay cycle.

Sewage purification: primary, secondary and tertiary treatment processes; activated sludge process; lagoons.

Septic tanks; principles of operation, construction, maintenance, effluent disposal, sand filters.

Small sewage treatment plants: design and operation of treatment elements.

References
To be advised by the lecturer.

CE401 Health Engineering
Three hours per week for one semester

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

Water supply
Elements of water supply systems, headworks, supply mains, service reservoirs, distribution networks. Temporary water supplies.

Soil mechanics
Introduction, soil properties, classification systems, laboratory and field identification and classification.
Groundwater flow: total head concepts in steady flow. Darcy's Law, soil permeability, isotropic flow-nets, examples of steady two-dimensional seepage.

Solid waste disposal
Volumes and composition of solid wastes from domestic, commercial and industrial sources: collection, transport and disposal methods; sanitary landfill, incineration.

Stream pollution
Sources and nature of polluting substances, effect on bodies of natural water, oxygen balance, Streeter-Phelps equation.

Surveying
Introduction to levelling, measuring and setting out. Basic computation techniques. Surveying instruments, uses and adjustments. Practical classes showing application of instruments.

References
To be advised by the lecturer.
EA122 Industrial Processes (Introduction)
One hour per week for one semester
Assessment by assignments
A first-year subject in the diploma course in applied science (environmental health).
An introduction to the course, describing how pollution occurs and its influence on the environment; air and water pollution and the effects of weather, terrain, stack height etc; disposal of solid wastes, recycling and reuse.
An introduction to the industrial situation and to the use of the process flow diagram; identification of likely waste problems.
An introduction to the operation of the EPA and its regulations

Textbook

EA223 Industrial Chemical Processes
Three hours per week for one semester
Prerequisite, EA122
Assessment by assignments
A second-year subject in the diploma course in applied science (environmental health).
The subject comprises:
(a) description of chemical engineering unit operations: size reduction, mixing; dust and solids removal by sedimentation, filtration, cyclone separators, electro-static precipitators, dust washers and venturi scrubbers; examples of the applications of these operations in the process industries, such as in food preservation by drying, freezing, etc. will be included.
(b) an introduction to process calculations, including stoichiometry, combustion calculations, heat and mass balances.

EA321 Industrial Processes
Three hours per week for one semester
Prerequisite, EA223
Assessment by assignments
A third-year subject in the diploma course in applied science (environmental health).
The subject comprises:
(a) descriptions of major industries and their environmental problems, using the techniques of flowcharting and process calculation developed in EA122 and EA223,
(b) water and waste water treatment, including techniques of chemical treatments, ion exchange, sedimentation, coagulation etc, biological processes such as activated sludge and trickling filters etc; water cooling, humidification and dehumidification, odour control.
(c) A program of works visits designed to augment the above studies.

EA421 Industrial Processes
Four hours per week for one semester
Prerequisite, EA321
Assessment by assignments
A final-year subject in the diploma course in applied science (environmental health).
The subject comprises:
(a) case studies of industrial problems involving by-products and waste flows;
(b) discussion of relevant environmental problems of current public interest;
(c) industrial safety and hygiene in chemical plants;
(d) occupational safety, health and hygiene; factors influencing behaviour and safety in the work place;
(e) a program of works visits designed to augment the above studies.

Reference

ED101 Engineering Drawing and Sketching
Three hours per week for one semester
Assessment by assignments
A first-year subject in the diploma course in applied science (environmental health).
The course gives the student a sound basic knowledge of the principles of engineering drawing and sketching. Exercises are selected from the areas of interest to health surveyors and may include equipment and plans for heating, ventilation, lighting, air-conditioning, refrigeration, fire protection, drainage, waste treatment and disposal, building construction, pumps, pipework, etc.

ED102 Engineering Drawing and Sketching
Three hours per week for one semester
Prerequisite, ED101
Assessment by assignments
A first-year subject in the diploma course in applied science (environmental health).
A continuation and extension of the topics of ED101.

EE541 Control Systems
Four hours per week for one semester
A subject of the graduate diploma course in biomedical instrumentation and scientific instrumentation.
Review of linear feedback. Control theory. Introduction to non-linear system analysis. Analogue computer simulation of systems, introduction to the state variable approach to system simulation and state space analysis. Discrete data systems and sampling theory. Introduction to digital control techniques.

References

EE542 Applications of Computer Devices
Four hours per week for one semester
A subject of the graduate diploma course in biomedical instrumentation and scientific instrumentation.
The aim of this subject is to introduce students to small computer equipment and techniques used in real-time monitoring, control, acquisition and transmission applications. The emphasis is on small computer systems.
Introduction: the philosophy and architecture of stored program computers.
Single board computer: introduction to MC68S architecture and applications. Instruction set and peripheral chip functions.
Data transmission methods: CCITT V24, RS232, IEEE488 general purpose interface bus.
Computer peripherals: graphic output techniques, intelligent peripherals, bulk storage.
PDP11 minicomputer: PDP11 architecture and instruction set. PDP11 data acquisition example: A/D conversion, real-time sampling, multiplexing, interrupts, effects of word length and sampling rate. Commercially available data acquisition modules.
Review: comparison of features and limitations of other microcomputers and minicomputers.
EE543  Data Transmission for Instrumentation
Four hours per week for one semester
A subject of the graduate diploma courses in biomedical instrumentation and scientific instrumentation.
Modems, modulation methods, interfacing, line-conditioning, multiplexers and concentrators, switched and leased lines, Datel, CCITT standards.
Protocols, bit- and byte-oriented protocols, BSC, HDLC, SNA, ISO Model.
Public data networks, Datel AUSTPAC, DDN
Local area networks, topology, access methods, examples, e.g., Ethernet.
Analogue data transmission, process control examples.
Electrical isolation, noise and interference reduction, optical fibres transmission methods, error control and data security.
References

EE554  Electronic Systems
Four hours per week for one semester
A subject of the graduate diploma courses in biomedical instrumentation and scientific instrumentation.
Analogue electronics: operational amplifier analysis and design
Linear and non-linear amplifiers.
Digital electronics: sequential circuit design, algorithmic state machine, and microprocessor hardware.
Software techniques and interfacing circuits.
References
Consult the lecturer in charge.

ME349  Environmental Engineering
Three hours per week for one semester
A third-year subject in the diploma course in applied science (environmental health).
Topics covered include:
(a) mechanical engineering plant. Principles and standards to be met by heating, ventilating, lighting, air-conditioning, refrigeration, steam and high pressure hot water plants, supplied by power plants, combustion and standby plant — tests on boiler plants such as the Ringleman, Q, CO and CO₂ tests. Recognition and analysis of problems, reports and recommendations, maintenance of records;
(b) vibration and acoustics, environmental noise control.

ME449  Environmental Engineering
Three hours per week for one semester
This is a final year subject in the diploma course in environmental health.
The objective of the course is to develop an appreciation of the influence that engineering changes to the working environment can have on health. Graduates develop the skills necessary to evaluate working environments with respect to the safety and well-being of occupants of those environments.
The syllabus then will include a systematic approach to problems of mismatching between human characteristics and environment and task demands. Particular attention will be given to anthropometry, heat, light, noise, vibration, displays, controls, questionnaires and interview techniques and occupational health and safety programs.
The course involves 54 hours of classroom and laboratory attendance.
Academic staff .................................................. AR2
--Department of Film and Television ................. AR2
--Department of Graphic Design ...................... AR2
Art courses offered ........................................ AR2
Diploma of Art (Film and Television) ............... AR3
--Entrance requirements ................................ AR3
Graduate Diploma in Applied Film and
Television ...................................................... AR3
--Entrance requirements ................................. AR3
Diploma of Art (Graphic Design) ..................... AR4
Degree of Bachelor of Arts (Graphic Design) .... AR4
--Entrance requirements ................................ AR4
Subject details
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--Graduate Diploma in Applied Film and Television

--- Diploma/Degree in Graphic Design ............... AR7

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--- Diploma of Art (Film and Television) .......... AR5
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--- Diploma of Art (Graphic Design) ............... AR4
--- Degree of Bachelor of Arts (Graphic Design) AR4
--- Entrance requirements ............................. AR4
--- Diploma of Art (Film and Television) .......... AR5
--- Graduate Diploma in Applied Film and Television
--- Diploma/Degree in Graphic Design ............... AR7
Faculty of Art

Dean
1. McNeilage, DipArt(CIT), TTTC

Academic Staff

Department of Film and Television

Head
B.C. Robinson, FDipArt(RMIT), TTTC

Senior Lecturers
J.E. Bird, DipArt(SIT), TTTC
C. McGill

Lecturers
H. Burton, BEd(MSC)
A.M. Evans, DipAgricExt(Melb.)
P. Tammer, BA(Melb.)

Senior Lecturers
N. B. II
N. Ghazarian, GradDipArt(AppF&TV)(SIT)

Department of Graphic Design

Head
R.A. Francis, DipArt(SIT), TTTC

Principal Lecturer
G. Dance, BA(Graphic Design)(SIT)

Senior Lecturers
P.S. Allen, BA(Graphic Design)(SIT), TTTC
B. Edwards, BA(Graphic Design)(SIT), TTTC
D.G. Murray, BA(Graphic Design)(SIT), TTTC

Lecturers
C.J. Austin, BA(Graphic Design)(SIT)
D. Bryans, BA(Graphic Design)(SIT)
R. Graham, AssocDipArt(RMIT), TTTC
G. Hocking, BA(Graphic Design)(SIT), TTTC
H. Lueckenhausen, GradDip(Industrial Design)(RMIT), DipEd
B.D. Martin, BA(Graphic Design)(SIT), AIDIA, TTTC
W.G. Thomas, DipArt(RMIT), BEd(LaT.)

Principal Tutor
P. Gajree, FJJP

Senior Tutor/Demonstrator
R.A. Newbound, Cert. Print

Art courses offered

Full-time courses in the Faculty of Art are offered as follows:

Department of Film and Television
Diploma of Art (Film and Television)
Graduate Diploma in Applied Film and Television

Department of Graphic Design
Diploma of Art (Graphic Design)
Degree of Bachelor of Arts (Graphic Design)

Assessment

Each year of the course is taken as a whole and in order to qualify, an overall pass must be achieved on the year's work. A faculty pass may be awarded in the event of failure in one theory subject. This allows a student to progress to the next stage/year of the course. However, the failed theory subject, or its equivalent, must subsequently be completed satisfactorily, in addition to all other subjects, in order to meet the requirements for the award of a diploma or degree. If the subject or subjects are not completed successfully within two years, the complete set of final examinations must be attempted again.

Examinations

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

The form of the examination and the content of the project work (assigned projects) will be determined by the panel of examiners and moderators appointed by the Art Faculty Board.

General conditions

Swinburne reserves the right to retain any work executed by students as part of their course studies. Work not required may be claimed by the student after it has been assessed. The Art Faculty Board is the final authority for deciding passes or failures in any of the examinations for the Faculty of Art.
Diploma of Art (Film and Television)
3 years full-time
The objective in this course is to provide professional training for students wishing to make a career in the film and television industries of this country. The course aims to foster craft and conceptual skills allied to script writing, directing, producing, editing, sound recording, lighting and camera operating.

Entrance requirements
There are no prerequisite subjects.

VCE Year 12: Recommended Group 1 subject: English
All Group 2 subjects will be considered.

Tertiary Orientation Program: All students who have successfully completed a TOP course will be considered.

Applicants who have reached the age of 23 or who have been out of secondary school for five years or more should apply direct to Swinburne.

Applications for second and higher years must be made direct to Swinburne.

Applicants are initially required to undertake aptitude tests set each year by the Selection Officer:
1. Write a script for a short film or video program on a dramatic theme, and
2. Complete a sequence of images illustrating a dramatic theme by predominantly visual means.

An interview is required.

Following the assessment of the aptitude tests, selected applicants are required to:
1. Present examples of their creative work
2. Demonstrate an awareness of the contents and requirements of the course.
3. Provide academic reports.

Selection tests and interviews are conducted in December of each year to qualify for entry. All applicants who specify an art course, either graphic design or film and television at this Institute, must follow carefully the procedure for enrolment, which is given with dates and other details in the Victorian Universities Admissions Committee publication, 'Guide for Prospective Students'. This is published in September, and distributed to all secondary schools, or is available on application to the Victorian Universities Admissions Committee, 40 Park Street, South Melbourne 3205, telephone 690 7977. Please refer to 'Application procedure', in the general section of this handbook.

All overseas applicants, including Australian citizens, must be in Australia on the date the applications close, in order to participate in selection tests and interviews.

Course structure

<table>
<thead>
<tr>
<th>Year</th>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>RF151  Assigned Projects 1</td>
<td>340</td>
</tr>
<tr>
<td></td>
<td>RF162  History of Cinema 1</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>RF141  Script Writing 1</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>RF171  Result of Studies 1</td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>RF251  Assigned Projects 2</td>
<td>340</td>
</tr>
<tr>
<td></td>
<td>RF262  History of Cinema 2</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>RF241  Script Writing 2</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>RF271  Result of Studies 2</td>
<td></td>
</tr>
</tbody>
</table>

In the three areas of specialisation offered, it is not possible to transfer from one stream to another.

Graduate Diploma in Applied Film and Television
1 year full-time
This course is offered to graduates who want to make objective use of film, television or animation production skills.

Aims and objectives
(1) To provide a practical course in film, video, or animation production, for applied commercial, industrial or educational purposes.
(2) To promote the objective use of these media in order to communicate information to defined audiences.

Note
The course serves areas such as communications media, education (including re-training), public relations, advertising, social welfare and audio-visual services.

Eligibility
Applicants usually will have taken a first degree or diploma, in any discipline; in other words they need not have studied film or television seriously. They should have, however, developed some expertise in the field of science, fine art or the arts, as it is usual to draw upon this knowledge when devising program content. However, there does not have to be an absolute connection between what a person has done in the past and what they propose to do in the future.

A small number of ‘mature-age-entry’ applicants, who are not graduates may be admitted if they have had substantial industrial experience.

Those applying for the animation stream must have proven graphic ability.

Quotas
Video 12
Film 6
Animation 6
24

In the three areas of specialisation offered, it is not possible to transfer from one stream to another.

Course structure

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF400  Assigned Projects (2 semesters)</td>
<td>340</td>
</tr>
<tr>
<td>RF401  Result of Studies</td>
<td></td>
</tr>
</tbody>
</table>

Resources
Swinburne provides all usual equipment and meets production costs. Budget expenditure is determined by the individual student within predetermined limits.

Closed circuit colour television, 16mm film and animation equipment are provided.

Application forms
These are available from the Secretary, Faculty of Art, and must be returned by the date specified thereon. Telephone 819 8124.
Diploma of Art (Graphic Design) (3 years full-time)

The aim of the diploma course is to train designers to work effectively in areas where information is conveyed by visual means, such as advertising, publishing, publicity, printing, merchandising, education and some research projects. The course is planned to produce imaginative designers, who, with specialization and experience in industry, should achieve positions commensurate with their individual talents.

The first two years of the course are common to each of the diploma/degree streams but in the final diploma year, a number of special bias studies are offered, including photography, three-dimensional design, audio-visual and publication design.

Entrance requirements

There are no prerequisite subjects.

VSE Year 12: Recommended Group 1 subjects: Art, Graphic Communication, English.

Group 2 subjects: All Group 2 subjects will be considered.

Tertiary Orientation Program: All students who have successfully completed a TOP course will be considered.

No preference is given to either the satisfactory completion of VSE Year 12 or TOP as a prerequisite qualification.

NB. Course Selection Officers have noted that an increasing number of applicants are undertaking TOP Art Studies after completing VSE Year 12. This course of action may enhance changes of entry into the course, but should not be considered a necessary prerequisite qualification.

An interview is required.

At interview applicants are required to:
1. Present examples of their art-work
2. Demonstrate an awareness of the contents and requirement of the course and future employment opportunities.

Selection tests and interviews are conducted in December of each year to qualify for entry. All applicants who specify an area of interest, must achieve satisfactory performance in the test given by the Victorian Universities Admissions Committee, and be recommended by the Victorian Universities Admissions Committee for enrolment.

Applications for second year and higher must be made direct to Swinburne and not through VUAC.

Mature-age applicants i.e. applicants who have reached the age of 23 or who have been out of secondary school five or more years apply directly to Swinburne Institute of Technology.

All overseas applicants, including Australian citizens, must be in Australia on the date the applications close, in order to participate in selection tests and interviews.

course structure

<table>
<thead>
<tr>
<th>First year</th>
<th>Second year</th>
<th>Third year</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG101 Assigned Projects</td>
<td>RG201 Assigned Projects 2</td>
<td>RG301 Assigned Projects 3</td>
</tr>
<tr>
<td>RG111 History of Arts 1</td>
<td>RG211 History of Arts 2</td>
<td>RG320 Methods of Production 3</td>
</tr>
<tr>
<td>AT193 Applied Psychology</td>
<td>AT294 Social Science 2</td>
<td>AT394 Applied Psychology</td>
</tr>
<tr>
<td>TS193 Typewriter Keyboard Training</td>
<td></td>
<td>TG340 *Result of Studies 3</td>
</tr>
<tr>
<td>RG140 *Result of Studies 1</td>
<td>TG240 *Result of Studies 2</td>
<td></td>
</tr>
</tbody>
</table>

Semester hours

First year 340
Second year 340
Third year 340

Note: Results will be published for each subject and for the year as a whole.
*Result of Studies is not a subject, but is a clear-cut decision on the student's total success or otherwise in the year's studies (see under 'Assessment').

Degree of Bachelor (Graphic Design) (4 years cooperative)

The aim of the degree course is to meet the present and future needs of industry, and 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.

At the completion of the second year, students are selected for the degree course. They are required to spend the whole of the third year working in an industrial situation organized by Swinburne. This arrangement conforms to the Y structure under the cooperative education system. This third year enables the student to begin professional practice and is supervised by senior staff.

During the year in industry, students are required to attend the institute for two sessions per week for theoretical subjects: Print Technology and Psychology.

In the final year, in addition to Assigned Projects 4, Business Administration and Communication Theory subjects are studied at Swinburne.

Diploma students who achieve a credit pass are eligible to apply for degree conversion.
Course structure

First and second year
(common to both diploma and degree)

Third year
(full-time in industry)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT395* Applied Psychology</td>
<td>34</td>
</tr>
<tr>
<td>RG321 Print Technology</td>
<td>34</td>
</tr>
<tr>
<td>RG303 Industrial Year</td>
<td>34</td>
</tr>
<tr>
<td>RG344 Result of Studies</td>
<td>34</td>
</tr>
</tbody>
</table>

"Subjects to be taken by part-time study.

Fourth year (full-time at the institute)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG410 Assigned Projects 4</td>
<td>306</td>
</tr>
<tr>
<td>RG492 Business Administration</td>
<td>51</td>
</tr>
<tr>
<td>AT492 Theory of Communications</td>
<td>34</td>
</tr>
<tr>
<td>RG444 Result of Studies</td>
<td>34</td>
</tr>
</tbody>
</table>

Fourth year conversion diploma/degree

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG410 Assigned Projects 4 (Professional)</td>
<td>306</td>
</tr>
<tr>
<td>RG492 Business Administration</td>
<td>51</td>
</tr>
<tr>
<td>AT492 Theory of Communications</td>
<td>34</td>
</tr>
<tr>
<td>RG444 Result of Studies</td>
<td>34</td>
</tr>
</tbody>
</table>

Distinction between diploma and degree courses

The diploma stream is for a student with specific abilities, i.e., as an executant working to specific briefs and producing work of a unique and individual character.

The degree course requires a student to have a greater ability in conceptual thinking, together with proven abilities in handling complex problems in visual communication. Maturity, responsibility, leadership, planning and organisational skills are expected but not necessarily unique technical skills of a high order.

Film and Television diploma subject details

First year

**RF151 Assigned Projects 1**

Twenty hours practical per week for two semesters
Prequisites, nil
Assessment is continuous

In the first semester students undertake the production of short exercises in order to gain an understanding of television production techniques. Working in groups and by rotating roles, each student experiences the responsibilities of directing, vision mixing, sound recording and mixing, lighting, camera operation, videotape operation, design, graphic design, location production, floor managing and video editing.

In the second semester, each student assumes the responsibilities for the script and direction of a production. The students form crews for these productions and it is possible for individuals to begin to specialise in production roles such as camera operation, sound recording, etc.

**RF162 History of Cinema 1**

Two hours per week for two semesters
Prequisites, nil
Assessment is continuous

Regular discussion screenings, A cross-section survey of periods and styles of film-making. Titles are selected to demonstrate the development of cinematic concepts. Assignments are expected to relate these concepts to current film-making practice. In all three years of this subject, assignments may be presented in written, audio, video or film form.

**RF141 Script Writing 1**

Two hours per week for two semesters
Prequisites, nil
Assessment is continuous

Students first acquaint themselves with various genres of TV writing — news, current affairs, documentary, comedy, commercial and drama. In the second semester they are then introduced to the basic elements which govern writing for the screen — light, sound, movement, time, dramatic form, characterisation and theme.

Second year

**RF251 Assigned Projects 2**

Twenty hours practical per week for two semesters
Prequisites, AR41 Result of Studies 1
Assessment is continuous

During the first semester students undertake introductory studies in film technology and production covering directing, lighting, camera operation, wild and synchronous sound recording, mixing and laying sound tracks, editing, producing, titles, continuity. A and B roll negative matching, sensitometry and laboratory services.

During the initial short exercises the students gain technical control of the medium before embarking upon more complex group productions. They change their roles from production to production until they are familiar with all the major functions.
For the first half of the second semester, second-year students crew for third-year students, gaining experience working on relatively ambitious projects for which large crews are sometimes required.

During the last eight weeks of the year the students produce three films based on scripts selected from the Script Writing 2 component. It is expected that these should show significant advancement in technical and artistic competence by comparison with first semester productions.

RF262 History of Cinema 2
Two hours per week for two semesters
Prerequisite, AR171 Result of Studies
Assessment is continuous
Films representative of different periods and nations are screened and discussed with a view to identifying their essential characteristics. Assignments are set which require the students to appraise these ideas and influences.

RF241 Script Writing 2
Two hours per week for two semesters
Prerequisite, AR171 Result of Studies
Lectures cover the basic principles of dramatic structure such as the choice of theme, characterisation, character development, action, point of attack, orchestration, conflict, climax and resolution. Points made are related to the major film genres. Students are encouraged to write short scripts with the possibility of their being produced as assigned projects.

Third year

RF351 Assigned Project 3
Twenty hours practical per week for two semesters
Prerequisite, AR271 Result of Studies
Assessment is continuous
In the final year the student is concerned with eight 'units' of production involvement given the following options:
- Script writing
- Directing
- Lighting/camera/titles
- Continuity/editing/negative matching
- Producing
- Sound recording/mixing
- Art direction/graphics/stills

For production purposes, film or video students are encouraged to function as a crew. It is possible for individuals to begin to specialise with regard to options above.
The content of programs is not specified. Style and duration are determined in part by the resources and budget available.
In the final year the student may work in film or television Swinburne usually meets all assigned project costs and provides associated equipment.

RF362 History of Cinema 3
Two hours per week for two semesters
Prerequisite, AR271 Result of Studies
Assessment is continuous
Regular discussion screenings. Titles are selected to probe issues from Years 1 and 2 in greater depth. Assignments are expected to relate these issues to students’ vocational preferences and expectations.

RF365 Methods of Production 3
Two hours per week for two semesters
Prerequisite, AR271 Result of Studies
Assessment is continuous
The student is required to prepare a 2000 word essay on an aspect of contemporary film or television production, selecting a topic from a list stipulated by the lecturer.

References
Lipton, L. Independent Filmaking, Lond., Studio Vista, 1974
Millerson, G. The Technique of Television Production, Lond., Focal Press, 7th edn, 1970

Applied Film and Television graduate diploma subject details

RF400 Assigned Projects
Twenty-one hours per week for two semesters
Prerequisite, first degree or diploma in any discipline
Assessment is continuous
All three streams of study (film, television and animation) have a similar basic structure. Students are introduced to writing and production skills in the first semester and then undertake individual productions in the second semester. With regard to the latter, each student is responsible for the script, direction and editing.

Semester 1
Script development
Sixteen weeks at three hours per week
These studies deal with the nature of the medium, critical and creative theory and the identification of a topic, an audience and a purpose.
Short exercises lead to the writing of a script for production in the second semester.

Production techniques
Sixteen weeks at eighteen hours per week
Lectures, demonstrations and practical exercises, leading to technical control of the medium.

Semester 2
Production
Sixteen weeks at twenty-one hours per week
Each student, assisted by a student crew as required, directs the script they have written in the first semester.
Finished programs are presented to ‘real’ audiences and their effectiveness assessed.
Note
Despite the pragmatic objectives of the course an innovative approach is often essential if information is to be imparted effectively.
There is no restriction of the subject areas that may be investigated provided there is an associated audience.

Scholarships and awards

USP Needham Scholarship
Awarded to an outstanding student proceeding to the second year of the diploma of art, film and television course. Value: $250.

The Margery Withers and Richard McCann Scholarship
Available for the second year of the diploma of art, graphic design course. Value: $200.

Foote, Cone and Belding Scholarship
Two scholarships are available for the third year of the diploma of art, film and television course. Value: $250 each.
Graphic Design diploma/degree subject details

First year

RG101  Assigned Projects 1
Twenty hours practical per week for two semesters
Prerequisite, nil
Assessment is continuous
Assigned Projects refer to a co-ordinated three-year work program with specific emphasis on an individual creative approach to solving communication problems principally of a graphic nature. Students are encouraged to develop their own personal style through soundly reasoned, skillfully-executed assignments and to communicate the solutions in a way most likely to ensure acceptance and successful implementation. Group assignments also allow students to develop a broader understanding and appreciation of other students’ particular abilities.

A sequential program of applied design and communication projects is directed at developing a general awareness of visual aspects of the students’ environment and facility for critical objective analysis.

Specific study areas include:

- Design,
  The object is to equip students with a ‘design vocabulary’ to allow creative expression in areas of two and three dimensions. As the year progresses, design projects increasingly interact with drawing, photography and design for print. In this way students develop an appreciation and competence over a broad range of communication problems.

- Photography
  A comprehensive introduction to still-photography as a creative medium aimed at cultivating visual awareness through study of controlled lighting, spatial relationships, form, product and fashion photography, photo-journalism, photo-reproduction techniques (e.g., developing and printing), pictorial editing, various colour processes and costing.

- Design for print
  Introduction to a comprehensive study over the three years of the course, which includes reproduction of lettering, typographic and symbol design, illustration, and all aspects of production with particular emphasis on experimental work in offset lithography and screen printing.

- Drawing
  Expanding vision through assignments which develop control of drawing as a discipline for research and invention. Subject matter includes the figure, perspective, object drawing and natural forms.

Textbooks
Students are advised not to purchase textbooks or references until classes commence

RG111  History of Arts 1
Two hours per week for two semesters
Prerequisite, nil
Assessment is continuous
A course of study planned to create an awareness and appreciation of a variety of art forms in selected periods and to provide a background for communication arts.

AT193  Applied Writing
Two hours per week for one semester
Assessment is continuous, based on class participation and practical work
A first year subject for all graphic design students. The course is designed to develop formal and creative writing skills appropriate to graphic design. Attention is given also to the analysis and interpretation of written and visual material, clarity and accuracy in the presentation of ideas, and writing techniques employed in applied areas, such as copy writing, design rationales and publications.

TS193  Typewriter Keyboard Training
Three hours per week for one semester
Assessment is continuous, based on a series of test exercises
A course of one semester duration, designed specifically for basic and accurate keyboard familiarity to facilitate organised written assignment work, and later conversion to the electric direct impression typesetting, word processing and computer photo-setting systems used in the second and third year of the course.

Second year

RG201  Assigned Projects 2
Twenty 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, typograph, 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, rotogravure, 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.

RG211  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.

AT294  Social Science 2
Two hours per week for two semesters
Assessment is continuous
A general introductory course in psychology providing a background to applied psychology in the third year. Areas to be dealt with include: perception, learning, emotion, values and attitudes, normal and abnormal behaviour, and social psychology.

Apart from specific study of the basic psychology text, class activities focus on experiential learning. To this end an active participation in seminar type discussions is required. These sessions will deal with self-awareness as a basis to communication, communication skills, alertness training, the use of relevant learning theories in modifying behaviour and physiological factors relevant to personal growth and development such as relaxation, nutrition and stress reduction.

Textbooks
Diploma in Graphic Design

Third year

RG301 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, public relations, corporate image design and educational technology. Special topics are offered, including photography, three-dimensional design, audio-visual, and publication design.

RG320 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, letterpress, offset lithography, rotogravure, silk screen, type identification, indication and specification, the point system, copy-casting, proof-reading, copy preparation techniques, practical exercises in direct impression and digitised photo- typesetting for book, advertising and display typography. Cost estimating, mechanical art procedures, production control, paper consideration. Visits to production houses are arranged.

AT391 Applied Psychology
Two hours per week for two semesters
Prerequisite, AR240 Result of Studies 2
Assessment is continuous

A third-year diploma subject which aims to increase personal and social skills through the study of communications. It will include learning models, assimilatory training, stress management, and interpersonal perception.

References
Reading and other resources will be given where appropriate

Degree in Graphic Design

Third year

RG321 Print Technology
Two hours per week for two semesters
Prerequisite, AR240 Result of Studies 2
Assessment is continuous

Investigations into the theory and application of modern print technology. It is not intended that this course will go deeply into the mechanics or chemistry of printing, but rather explore the possibilities for design production and distribution created by modern reproduction methods. These include typeset composition, photo-mechanical processes (offset, screen, letterpress, and gravure) and studies of paper and other materials.

This course will include the economics of production and relate to sections of the course in business administration.

AT395 Applied Psychology
Two hours per week for two semesters
Prerequisite, AR240 Result of Studies 2
Assessment is continuous

A third-year diploma subject which introduces the student to the study of psychology and those areas relevant to marketing and advertising. It aims to have students demonstrate knowledge and concepts in research in psychology and to help them understand the application of psychology to the area of marketing. It also aims to have students show an understanding of human needs and motivation by the analysis of 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 living material in the second semester.

RG303 Industrial year
Two semesters industrial experience
Prerequisite, AR240 Result of Studies 2
Assessment is continuous

(See Y chart)

Fourth year

RG410 Assigned Projects 4
Eighteen hours per week for two semesters
Prerequisite, AR341 Result of Studies 2
Assessment is continuous

Working in a professional atmosphere, emphasis is given to developing the student's special capabilities through assigned professional projects or self-defined problems, culminating in a major design statement.

BS492 Business Administration
Three hours per week for two semesters
Prerequisite, AR341 Result of Studies 3
Assessment is continuous

The aim of this subject is to give students a general understanding of the business environment. Particular attention is paid to relating this aim to relevant business sectors with which students will be involved.

Specific consideration is given to
- theoretical and practical aspects of marketing and consumer behaviour;
- factors and problems involved in establishing and running a small business; and
- gaining an understanding of the organisational and interpersonal aspects of working in a creative environment.

Much emphasis is placed on maintaining direct relevance to the student's special skills and the business situations they will encounter.

Students are required, both in groups and individually, to submit written and practical assignments.

References
Specific articles and texts are referred to when commencing each topic.

AT492 Theory of Communications
Two hours per week for two semesters
Prerequisite, AR341 Result of Studies 3
Assessment is continuous

In this subject, the aim is to expand graphic artists' range of communication media relevant to their profession. It includes examination and discussion of techniques of present-day media: film, TV, and video, radio, theatre, newspapers, publishing, and other print media.

Specialist topics covered include: media ownership, news reporting and current affairs, interviews, children's TV, and cross-media coverage of world events.

The course provides opportunities for creative media expression and hands-on practice with media tools.

Both written and practical assignments are required throughout the year. There is also a major assignment involving consistent monitoring of current media programs.
general information

swinburne institute of technology

applied science

art

arts

business

engineering

swinburne college of TAFE

building division

business division

engineering division

general studies division

The section indicator denotes the general position in the book of each section.
Faculty of Arts

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Faculty Secretary
C. Hoernel, BA (Johns H.)

Administrative Officer
M. Simpson

Office of the Dean
J.E. Baxter, MS(RPI), BA(Melb.), BEd(Mon.)

Technical Officer
A. Rice

Academic staff

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J. Dooley, MA(Mon.), DipEd(Melb.)
H.J. Kannegiesser, BA(Melb.), MEd(Mon.)
P.G. Kent, BA(Melb.), MEd(Mon.)

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P.J. Fleming, MA(Melb.)
A. Haqeen, MA(Dacca and Camb.)
J. O'Hara, BA(Hons)(Melb.)
T.P. Ryan, BA(Hons)(Melb.), BEd(LaT.)
M.K. Hicks, BSc(Adel.)

Department of Languages

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Senior Lecturers
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M.M. Masini, BA(Hons)(Melb.), DipEd(LaT.)
A. Skoutarides, BA(Hons)(Mon.)

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Lecturers
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F.X. Walsh, BA(Melb.), BEd(Mon.)
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R.C. Tanter, MA(New School)
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M.C. Van Geloven, Drs(Amst.), MAPsS
**Arts courses offered**

**Bachelor of Arts**
**Graduate Diploma in Applied Social Psychology**
**Graduate Diploma in Urban Sociology**
**Graduate Diploma in Japanese**
**Master of Arts**

**Undergraduate courses**

**Bachelor of Arts**

Prior to 1982, students enrolled in either a Bachelor of Arts or Diploma of Arts program. Although a Diploma of Arts is no longer offered, students originally enrolled in the diploma program may qualify for degree status upon completion of the equivalent of two years of full-time study if they have satisfied the prerequisites for stage three subjects.

**Full-time**

The Bachelor of Arts course requires three years of full-time study, during which time a unit value of twenty-four must be accrued.

**Part-time**

Many students undertake their courses by part-time study. At the rate of four units per year, it would usually take six years to gain a unit value of twenty-four, but this time may vary according to the study time available to the student.

**Career opportunities**

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

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

**Eligibility**

Applicants in the following categories will be considered for admission to the Bachelor of Arts degree course.

**Year 12 (Group 1 subjects)**

Grade D or better in four Year 12 subjects, accredited by the Victorian Institute of Secondary Education including English. (Passes may be accumulated over more than one year).

Selection of applicants of this type will be determined on the basis of their approved Anderson score. A faculty quota for this type of entry will be applied.

**Year 12 (Group 2 subjects)**

Applicants will be considered by the Undergraduate Selection Committee which will arrive at a subjective evaluation of each candidate's likelihood of completing the course. The Undergraduate Selection Committee will take into account an applicant's educational background, employment background, together with the written reasons for wishing to undertake the Swinburne B.A. A quota for this type of entry will be applied.

No interview is required

**Applications**

<table>
<thead>
<tr>
<th>Full-time first year</th>
<th>to Victorian Universities Admissions Committee (VUAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part-time all years</td>
<td>to Swinburne</td>
</tr>
<tr>
<td>Full-time later years</td>
<td>to Swinburne</td>
</tr>
</tbody>
</table>

**Tertiary Orientation Program**

Applicants who have completed a Tertiary Orientation Program, including a pass in English, will be considered for selection on the basis of a computed Anderson-type score supplemented by any written student reports from the Technical College or TAFE College concerned. For 1985 only, Swinburne TOP students who come from Eastern and Maroondah Region Technical Schools, and who pass the TOP year, are guaranteed a place in the course. A faculty quota for this type of entry will be applied.

**Mature-age entry**

Persons 21 years and over, and who may lack formal educational qualifications may apply. Applications will be considered by the Undergraduate Selection Committee which will arrive at a subjective evaluation of each applicant's likelihood of completing the course. The Undergraduate Selection Committee will take into account an applicant's educational background, employment background, together with the written reasons for wishing to undertake the Swinburne B.A. A quota for this type of entry will be applied.
Applications

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

Prospective students should ascertain the relevant closing dates for applications in September or early October of the year preceding that in which they would like to commence studies.

The transfer of students from other faculties, or from other institutions, shall be at the discretion of the Dean, and shall be contingent upon the availability of places and on the applicant having a satisfactory study record.

Deferred entry

Students who have been offered a place in the Bachelor of Arts course for the first time may apply to defer their entry to the course for up to one year. Applications should be made in writing to the Registrar as soon as the offer of a place is received.

When an application is approved, the student concerned will be notified in writing by the Faculty Secretary. Deferments will be valid for a maximum period of one year and only for entry to the course for which the offer was made.

Exemptions

Students with certain recognised tertiary qualifications may be granted exemptions after applying to the Arts Faculty Board. In special cases, exemptions from named full-year and/or semester subjects are allowed, but unspecified exemptions may be also granted which provide for a reduction in the total unit value to be studied.

Students who think they may be eligible should apply for exemptions soon after they first enrol, presenting documentary evidence of their prior qualifications. Applications should be made by completing the Exemptions form available from the Faculty of Arts Office (BA915) or the Student Records Office and lodging it with the Faculty Secretary.

A reference copy of the current Faculty of Arts policy document on Recognition of Studies completed outside the Swinburne Faculty of Arts is available at the Faculty of Arts Office.

Teachers in the Victorian Education Department are advised to consult the appropriate body about seeking exemptions from degree and diploma courses on the basis of teacher training qualifications, as the Department has previously indicated that such claims would not meet with its approval.

Terminology

‘Course’ — refers to the total of selected subjects in a complete diploma or degree.

‘Subject area’ — refers to the category under which specific major/minor 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 over one year.

‘Unit value’ — the value attached to a particular subject, either full-year or semester.

‘Major’ — within one subject area, a full year of study at stages two and three preceded by either a full-year or semester subject at stage one.

Bachelor of Arts course requirements

To qualify for the award of the degree of Bachelor of Arts students are required to:

(a) complete two of the following majors —

- Italian
- Japanese
- Historical and Philosophical Studies
- Literature
- Media Studies
- Psychology
- Sociology
- Political Studies
- Economics

or a double major in either Political Studies or Psychology

or a combination approved by the Arts Faculty Board of one of the majors listed above, plus one other major offered at degree level within Swinburne. Students must apply to the Board for this approval before they have completed subjects totalling a unit value of six.

(b) gain a unit value totalling twenty-four for subjects passed in stages one, two and three, including a unit value of at least six for stage two subjects.

In completing the BA course requirements students must not include stage one subjects totalling a unit value of more than ten and must not include more than two majors.

Note

Students in their first year, who do not take any language studies, are strongly encouraged:

- if full-time, to select their eight semester subjects from at least six different subject areas;
- if part-time, to select their four semester subjects from at least three different subject areas.

Studies constituting major strands

In Italian, Japanese, psychology, sociology and economics, majors must include a full year of study at stage one as well as at higher stages. In other Arts subject areas, historical and philosophical studies, literature, media studies and political studies, majors may be constructed with only one semester subject at stage one.

In special cases a sequence of studies may be selected from two related subject areas to constitute a major. Before students begin a mixed major, they must have the approval of the head or chairman of the relevant department.

Full-time students

(a) A full-time student is usually required to enrol in sufficient subjects to gain a unit value of eight in one year. In special circumstances, permission may be granted to vary this requirement on application to the Dean of Faculty.

(b) In each year of study full-time students are expected to gain passes totalling a unit value of at least six. After two years at Swinburne, a full-time student is expected to have gained a unit value of at least 12 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 usual number of subjects in any semester is required to apply to the Dean of Faculty, giving reasons for the request.
Part-time students
(a) A part-time student is usually required to enrol in sufficient subjects to gain a unit value of four in one year. Permission may be granted to vary this requirement on application to the Dean of Faculty.
(b) A part-time student will be considered to have made satisfactory progress if he or she has achieved passes totalled a unit value of three in a given year.

Progress review
A student who has failed to meet the foregoing requirements may be re-enrolled only after discussion with the Progress Review Committee.
A student who has been recommended for exclusion from the course may appeal in writing, within a time specified by the Dean, Faculty of Arts, to the convener of the Progress Review Committee for special consideration.

Change of enrolment status
Students may change their enrolment status from part-time to full-time, or vice versa, at the beginning of a semester. Application should be made to the Dean of Faculty.

Amendment to enrolment
Students may amend their subject selection by completing an Amendment to Enrolment form which must then be approved by the Dean, Faculty of Arts. Amendment sessions are held at pre-advertised times during the first three weeks of each semester. Students are not encouraged to enrol for a subject which has passed its introductory stages and usually, admission to a subject three weeks after it has begun is not allowed.
To withdraw from a subject or subjects students must lodge a completed Amendment to Enrolment form by the date specified for each semester, or a fail result will be recorded. For a subject which concludes at the end of the first semester (not later than Friday 11 April). For a subject which concludes at the end of the second semester (not later than Friday 6 September). (For further details see under the section headed ‘Enrolment regulations’.)

Leave of absence from all study
Students who wish to apply for leave of absence from the Bachelor of Arts degree course should lodge a completed Amendment to Enrolment form at the Faculty of Arts Office (BA915) or at the Student Records Office. For subjects which conclude at the end of first semester the form should be lodged not later than Friday 11 April. For subjects which conclude at the end of the second semester — not later than Friday 6 September. Failure to make formal application before the specified dates will result in a fail being recorded for those subjects in which the student is enrolled, unless special permission to cancel the enrolment without penalty of fail has been given by the Dean, Faculty of Arts.

Usually, leave of absence is granted to graduate diploma students only if one semester of their course has been completed.
Withdrawal from all study
Students wishing to withdraw from all study must lodge a completed Amendment to Enrolment form at the Faculty of Arts Office (BA915) or the Student Records Office and return their identity cards. (For further details see under the section headed ‘Enrolment regulations’.)

Concurrent majors at other institutions
Students who wish to study a major at another institution can obtain further details about application procedures from the Arts Faculty Secretary.

Reading guides
In most subjects, conveners will issue detailed reading guides of recommended reference lists during the first week of classes. However, reading material is listed under individual subject entries according to the following definitions.

Preliminary reading — introductory material which students are expected to read before the subject classes commence.

Textbooks — material essential to the subject, but students are advised not to purchase any textbooks until classes have met.

References — material that will be referred to throughout the duration of the subject. Students are not required to purchase references and copies of the majority are available for borrowing from the library.

Subject selection
The onus is on individual students (assisted by course advisers when enrolling) to have completed by the end of their stage three studies, a course which will entitle them to the award of a degree of Bachelor of Arts.

Faculty of Arts subject details are listed in alphabetical order, by stages in the section which follows. Provided that course requirements are observed, and provided that places in classes are available, subjects may be selected from the full range. Some subjects are offered at one stage only and for that reason cannot form part of a major or minor, e.g., AP102, Law and Society.
Subjects taught by departments in other faculties may be taken in addition to the Arts subjects offered and these are listed separately. Any Arts student wishing to take one or more of these subjects must have the approval of both the Faculty of Arts and the teaching department concerned, as enrolment in the subject may depend on the availability of places or on certain prerequisites or both. However, course regulations specify that:
(a) students taking both majors within the Faculty may take subjects taught outside the Faculty up to a maximum unit value of six;
(b) students taking one approved major outside the Faculty may take subjects taught outside the Faculty up to a maximum unit value of ten.

(For the purpose of this regulation the subjects SM278 and SM279, Design and Measurement 2A and 2B are regarded as subjects within the Faculty of Arts.)

When attending to enrol, students are issued with detailed instructions to assist in planning a suitable course. All students are required to complete enrolment forms (indicating their subject selection for both semesters) and once approved, may not amend their enrolment without approval.

Appointments with course advisers during the semester may be made through the Faculty of Arts Office (BA915).
Subject corequisites (double major students)
Corequisites for subjects (both semester subjects and full-year subjects) are indicated in the details for the particular subject. These corequisite subjects must either be completed before students take subjects from stage three, or else studied concurrently with the stage three subject. Any divergence from this requirement must have the approval of the subject convener concerned and the Dean, Faculty of Arts.

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

Time allocations per week
Each semester subject runs for fifteen weeks. Stage one and stage two subjects involve approximately four hours per week of class attendance and stage three subjects, three to four hours per week in class attendance. More class time is usually required for those subject areas which incorporate laboratory or workshop requirements, for example, Italian, Japanese, psychology and sociology.

Assessment
The details of the methods of assessment for each subject are issued by the lecturers in charge. Usually, a combination of progressive assessment and examinations is employed.

Scholarships and Prizes
Study in Japan Scholarship
Awarded to assist a student to complete Japanese 3 in Japan. Applications close in May. Value: may include return air fare to Japan and tuition fees.

APS Prize in Psychology
Awarded by the Australian Psychological Society to the student who has completed with overall distinction a fourth year course in psychology at Swinburne. Value: $100.

The A.F.E. Tylee and the K. Kennewell Memorial Prizes
These are awarded in the fields of social science, mathematics and civil engineering.

Departments in the Faculty of Arts
Within the Faculty of Arts there are five departments, each responsible for different subject areas, they are:

Department of Humanities
Historical and philosophical studies
Literature
Media studies

Department of Languages
Introduction to Language
Italian
Japanese

Department of Liberal Studies
Subjects for students of other faculties only.

Department of Psychology
Psychology

Department of Social and Political Studies
Political studies
Sociology
Each department has a head or chairman and enquiries may be directed to their secretaries.
Historical and Philosophical Studies

The subjects offered under the heading of historical and philosophical studies draw on the traditional areas of philosophy, history of ideas, and history of philosophy of science. They are designed specifically for Arts students and are intended to introduce them to some of the important cultural and intellectual developments which have shaped our society. In the historical subjects the main emphases are those of the social historian and the historian of ideas, whereas the philosophical subjects pursue a conceptual approach to historical and contemporary issues.

No scientific or mathematical knowledge is presupposed in these courses.

Students may take majors which are basically history and philosophy of science or philosophy, or may choose a major which combines appropriate subjects from both areas.

Students are advised to examine carefully the prerequisites for stage two and three subjects before planning their courses.

A major in Historical and Philosophical Studies comprises 1 semester subject at stage one. Two semester subjects at stage two. Four semester subjects at stage three.

### Subjects offered

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### Subject details

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#### AH100 Introduction to Philosophy

(Previously Introduction to Problem Solving and Methods of Philosophy)

Four hours per week daytime or Three hours per week evening

Prerequisite, nil

Assessment is continuous and by examination

An introduction to the problems and methods of philosophy. An examination of rationalist and empiricist traditions and the development of modern analytic schools of thought. Some basic principles of handling language and conceptual analysis; the application of such principles to specific problem areas such as: knowledge and perception, truth and falsity, human nature, moral judgements, the existence of God, religious concepts and the problem of evil.

#### Preliminary reading


#### Textbooks

Please consult with lecturer before buying textbooks

#### References


Shaffer, J.A. Reality, Knowledge and Value. N.Y., Random House, 1971


#### AH101 History of Ideas

(Previous Theories of Nature and Life)

Four hours per week daytime or Three hours per week evening

Prerequisite, nil

Assessment is continuous

This subject serves as an introduction to the history of ideas. Special attention is paid to the evolutionary theme, as an example of the impact of the scientific imagination upon our lives. Darwin’s theory of evolution totally transformed our understanding of our origins, our relationships to each other, to society and to the environment. Evolutionary theory has also affected many branches of science, from geology to psychology, giving them an understanding of process and of change through time. The intention is to bring out the relationship of the evolutionary idea to the wider social context; scientific ideas are important not only in their impact on our culture, but are also to be seen as a product of our culture.

#### Preliminary reading

Asimov, I. The Wellspring of Life. N.Y., New American Library, 1960

#### Textbooks

Please consult with lecturer before buying textbooks

#### References


Theobald, D.W. Introduction to the Philosophy of Science. Lond., Methuen, 1969

Toulmin, S and Goodfield, J. The Discovery of Time. Chicago, Midway, 1976

AH102  Theories of the Universe
Four hours per week daytime or
Three hours per week evenings
Prerequisite, nil
Assessment is continuous

Ideas about the world and man's relationship to the universe. Within
the general framework of social history the emphasis is on the
interaction of culture, civilization, social change, and science.
Major topics include: ancient societies, religion and science;
concepts of the universe, theories and hypotheses.

Preliminary reading

Textbook
Kuhn, T. The Copernican Revolution. Cambridge, Mass., Harvard
University Press, 1969

References
Crombie, A. Augustine to Galileo. 2 vols, 2nd edn, Harmondsworth,
Penguin, 1969
Press, 1971
Hutchinson, 1969

Stage two

AH200  Moral and Political Philosophy
(Previously Social and Political Philosophy)
Four hours per week daytime or
Three hours per week evenings
Prerequisite, one of AH100, AH101, AH102 or
approved equivalent
Assessment is continuous

An examination of some of the traditional theories of the state of
political organisation. An analysis and evaluation of assumptions
underlying moral and naturalistic theories of the state and the
application of these theories to current social and political problems;
an examination of notions of freedom, justice, equality, power, unity
and the legitimate use of authority; an analysis of concepts of
consent, obligation, the common good and social contract.

Some of the more important writers to be considered are: Plato,
Aristotle, Locke, Mill, Aquinas, Hobbes, Montesquieu, Rousseau and
Russell.

Preliminary reading

Textbooks
Please consult with lecturer before buying textbooks

References
Press, 1968
Murray, A.R.M. An Introduction to Political Philosophy. Lond., Cohen
and West, 1968
Stumpf, SE. Philosophy: History and Problems. N.Y., McGraw-Hill,
1977
Tindin, G., Political Thinking: The Perennial Questions. Boston, Little,
Brown and Co., 1974

AH201  Mind, Language and Thought
(Previously Mind Language and Human Nature)
Four hours per week daytime or
Three hours per week evenings
Prerequisite, one of AH100, AH101, AH102 or
approved equivalent
Assessment is continuous

A critical examination of some of the major problem areas in
philosophy chosen from:
(a) mind and body; sensations and brain processes; dualism and
monism;
(b) free will, determinism and the causal principle;
(c) phenomenalism;
(d) language, thought and knowledge; meaning and truth;
(e) historical development of attempts to formalise logical systems.

Preliminary reading
Westphal, F. The Activity of Philosophy. Englewood Cliffs, N.J.,
Prentice-Hall, 1969

Textbooks
Please consult with lecturer before buying textbooks

References
Chomsky, N. Language and Mind. N.Y., Harcourt Brace Jovanovich
Inc., 1972
Edwards, P. and Pap, A. A Modern Introduction to Philosophy. N.Y.,
Free Press, 1965
Hospers, J., An Introduction to Modern Philosophy. Lond., Routledge
and Kegan Paul, 1967
Stumpf, SE. Philosophy: History and Problems. N.Y., McGraw-Hill,
1977

AH202  Technology and Society
Four hours per week daytime or
Three hours per week evenings
Prerequisite, one of AH100, AH101, AH102 or
approved equivalent
Assessment is continuous

The interaction between technology and social change: ancient
societies, Greece, Rome, modern Europe, England, America,
Australia, Politics, economics, religion, values, traditions, social
structures, education, relations with neighbours, knowledge and
skills, are factors which combine to influence the course of
technological development. Also considered are the moral dilemmas
of the modern technologist and problems of pollution and
environment control.

Preliminary reading
Buchanan, RA History and Industrial Civilization. Lond., Macmillan,
1979
or
Buchanan, RA Technology and Social Progress. Oxford, Pergamon,
1965

Textbook
Klemm, F. A History of Western Technology. Lond., Allen and Unwin,
1970

References
Forbes, R, Man the Maker. Lond., Abelard, 1964
Harris, M. Cannibals and Kings. Lond., Fontana/Collins, 1978
Liley, S., Men, Machines and History. 2nd edn, Lond., Lawrence and
Wishart, 1965
Mumford, L. The Myth of the Machine. Lond., Secker and Warburg,
AH203 Nature and Human Nature
(Previously Man's Place in Nature)
Four hours per week daytime
or
Three hours per week evenings
Prerequisite: one of AH100, AH101, AH102 or approved equivalent
Assessment is continuous

The purpose in this course is to examine the ways in which biological theories of behaviour and heredity have influenced social thought. The interrelationships between theories of nature and theories of human nature are explored in terms of the birth of the new social sciences of psychology and anthropology at the end of the nineteenth century. Themes to be explored include: the 'mis-measure of man'; the origins of the nature/nurture controversy; the rise of the concept of culture in social science; the origins of industrial psychology; biology and scientific Utopias; the concept of the savage; behaviour and the perfectibility of man; scientific theories of race and their impact; the image of the black Australian in European anthropology; Sigmund Freud, his life and times.

Textbooks
Fancher, R. Pioneers of Psychology. N.Y., Norton, 1979

References
Stocking, G. Race, Culture, and Evolution. N.Y., Free Press, 1968

AH300 Philosophy of Art and Education
(Previously Aesthetics, Education and Reason – diploma)
Three and a-half hours per week
Prerequisites: two of AH100 and AH200, AH201, AH202 and AH203 or at least one of AH200 and AH201
Assessment is continuous

In this subject, we explore the extent to which the education of feelings and emotions and the promotion of the 'aesthetic experience' through art appreciation can be justified as part of the educational process. This involves an examination of problems of definition, interpretation and evaluation in the area of art and educational theory, through analysis of aesthetic and educational concepts. The subject further: furthers an understanding of linguistic philosophy by introducing a comparative study of analytic approaches to the language of education and the language of art.

Preliminary reading
Dewey, J. Experience & Education. N.Y., Capricorn Press, 1963

Textbook
Please consult with lecturer before purchasing textbooks.

References
Peters, R.S. Ethics and Education. Lond., Allen and Unwin, 1968

AH301 Rationality
(Previously Aesthetics, Education and Reason – degree)
Three and-a-half hours per week
Prerequisites, one of AH100, AH101, AH200 or AH202 and AH203 with at least one of AH200 and AH201
Assessment is continuous

This course covers some of the recent work on the nature of human rationality. Topics include: the status and justification of rationality; reasoning and values; cognitive relativism; the place of reason in theory comparison and appraisal.

Textbooks
Please consult with lecturer before buying textbooks.

References
Bennett, J.F. Rationality Lond., Routledge and Kegan Paul, 1964
Trigg, R. Reason and Commitment Lond., Cambridge University Press, 1973

AH302 Social Studies of Science A
(Previously Science and Change – diploma/degree)
Three and-a-half hours per week
Prerequisites, two of AH100, AH201, AH202, AH203 or an approved equivalent
Assessment is continuous

This subject, which may be taken independently of Social Studies of Science B, pertains to the contemporary debate on the social construction of scientific knowledge. The extent to which science reflects the culture in which it is set has been the subject of much recent writing about science. Some authors make the claim that scientific knowledge is autonomous, and the proper objects of sociological inquiry are the various social and institutional relationships which hold within the community of scientists, both in the laboratory setting, and in the social and economic framework of which the laboratory is a part. More recently, the claim has been made that social factors contribute in a crucial way to the content of science itself, to the type of knowledge that is produced. These claims will be investigated through case studies on the themes of laboratory life, science as a profession, the notion of 'public science', the enlightenment ideal of science and progress and the twentieth century consequences, and the social responsibility of the scientist (for example, in the nuclear power debate).

Preliminary reading
Chambers, W., Knowledge and Power. Geelong, Deakin University Press, 1978

Textbooks

References
Cameron, I. and Edge, D. Scientific Images and Their Social Uses: An Introduction to the Concept of Science. London, Butterworths, 1979
Haberer, J. Politics and the Community of Science. Van Nostrand Reinhold, N.Y., 1969
AH303 Social Studies of Science B
(Previously Science and Change – degree)
Three and-a-half hours per week
Prerequisites, two of AH200, AH201, AH202, AH203 or an approved equivalent
Assessment is continuous

This subject, which may be taken independently of Social Studies of Science A, evaluates the current debate on the social construction of biological and biomedical knowledge. Historical case studies show the relationship between theories of life, medicine, technology, social theory and social action in the nineteenth and twentieth centuries. Topics covered include: Man’s Place in Nature and the Woman Question in Victorian social theory; social aspects of medical theory and practice such as changes in public health, the conquest of epidemic disease and the social organisation of insanity; the rise of the birth control movement; the rise of biotechnology; ecological and environmental history; the aboriginal and the colonial experience of the Australian environment compared and contrasted.

Preliminary reading

References
Ehrenreich, B., and English, D. For Her Own Good. London, Pluto, 1979
Mayne, A.J.C. Fever, Squalour, and Vice. Univ. of Qld Press, 1982
Turnbull, D. and Farrall, L. Interpreting the Australian Environment. Geel., Deakin Univ. 1982

AM304 Philosophy of Science A
(Previously Philosophy of Science – diploma degree)
Three and-a-half hours per week
Prerequisites, two of AH200, AH201, AH202, AH203 or an approved equivalent
Assessment is continuous

An introduction to some of the central topics in current and classical philosophy of science and social science, e.g. what constraints do social factors place on science and social science? How do we develop our laws and theories? Are all events caused? What is the function of paradigms? What is the role of the scientist and social scientist in the development of knowledge? Among the authors whose works will be considered are Durbin, Hempel, Kuhn, Loeve, Nagel, Ravetz, Ziman.

Preliminary reading
Theobald, D. An Introduction to Philosophy of Science. London, Methuen, 1968

Textbooks
Please consult with lecturer before buying textbooks.

References
Kuhn, T. The Structure of Scientific Revolution. 2nd edn, Chicago, University of Chicago Press, 1970

AH305 Philosophy of Science B
(Previously Philosophy of Science – degree)
Three and-a-half hours per week
Prerequisites, two of AH200, AH201, AH202, AH203 or an approved equivalent
Assessment is continuous

The Instrumentalism/Realism debate. Can we have absolute knowledge of the world? Is there such a thing as ‘truth’ or is our knowledge always tentative and open to revision? What effects have values, attitudes, emotions and belief systems on the scientific enterprise? What are the consequences for the sciences and social sciences? Among the authors whose works will be considered are Dewey, Smart, Popper, Lakatos, Laudan, Kuhn, Ravetz.

Preliminary reading
Frank, P. ed. The Validation of Scientific Theories. N.Y., Collier Books, 1961

Textbook
Kanngiesser, H. Knowledge and Science. Melb., Macmillan, 1977

References
Kuhn, T. The Structure of Scientific Revolutions. 2nd edn, Chicago, University of Chicago Press, 1970
Smart, J. Between Science and Philosophy. N.Y., Random House, 1968
Literature

Through the study of language and literary forms, structures and genres, traditions and conventions, the literature subjects offered aim to improve the ability of students to understand literature and experiences of many kinds and of many periods, from the Renaissance to the present day. At stage one, texts chosen reflect important currents of ideas of the nineteenth and twentieth centuries. Stage two offers comparison and contrast in studies of seventeenth and eighteenth century writing, including several plays by Shakespeare and his contemporaries. Stage three is focused on American and Australian literature, examining within a wider perspective the experience of these societies, documented in their imaginative writings. Final-year students in particular are encouraged to research the literature and culture of their own communities.

Studying literature should promote both imaginative flexibility in confronting new experiences, and analytical discrimination in assessing what is written, acted and spoken. The development of students’ intellectual and personal capabilities is the chief concern of the literature course.

A literature major consists of: one or both of AL100 and AL101 at stage one, followed by AL200 and AL201 (not necessarily in that sequence) at stage two, followed by AL300, AL301, AL302 and AL303. It is preferable, but not obligatory, that AL300 be taken before or concurrently with AL301, and that AL302 and AL303 bear the same sequential relation to each other.

Subjects offered

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Subject details

Stage one

AL100 Twentieth Century Literature
Four hours per week daytime
or
Three hours per week evenings
Prerequisite, nil
Assessment is by assignments and examination

This subject introduces students to a selection of twentieth century literature, relating it to recent developments in the other arts and in society. Students are also introduced to some of the varied possibilities inherent in the novel, drama and poetry as literary forms.

Preliminary reading
Dawson, S.W. Drama and the Dramatic. Lond., Methuen, 1970
Deutsch, B. A Poetry Handbook. 2nd edn, Lond., Cape, 1965

AL101 Nineteenth Century Literature
Four hours per week daytime
or
Three hours per week evenings
Prerequisite, nil
Assessment is by assignments and examination

This subject surveys Romantic and post-Romantic writers of the nineteenth and early twentieth century, emphasizing the artist’s awareness of, and increasing divorcement from social concerns. The course includes English and European fiction and drama, and English poetry.

Preliminary reading
As for AL100

Stage two

AL200 Elizabethan and Jacobean Literature
Four hours per week daytime
or
Three hours per week evenings
Prerequisite, AL100 or AL101 or approved equivalent
Assessment is by assignments and examination

Several Shakespearean plays are studied intensively. There are background lectures on Elizabethan society and the theatre, and the study of some selected works of other dramatists and poets of the age.

Preliminary reading

AL201 Seventeenth and Eighteenth Century Literature
Four hours per week daytime
or
Three hours per week evenings
Prerequisite, AL100 or AL101 or approved equivalent
Assessment is by assignments and examination

The relationship between literature and society in seventeenth and early eighteenth century England with particular emphasis on the shorter poems of Milton, Restoration drama; the social values that are exposed by the Augustans; the satirists, especially Swift and Pope, as critics of their society.

Preliminary reading
Stage three

**AL300 Literature of the United States — 19th Century**

Four hours per week daytime
or
Three hours per week evenings
Prerequisites, either AL100 or AL101 or equivalent
and AL200 or AL201 or equivalent
Assessment: one major and one minor essay; class papers; class contribution

A thorough survey of 19th Century literature, concentrating on important literary landmarks and seminal authors: Emerson, Whitman, Twain, as well as Melville, Hawthorne, Poe and Dickinson. Particular emphasis on significant connections between literary works and the contemporary intellectual climate and social ethos. Wherever possible, parallels with British and European literary traditions will be stressed.

**Preliminary reading**

**AL301 Literature of the United States — 20th Century**

Four hours per week daytime
or
Three hours per week evenings
Prerequisites, either AL100 or AL101 or equivalent
and AL200 or AL201 or equivalent
Assessment: one major and one minor essay; class papers; class contribution

Basically, the same approach as the 19th Century literature, focusing on similar themes and interrelationships of literature and social and cultural factors. Emphasis on developments and continuities of earlier movements and initiatives, as well as important changes that mark the emergence of ‘modern’ literature in the 20th Century. Included are Eliot, Fitzgerald, O’Neill, Stevens, Miller and Sylvia Plath.

**Preliminary reading**
Bond, M.N. *Twentieth Century American Literature*. USA, Arden Library, 1977

**General surveys**

**AL302 Australian Literature — 19th Century**

Four hours per week daytime
or
Three hours per week evenings
Prerequisites, as for AL300 and AL301
Assessment: one major and one minor essay; class papers; class contribution

The development of the novel and the short story in Australia during the 19th Century up to the time of Federation. Poetry during the 19th Century.

**Preliminary reading**
Moore, T. *Inghl, Social Patterns in Australian Literature*. Syd., Angus and Robertson, 1971

**AL303 Australian Literature — 20th Century**

Four hours per week daytime
or
Three hours per week evenings
Prerequisites, as for AL300 and AL301
Assessment: one major and one minor essay; class papers; class contribution

From Federation to the present day. Poetry, fiction and short stories. In each module students will undertake a piece of original research which need not necessarily be any one of the authors studied on the course.

**Preliminary reading**
As for AL302
Media Studies

The approach in this course is essentially analytical and critical, rather than production-oriented. In 1985 all first-year students will undertake a foundation subject — AM100, in which we examine how the media produce meanings and how we understand and interpret media communication. AM101 is not offered in 1985. Both second-year subjects — AM200 and AM201 — or their equivalents, are compulsory for entry into third year. AM302 and AM303 combined are a full-year radio production and criticism subject for day students, whereas AM304 and AM305 combined are a full-year subject for evening students, without production components. The media studies degree major comprises one subject at stage one, two subjects at stage two, and two pairs of subjects at stage three. The unit value of the course is 7 units, unless students completed units offered prior to 1985, when they might have taken an additional subject at first-year level.

Subjects offered

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<th>Code</th>
<th>Stage</th>
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<td>AM101</td>
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Subject details

Stage one

AM100  Foundation Course in Media
Four hours per week daytime
or
Three hours per week evenings
Prerequisites, nil
Assessment is continuous

The focus of this subject is on the production of meaning through the media, and particularly through film and television. The most useful critical accounts about the construction of meaning come from literature, art and cinema. Some of these accounts are beginning to be applied to television, and the various ways are examined in which television communicates meanings — through advertising, news, drama, soap operas and comedies. A critical investigation of both film and television texts is undertaken in class and in group projects. This discussion of programs and commercials is accompanied by an introduction to critical theory about the process of communication.

The implications of this approach include an exploration of key relationships between the individual film and television viewer, the media text, and the society at large. These relationships are traced in terms of shared knowledge and in terms of access to certain kinds of information and meaning. The effects of media are studied by examining media representations of reality; enquiring into what is being communicated and how it is understood. This approach becomes a study of signs, codes and systems of communicating meanings; a means of establishing the role of the media within social processes, and how they form part of a more general construction of reality.

Recommended reading

Brecht, C. Critical Practice. N.Y., Methuen, 1980
Fiske, J., and Hartley, J. Reading Television. N.Y., Methuen, 1980
Berger, J. Ways of Seeing. Lond., BBC, 1974
Williamson, J. Decoding Advertisements. Lond., Marion Boyars, 1978

AM101  Foundation Course in Cinema
(This subject is not being offered in 1985)
Four hours per week daytime
or
Three hours per week evenings
Prerequisites, nil
Assessment is continuous

The initial emphasis in this subject is upon the detailed examination of images and sequences from selected films, and thus upon the ways in which meanings are articulated visually. Close attention is given to framing, colour, camera movement, and the importance of relationships constructed with neighbouring images and sequences, along with character, action, dialogue and music. Extracts studied are chosen from films such as Citizen Kane, Battleship Potemkin, La Dolce Vita, An Autumn Afternoon, Father of the Bride, Rio Bravo, The Searchers, Psycho, Swing Time, There’s Always Tomorrow, Tout Va Bien, La Femme Infidéle, L’Année Dernière à Marienbad, The Parallax View, Dressed to Kill and My Dinner with Andre.

Later the subject moves into broader questions concerning film narrative, the pursuit of a theory of film (with special emphasis on ‘the implied viewer’), systems of representation, the range of critical approaches to individual films, the problems entailed in the construction of a history of film, the processes of production, distribution and exhibition, and the development of ‘alternative film’ cultures. The approach in this section explores the kinds of relationships that can be found between films (and writings about film) and the cultural contexts from which they emerge and in which they are viewed. Special attention is given to the Australian cinema.

References

Cinema Papers and Film News
Stage two

**AM200 Publishing and Broadcasting**
Four hours per week daytime
or
Three hours per week evenings
Prerequisite, any stage one Media Studies subject
Assessment is continuous

In this subject, we attempt to demystify the nature and processes of mass communication in its major forms, and its interrelationship with society. There is a continuing examination of key political, social and ethical issues concerning media and broadcasting institutions in society, primarily in an Australian context. Theories and issues central to the subject include the notions of a free press, concentration of media ownership, broadcasting accountability and social responsibility, advertising and assessment of public taste, alternatives to ‘mass culture’, access and reform. Concepts important to the process of publishing are explored, such as the nature of bias, subjectivity and balance in the construction of content, self-censorship in journalism, legal restraints on public comment, media invasion of privacy and freedom of information. Journalism is studied both critically and practically. There is an examination of the conventions and techniques of journalistic writing, to give students an insight into the demands of the publishing process and the opportunity to develop their writing skills. Students are encouraged to submit particular written assignments for publication.

References
*Journalism: 2* Geelong, Deakin University, School of Humanities, Open Campus Program

**AM201 Institutions and Media**
Four hours per week daytime
or
Three hours per week evenings
Prerequisite, any stage one Media Studies subject
Assessment is continuous

In this subject, we examine the ways in which media institutions produce meaning. Attention is focused on the organisation, policy and practices of institutions as they construct particular themes and images of social experience. The Australian Broadcasting Commission is examined as a case study of a broadcasting institution that produces distinctive and characteristic kinds of programming; and constructs certain attitudes and expectations among its viewers and listeners. Emphasis is placed upon analysis of programs, programming policy, institutional organisation and ideology. Attention is given to a comparative account of the ABC’s counterparts in Britain, Canada and the USA. Project work is important in teaching the following areas: analysis of programs and programming policies, methods of surveying broadcasting institutions in terms of their historical and cultural roles, ABC history and its dependence upon a model of BBC public service broadcasting, study of internal organisation, industrial relations, program production processes, and the fifteenth anniversary celebration programs on radio and television.

References
Harding, R. Outside Interference. Ajed, Sun, 1979
McQueen, H. Australia’s Media Monopolies. Camberwell, Widescope, 1977
Report by the Committee of Review of the Australian Broadcasting Commission. The ABC in Review
National Broadcasting in the 1980s, AGPS, Canberra, 1981, known as the Div Report
Inglis, K. This Is the A.B.C. Melb., MUP, 1983

Stage three

**AM300 Cinema Studies**
Four hours per week daytime
or
Three hours per week evenings
Prerequisite, AM100 or AM101 or equivalent, and two from AM200 or AM201 or equivalent
Assessment is continuous

The viewing material for this subject is a selection of films arranged generically (e.g. the musical, or the horror film, or the western, or the science-fiction film), thematically (the romantic drama, or the journey film, or the domestic drama), or stylistically (the films noirs, or the problems of realism, or ‘to cut or not to cut’). These films will provide study samples for a pursuit of ideas introduced during the previous two years of the course into a systematic analysis of film.

The emphasis is upon examining and developing various modes of criticism within the context of film theory. Attention is thus focused upon structuralist and semiological studies, and their function in relation to the humanist discourse which dominates more traditional critical work. In this context, particular questions to do with the developing study of film will be on the agenda for ongoing consideration: for the ways in which ideology is inscribed into the works examined (as well as into the methods of examination), for various systems of representation, for the usefulness of the work of the ‘frame-by-frame heretics’, for the kinds of relationships constructed between a film and its viewer, for the place of ‘the author’ in this process in relation to the formal and thematic organisation of the works which bear his/her name, for the usefulness of ‘genre’ studies, for the function of the ‘star system’, and for the relationship between the film, the industry and the culture in which they exist.

Assessment will be based upon essay presentation and class work.

References

**AM301 Media Public Policy**
Four hours per week
Prerequisites, AM100 or AM101 or equivalent and AM200 or AM201 or equivalent
Assessment is continuous

The theme of this subject is an examination of media and communications technology in the context of an information or post-industrial society. The implications of the convergence of computers with telecommunications, referred to as communications, are examined in their broadest context. There is an analysis of the plethora of government inquiries in this area, where students are required to specialise: the cable television and radiated subscription television enquiry conducted by the Australian Broadcasting Tribunal — known as the Jones Report; the Committee of Inquiry into Telecommunications Services in Australia — known as the Davidson Report; and the Commonwealth Government Task Force on the National Communications Satellite System, known as the White Report. A range of telecommunications policy matters is canvassed, including Aussat and Australia’s domestic satellite, videotex in the public and private sector, and the new home communications technology of home computer, videocassette recorders, teletext, and videodiscs.

Considerable consideration is placed on the methodology of investigation: validity of evidence, analysis of government reports and lobbyists, interpretation of documents and presentation of data. The subject is taught in a comparative framework of United States, Canadian and French telecommunications policy. Several major international communications policy issues are explored — the tendency towards broadcasting de-regulation by the FCC (USA) and CRTC (Canada), the crisis in public broadcasting, open skies for satellite and Third World spectrum space concerns, the politics of information transfer, and the privacy debate. Students are encouraged to present research in a form which will enable their work to be available to the community, as published papers, submissions to enquiries, or as public affairs radio programs.
References

AM302 Radio Production and Criticism A
Four hours per week
Prerequisites, AM100 or AM101 or equivalent and two from AM200 or AM201 or equivalent
Assessment is continuous

This subject incorporates both radio criticism and radio production. It has an extensive production content in which all techniques basic to pre-recorded and live radio broadcasting are covered, including recording techniques, radio interviewing, scripting, naming, editing and sound mixing. The main emphasis is on documentary conception and production, in which students work on both individual and group projects.

Interwoven with this production course is a theoretical investigation where the medium is approached from a number of distinct but interrelated perspectives. An attempt is made to discover those respects in which radio production and broadcasting are relatively autonomous from other media, along with those features shared with other forms of cultural production. This involves, for example, a study of the differences between speaking and writing, listening and reading, as one step toward establishing a framework for a radio criticism which is not merely a simple redirection of methods developed historically through the criticism of literature. Similarly, phenomena specific to the perception and cognition of meaning in sound is identified, and through extensive listening to sound, music and radio, a working vocabulary of sound analysis is developed.

Textbook

References
Arnhem, R. Radio. Lond., Faber and Faber, 1936
Brecht, B. "Radio as a Means of Communication", Screen. V20, Nos 314
Foucault, M. "The Discourse and Language", in The Archaeology of Knowledge and the Discourse on Language. N.Y., Harper and Row, 1976
Hood, S. "Brecht on Radio", Screen V20, Nos 304
Beiley, C. Critical Practice Lond., Methuen, 1980

AM303 Radio Production and Criticism B
Four hours per week
Prerequisites, AM100 or AM101 or equivalent and two from AM200 or AM201 or equivalent and AM302
Assessment is continuous

In this subject radio production skills are developed further and applied to produce a wider range of radio forms. The role of radio within our culture is considered from two perspectives: firstly through an examination of broad structural features of the medium and the consequences of these for the democratic creation and management of mass culture in our society; secondly through a structural analysis of the creation of meaning within radio, aiming to uncover the 'preferred reading' or social reality which is being 'spoken' within the construction of mainstream radio broadcasts in Australia. The analysis of form in radio continues with the study of 'hierarchies of discourse' operating within radio documentaries, accompanied by a consideration of the relationship between language and power in our society on the one hand, and the conditions imposed upon the production of radio texts by radio work processes on the other. The notion of aesthetics in general, and the question of radio aesthetics in particular are examined. Students are required to carry out original radio criticism using Melbourne radio broadcasts as texts, as well as conceiving (on paper) new forms of radio production.

Textbook
Higgins, C.S. and Moss, P.D. Sounds Real. St Lucia, Q.U.P., 1982

References
As for AM302

AM304 Radio Criticism A (Evening)
Four hours per week
Prerequisites, AM100 or AM101 or equivalent and two from AM200 or AM201 or equivalent
Assessment is continuous

The medium is approached from a number of distinct but interrelated perspectives in an attempt to discover those respects in which radio production and broadcasting is relatively autonomous from other media, along with those features shared with other forms of cultural production. This involves, for example, a study of the differences between speaking and writing, listening and reading, as one step toward establishing a framework for radio criticism which is not merely a simple redirection of methods developed historically through the criticism of literature. Similarly, phenomena specific to the perception and cognition of meaning in sound is identified, and through extensive listening to sound, music and radio, a working vocabulary of sound analysis is developed.

The role of radio within our culture is considered from two perspectives: firstly through an examination of broad structural features of the medium and the consequences of these for the democratic creation and management of mass culture in our society; secondly through a structural analysis of the creation of meaning within radio, aiming to uncover the 'preferred reading' or social reality which is being 'spoken' within the construction of mainstream radio broadcasts in Australia.

Textbook
Higgins, C.S. and Moss, P.D. Sounds Real. St Lucia, Q.U.P., 1982

References
Arnhem, R. Radio. Lond., Faber and Faber, 1936
Brecht, B. "Radio as a Means of Communication", Screen. V20, Nos 314
Hood, S. "Brecht on Radio", Screen V20, Nos 314

AM305 Radio Criticism B (Evening)
Four hours per week
Prerequisites, AM100 or AM101 or equivalent and two from AM200 or AM201 or equivalent and AM304
Assessment is continuous

The analysis of form in radio continues in this subject with the study of 'hierarchies of discourse' operating within radio documentaries, accompanied by a consideration of the relationship between language and power in our society on the one hand, and the conditions imposed upon the production of radio texts by radio work processes on the other. The notion of aesthetics in general, and the question of radio aesthetics in particular are examined. Students are required to carry out original radio criticism using Melbourne radio broadcasts as texts, as well as conceiving (on paper) new forms of radio production. Assessment is based mainly upon an extended project which applies principles covered in both radio subjects to a Melbourne radio station or to a specific form used by several stations.

Textbooks
Higgins, C.S. and Moss, P.D. Sounds Real. St Lucia, Q.U.P., 1982

References
As for AM304

Faculty of Arts
Italian

This course is designed to acquaint students with the Italian language, the native tongue of one of Australia's largest migrant groups. The broad aim is to enable students to communicate with Italians, on both linguistic and socio-cultural levels. The major study in Italian therefore strongly emphasises language acquisition, and progressively treats those aspects of Italian language, literature, history, geography, economics, sociology, politics and culture as are seen to be appropriate to an understanding of the modern nation and its inhabitants, and especially to an appreciation of the position of Italian migrants and their families in Australia.

A degree major in Italian consists of AA100 at stage one, followed by AA200 at stage two, then AA300 and AA301 at stage three. Normally, AA300 is completed prior to, or concurrently with, AA301.

The subjects offered in Italian assume no prior knowledge of the language. These subjects may not meet the needs of native speakers of Italian.

All incoming students in Italian are assessed in terms of their level of competence in this regard may be required to study an alternative syllabus to that shown in this handbook.

If a student requests exemption from any part of an Italian subject no credit will be granted unless the student has previously completed studies which are part of a degree program studied at a recognised institution.

Subjects offered

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Subject details

Stage one

AT116   Introduction to Language
Four hours per week (three hours evening)
Prerequisite, nil
Assessment is continuous

In this subject, basic linguistic concepts are introduced which are necessary to the understanding of the mechanics of language. The topics studied include sound systems of human speech, the combination of sounds into words, the rules for combining words into sentences, the study of meaning, the role of discourse, and language usage within a social system.

Although most of the examples are taken from the English language, their applicability to Japanese, Italian and other languages is also explained.

Students undertaking foreign language majors are highly recommended to include this subject in their course. It is also available to students not studying languages.

References

AA100   Italian 1
Eight hours per week (six hours evening)
Prerequisite, nil
Assessment is partly continuous, partly by examination

This is a practical introduction to the language; a basic grammatical and conversational ability will be achieved. Use is made of language laboratory facilities. The course also includes a general introduction to the study of Italian civilisation and the Italian way of life, as well as lectures on Italian history.

History: A general overview of early Rome; Imperial Rome, the Middle Ages, Renaissance Italy, the Reformation, the Political Divisions in Italy. The history segment is taught to Italian 1 day-students only.

Textbooks


Aventura, B.B.C., Lond. 1972


The Carrassi Italian — English, English — Italian Dictionary. 11th edn, Milano, Carrassi Editor, 1979

References
Appropriate references will be given by the lecturers at the beginning of the year.

Elia, P. I verbi italiani ad uso degli stranieri. 12th edn, Verona, Edizioni Scolastiche Mondadori, 1971

Stage two

AA200   Italian 2
Eight hours per week (six hours evening)
Prerequisite, AA100 or approved equivalent
Assessment is continuous

The main objectives of this subject are:

To extend the knowledge of Italian language and literature thus gaining linguistic competence that will enable students to deal with a wide range of topics in the written and spoken language.

Through a detailed critical analysis of contemporary literature, students will be able to develop further, their competence in grammar, vocabulary and idioms.

To give students an understanding of the emergence of modern Italy, from the Risorgimento to the outbreak of World War 2.


Textbooks
Sorani, A. *Cone di Lingua Italiana per Stranieri*. Firenze, Libreria Editrice Fiorentina, 1974

Moller, A. *A and B Convertini, A. *L'Italia Racconta* Tokyo, Copp, Clark Pitman, 1979

References
Smith, D.H. *The History of Italy 1861-1919*. Laterza, Rome 1973
Pacilici, S. *A Curde to Contemporary Italian Literature from Futurism to Neo-realism*. Carbondale, IIL, Southern University Press, 1962
Romano, S. *Storia dell'Italia dal Risorgimento ad i Nostri Giorni*. Milano, Arnoldo Mondadori, 1978
Cuglief rapino, S. *Cuida al Novecento Milano Principato Editoriale*. 1971

Note
In order to complete a major in Italian, students must take both Italian 3A and Italian 3B. The two subjects may be taken concurrently or Italian 3B may be taken after completion of Italian 3A.

Stage three

**AA300 Italian 3A**
Six hours per week
Prerequisite: AA200 or approved equivalent
Assessment is continuous

The main objectives of Italian 3A are:
To consolidate the students’ language skills and to develop these further through appropriate literature and allied grammar; to develop their oral skills through conversation and discussion in Italian; to develop in the students an understanding of contemporary Italy and of Italian immigrants in Australia through the study of contemporary documents;

Textbooks
D’Aprano, C. *Violenza o Derisione?*. Melb. SARDD, 1979
Fiunzi, L. *Come Donna, Zero*. Milano, Mondadori, 1976

References
Procacci, G. *La Storia Degli Italiani*. Bari, Laterza, 1975
De Micheli, A.T. *Armando Racconta*. Milano, Vangelista, 1982
Other references will be indicated.

**AA301 Italian 3B**
Two hours per week, daytime, one and one-half hours per week evening
Prerequisite: AA300 (Italian 2 if the subject is being studied concurrently with Italian 3A)
Assessment, dialectology assignment, October (100%)

The principal objectives of Italian 3B are:
To give students a grounding in the structure of the main Italian dialects.

Textbook
De Mauro, T. *I Dialetti Italiani*. Roma, Editori Riuniti, 1979

Japanese

With the deepening of relations between Australia and Japan on many levels, it is advisable that a study of Japanese language, both spoken and written, be undertaken by a greater number of Australians. Furthermore, it is important that a knowledge and understanding of Japan is increased in Australia. This course trains students to communicate effectively in Japanese and it provides also, the opportunity to study Japaneseculture, society and economy through the language. The emphasis is on contemporary Japanese.

The subjects AJ100, AJ200, AJ300 and AJ301 form a degree major in Japanese. Usually, AJ300 is completed prior to, or concurrently with AJ301.

Students intending to major in Japanese should enrol in the first instance in AJ100 Japanese1.

Students undertaking a major in Japanese are highly recommended to enrol also for Introduction to Japan — A Cultural Overview and Communication in Japanese, which provide an essential background to Japanese language and culture, in the following order:
(i) AJ102, Introduction to Japan — A Cultural Overview which is offered in second semester, while simultaneously taking AJ100, Japanese1;
(ii) AJ202, Communication in Japanese — which is offered in first semester, while simultaneously taking AJ200, Japanese2.

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

AT116, Introduction to Language and AP204, Modern Japan, offered by the Social and Political Studies Department are also highly recommended.

The language subjects offered in Japanese have been specifically designed to introduce non-native speakers to the Japanese language. These subjects will not meet the needs of native speakers of Japanese. The Department therefore recommends that such students do not take these subjects.

All incoming students in Japanese will be assessed in terms of their expertise in the language. Those students who show a high level of competence in this regard may be encouraged to study an alternative syllabus to that shown in this handbook.

If a student requests exemption from any part of a Japanese subject no credit will be granted unless the student has previously completed studies which are part of a degree program studied at a recognised institution.

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### Subject details

#### Stage one

**AJ100 Japanese1**

- **Eight hours per week (six hours evening)**
- **Prerequisite**: nil
- **Assessment is continuous**

This subject introduces students to the Japanese language, and training is provided in language patterns and grammar, writing, conversation, listening and comprehension. Films, slides and a variety of taped materials are used throughout the course. As a further aid, taped cassettes of each lesson are available on loan. It is highly recommended that students enrolled in this subject also enrol for **AJ101** which is offered in second semester.

#### Textbooks

- SIT Languages Department, **Reading and Writing Japanese Vol.1**, Melb., Swinburne Press, 1984
- SIT Languages Department, **Situationsl Japanese Vol.1**, Melb., Swinburne Press, 1984
- Mizutani, O. and N. **Nihongo Notes Vols. 1 and 2**, Tokyo, Japan Times, 1977

**AJ102 Introduction to Japan — A Cultural Overview**

- **Four hours per week (one evening)**
- **Prerequisite**: nil
- **Assessment is continuous**

This subject introduces historical and cultural topics of direct relevance to the development of Japanese language and society. References in English are used.

#### References


#### Stage two

**AJ200 Japanese2**

- **Eight hours per week daytime**
  - or Six hours per week evening
- **Prerequisite**: AJ100 or approved equivalent
- **Assessment is continuous**

This subject extends the range of language patterns, grammar and writing. It also provides further training in oral and aural Japanese. Students are introduced to various topics on Japanese culture and society through reading in Japanese. A variety of audio-visual material is used throughout the course.

It is highly recommended that students enrolled in this subject also enrol for **AJ201** which is offered in first semester.

#### Textbooks

- Asahi Culture Centre., Chotto Hajo Koto. Asahi Culture Centre, Tokyo, 1981

### Stage three

**AJ300 Japanese3A**

- **Six hours per week daytime**
  - or Six hours per week evening
- **Prerequisite**: AJ200 or approved equivalent
- **Assessment is continuous**

This subject continues systematically to extend the students' use of spoken and written Japanese. This subject contains four major components: grammar, aural comprehension, reading and conversation.

The grammar component introduces diverse patterns and expressions which are often not included in conventional language textbooks.

The aural comprehension component is concentrated on recent radio news broadcasts and a drama series. The reading component covers material which is an important lead-up to newspaper reading and to communicative interaction with natives of Japan.

The conversation component introduces students to particular topics which emphasise cultural differences between Australia and Japan. Students may choose to study state three in Japan, in which case they are still required to complete the Swinburne stage three course work. A scholarship scheme and a "Work-in-Japan" scheme have recently been established to enable students to undertake this alternative.

#### Textbooks

- Asahi Culture Centre., Chotto Hajo Koto. Asahi Culture Centre, Tokyo, 1981

### Preliminary reading

- Okada, H. **An Introduction to Kaji**: A Selection. Osaka, Japan, Sanyusha, 1975
- Miura, A. **English Loanwords in Japanese**. Rutland, Vt., Tuttle, 1979

### References


### ATM
References
Please consult with lecturers before buying these books.
Chaplin, H.I. and Martin, S.E. A White-Collar Worker’s Day. New
Haven, Conn., Yale University, 1977
Takeyama, M. Biruma no Tategoto. Tokyo, Popurasha, 1970
Saito, S. Nihonjin no Issho. Tokyo, Japan, Nihongo Kyoku Gakkai,
1981

AJ301 Japanese3B
Two hours per week
Prerequisite: AJ201
Assessment is continuous
This subject consists of a two-hour class which deals with a number
of issues on contemporary Japan, in Japanese. Students read a variety
of unabridged newspaper articles which are complemented by
additional language exercises.

Textbooks
Dictionaries, as for AJ300

Liberal Studies
The following subjects taught by the Department of Liberal
Studies form an integral part of the course offered by the other
faculties: Science, Engineering, Art and Business.
They are specifically included to broaden the scope of
students’ general education in the areas of communication
skills, report writing, the social sciences, and other essential
areas.
These subjects are not available to Arts students.

Subjects for Applied Science students
AT191 Health and Society
AT192 Health and Society
AT291 Complementary Studies
AT392 Report Writing
AT393 Communication Studies
AT394 Report Writing
AT493 Brain and Behaviour
For individual subject descriptions see the Faculty of Applied Science
handbook.

Subjects for Art students
AT163 Applied Writing
AT294 Social Science 2
AT391 Applied Psychology
AT395 Applied Psychology
AT492 Theory of Communications
For individual subject descriptions see the Faculty of Art handbook.

Subjects for Business students
AT295 Business Communication
AT693 Psychology and Interpersonal Skills
For individual subject descriptions see the Faculty of Business handbook.

Subjects for Engineering students
AT195 Communications I
AT197 Communication Skills
AT293 Liberal Studies
AT396 Communications II
AT691 Urban Sociology
AT692 Energy Policy Formation
For individual subject descriptions see the Faculty of Engineering
handbook.

General electives for Engineering students
The electives listed here are available for all civil, electrical and
electronic, manufacturing and mechanical engineering students in the
second and later years of their courses. The number of electives offered
each year is governed by demand and the availability of appropriate
staff.
The electives are:
AT792 Applied Psychology
AT793 Literature and Media
AT794 Sociology
AT795 Law in Society
AT796 Technology and Society
AT797 Archaeology
AT798 Philosophy
Details of these and other possible electives are available from the
Department of Liberal Studies.
Psychology

The undergraduate psychology program provides students with a broad introduction to psychology in stages one and two, and, for those majoring in psychology, stage three emphasis is on vocational skills and knowledge relevant to applied fields.

The stage one course in psychology combines subjects previously offered as Psychology 1 and Introduction to Design and Measurement. Students intending to major in the subject are required to take AY100 Psychology 100 and AY101 Psychology 101. Each of these subjects comprises lectures, practical work and statistics.

In stage two, in addition to AY200 Psychology 200 and AY201 Psychology 201, it is required that SM278 Design and Measurement 2A be taken by students wishing to major in psychology. SM279 Design and Measurement 2B may also be taken by those students with special interests or aptitudes in psychological research, or who intend to complete postgraduate studies in psychology.

In stage three, subjects are offered in organisational and applied social psychology, together with the psychology of personality and personality adjustment. In addition, core studies in methodological analysis, introduction to psychometrics, and interviewing and counselling are offered. Students completing stage three of the psychology degree major are required to take AY301 and either AY300 or AY302 in the first semester, followed by AY304 and either AY303 or AY305 in second semester.

It should be noted that the undergraduate psychology program is sequential in nature; that is, completion of the prescribed subjects at one stage of the program is a prerequisite for study in the next level. Thus a student must complete both stage one psychology subjects before enrolling in any stage two psychology subject, and must complete both stage two psychology subjects before enrolling in any stage three subject. Details of these prerequisite arrangements are shown in entries for all psychology subjects.

It is possible for selected students to take a double major in psychology within their course for the degree of Bachelor of Arts. Students wishing to take this option must apply to the Department of Psychology Secretary in the first semester of the second year of their course. The double major includes AY100, AY101, AY200, AY201, SM278, SM279 and all six of the stage three subjects in psychology which are listed above, plus an additional stage three psychology subject and an additional stage two subject chosen from a group of approved subjects nominated by the Department of Psychology.

Many people take up a career related to psychology after completion of a three-year program, but some choose to work as psychologists. In order to be regarded as a professionally-trained psychologist in Australia it is becoming increasingly necessary to be eligible for membership of the Australian Psychological Society (APsS). The minimum academic requirement for associate membership of the APsS is completion of an approved four-year program of psychological study. The Swinburne Bachelor of Arts psychology major has APsS approval as a sequence of three years' study and, to become eligible for associate membership in the APsS, graduates must then complete an approved fourth-year course. (A list of approved courses is published in each volume of the APsS journal Australian Psychologist.) The Swinburne Graduate Diploma in Applied Social Psychology is an accredited fourth-year course.

Subjects offered

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<th>Unit value</th>
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*Available only for double major students

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**Note:** The above information is based on an assumed or extrapolated context, as the exact content may vary depending on the specific institution or program. It is recommended to consult the official program guide or contact the department for the most accurate and up-to-date information.
Subject details

Stage one

**AY100 Psychology 100**

Five hours per week daytime
or
Three-and-a-half hours per week evenings
Prerequisite, nil
Assessment is based on essays, practical exercises and class tests

AY100 and AY101 are designed to provide students with an introduction to the content and method of psychology. Topics covered in this subject include the origins of modern psychology, the biological bases of behaviour, perception, learning and memory, experimental design and analysis.

Preliminary reading

Students wishing to familiarise themselves with concepts in psychology could read:

Kristal, L. Understanding Psychology, Melb., Nelson, 1979

Textbooks

Le Francois, C. Psychology. Belmont, Calif., Wadsworth Publ. 1980
Miller, S. Experimental Design and Statistics. Lond., Methuen, 1975

**AY101 Psychology 101**

Five hours per week daytime
or
Three-and-a-half hours per week evenings
Prerequisite, AY100

Topics covered in this subject include the development of behaviour, the psychology of personality, problems in living, human abilities, and social applications of psychology. The design and analysis of experimental studies again forms a major part of the teaching program.

Textbooks

As for AY100

Stage two

**AY200 Psychology 200**

(Developmental Psychology)

Five hours per week daytime
or
Three-and-a-half hours per week evening
Prerequisite, AY100 and AY101
Assessment is based on an essay, practical exercises and class tests

It should be noted that SM278 must be taken by students wishing to major in psychology. SM279 may also be taken by those students with special interests or aptitudes in psychological research or who intend to complete postgraduate studies in psychology.

This is a subject in developmental psychology, which emphasises the earlier periods of life at times when the behaviour of infants and children is undergoing rapid development and maturation. Emphasis is on social, emotional, cognitive and intellectual development with a comprehensive experiential and experimental program supporting the theoretical material. Students are encouraged and expected to interact with children of various ages.

The teaching program consists of two lectures, a practical session and a tutorial class.

Preliminary reading

Tucker, N. What is a Child? Glasgow, Fontana, 1977

Note

For details of the subjects SM278 Design and Measurement 2A and SM279 Design and Measurement 2B, please refer to the section entitled 'Subjects offered by the other faculties'.

**AY201 Psychology 201**

(Social Psychology)

Five hours per week daytime
or
Three-and-a-half hours per week evening
Prerequisites, AY100 and AY101
Assessment is continuous

This subject is about the scientific study of the personal and situational factors that affect individual social behaviour. The aim is to introduce students to the key conceptual and theoretical models in social psychology and to develop scientific and personal skills.

The teaching program involves two lectures per week plus a tutorial and practical session.

Preliminary reading


Stage three

**AY300 Psychology 300**

(Organisational psychology)

Four hours per week
Prerequisites, AY200, AY201 and SM278
Assessment is based on project work and class tests

Working on the premise of open system theory, this subject concentrates on ways of explaining and understanding the behaviour of people who are part of an organisation.

Important dimensions of behaviour in organisations are examined to provide perspective for studying the psychological well-being of individuals within a variety of organisational settings.

Inter and intra-personal influences: motivational, perceptual, communicational, interpersonal relationships, leadership and authority.

Consequences: vocational choice, entry and maintenance; industrial relations and well-being.

Laboratory sessions are devoted to the process and procedures that allow effective assessment of behaviour in particular organisational contexts.

References


**AY301 Psychology 301**

(Methods and Measures)

Three hours per week
Prerequisites, AY200, AY201 and SM278
Assessment is based on submissions from laboratory exercises

This subject is divided into two parts. The first part emphasises the critical evaluation of psychological research as reported in the literature. The second part is concerned with the construction, development and application of various types of psychological tests and scales.

References

AY302 Psychology 302
(Psychology of personality)
Four hours per week
Prerequisites, AY200 and AY201 and SM278
Students are strongly advised to complete SM278 prior to, or concurrently with, this subject.
Assessment is based on project work and a class test.
The distinct focus of this subject is the behaviour and experience of the individual as a whole person. Attention is given to other specialised fields of psychology (e.g., development, perception, learning and cognitive processes). The theories and research findings from these fields are specifically considered from the viewpoint of integrating such contributions to increase our overall understanding of ourselves and others as persons.
The course involves five components:
(i) basic concepts and influential theories
(ii) assessing and understanding persons
(iii) current issues in theory and research
(iv) research methods
(v) applications.
Students are expected to familiarise themselves with major historical theories through preliminary reading. An overview of these influential theories will be given in early lectures.

Preliminary reading

AY303 Psychology 303
(Psychology of adjustment)
Four hours per week
Prerequisites, AY200, AY201 and SM278
Assessment is based on an essay, a practical exercise and class tests.
In this subject, the concepts of adult development and adjustment and related theoretical, social and ethical issues, are examined. Some critical periods of human life are selected for study; periods which require major changes in coping behaviour. Included are: changes and adjustments in adolescence and adulthood in particular. More specifically the subject is about:
(a) the concepts of adjustment and maladjustment, normality and abnormality, coping and adaptation — cultural relativism — ethical and moral issues pertaining to these concepts;
(b) theoretical views of 'stress' and 'coping' process — the need to consider the individual in interaction with the environment;
(c) development in adolescence and adulthood, specific 'coping' problems, developmental crisis points and transitions.
(d) physiological and psychological changes associated with ageing.

Preliminary reading
Lazarus, R.S. Patterns of Adjustment. N.Y., McGraw-Hill, 1976
Allman, L.R. and Jaffe, D.T. eds. Reading in Adult Psychology. 2nd edn, N.Y., Harper and Row, 1982

AY304 Psychology 304
(Counselling and interviewing)
Three hours per week
Prerequisites, AY200, AY201 and SM278
Assessment is based on project work.
The major orientations to counselling and interviewing are introduced. The basic interpersonal skills involved in interviewing are examined and the opportunity is provided to develop these. Students will be able to follow up particular interests in topics relevant to counselling and interviewing.

Preliminary reading

AY305 Psychology 305
(Applied social psychology)
Four hours per week
Prerequisites, AY200, AY201 and SM278
Assessment is continuous.
This subject is related to issues of current interest and real life relevance to which social psychologists are being asked to contribute. The emphasis is on use and relevance of social psychological methods and explanations in the study of social issues.
Students complete a project within a general topic area, such as the influence of environment on individual behaviour.
Several weeks are set aside for experimental work, to allow students to become familiar with some of the investigatory techniques used by social scientists. Following this experimental stage, students are encouraged to consider theoretical issues relating to the methods used, including ethical considerations.

Reference

AY306 Psychology 306
(Psychology of Human Performance)
Four hours per week
Prerequisites, AY200 and AY201 SM278 and SM279
(This subject may be taken only by students taking double major studies in Psychology; it may not be offered every year)
Assessment: reading assignments, seminar participation
Psychologists are being involved increasingly in work related to improving human performance in a variety of fields: commerce and industry, rehabilitation, remedial education and sport. This subject introduces students to those basic concepts from psychology and related areas which contribute to our understanding of improving human performance through skills-acquisition; motivation; reduction of fatigue and error-elimination.
Starting from the basic model proposed by Welford, students need to become familiar with the basic concepts in the field. They are then required to select one particular field of applied psychology in which the improvement of human performance is important.

References
Legge, D. and Barber, P.J., Information and Skills. Lond., Methuen, 1975

AY307 Psychology 307
(Psychological Practice)
Four hours per week
Prerequisites, AY200 and AY201 SM278 and SM279
(This subject may be taken only by students taking double major studies in Psychology; this subject may not be offered every year)
Assessment: based on project work
Intended for students who plan to work as psychologists, this subject provides a review of aspects of psychological practice. Issues relevant to the practising psychologist are considered, including professional ethics and psycho-legal aspects of practice. Students consider the use of psychological methods in vocational selection, test development and validation, and assessment procedures. Students also explore intervention techniques used by psychologists, either in organisation settings, or in dealing with individuals.

References
Political Studies

Political studies is concentrated into two principal areas, Australia and Asia. The subjects offered set the political and historical dimensions of the societies studied in the broad economic and social contexts.

Students may choose from a variety of subjects, but there are three themes around which they may decide to concentrate their studies. They are:

(a) the politics of modern industrial society with an added emphasis on Australia
   e.g. AP100, AP101, AP200, AP201, AP300, AP301, AP303, and AP308.
(b) social and political change in Asia
   e.g. AP104, AP105, AP204, AP205, AP304, AP307, AP309, and AP310.
(c) political economy of capitalist development with examples from Third World and industrialised societies
   e.g. AP106, AP109, AP110, AP202 and AP307.

The political studies area allows a critical and evaluative view of the whole structure of our society in the late twentieth century. By focusing on Australian society and, at the same time, providing a variety of perspectives on Asia, the subject area defines our position in our own society more sharply and conveys some understanding of our relationships with Asian neighbours.

Students may take single semester subjects, a minor, a major, a major and a minor, or a double major in political studies.

A minor consists of at least one semester subject at stage one and at least two semester subjects at stage two.

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

A degree double major consists of at least two semester subjects at stage one, at least four semester subjects at stage two and eight semester subjects at stage three.

In stage one students may enrol in one or more of the seven subjects offered, but two stage one political studies subjects are required as prerequisites for four or more stage two subjects.

The subject AP102 is offered at stage one only and cannot form part of a major or minor in political studies.

Subjects offered

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<th>Title</th>
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*Not offered in 1985
Subject details

Stage one

AP100 Australian Politics
Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is by class work and essays

This subject is an introduction to Australian politics. To begin with the subject covers the basic framework of government. The following topics are considered: the constitutional basis, federalism and the Westminster system, parliament, cabinet and the public service, the organisation of the main political parties, and the role and future of minor political parties. These topics are taught at a level which presumes no previous knowledge of Australian politics. However, as the subject progresses students are introduced to the broader dimensions of politics which include the role of pressure groups, their basis of support, in the electorate and in society at large, and their bearing on Australian democracy.

Preliminary reading
Forrell, C.R. How We Are Governed. 8th edn, Melb., Congman, Cheshire, 1981
or

AP101 Foundations of Modern Politics
Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is by class work and essays

This subject is an historical introduction to the major political movements that have shaped Europe in the 20th century. The focus is on the interaction of social and political change within states and international relations. The course begins with a survey of capitalism, the nation-state, democracy and imperialism in the 19th century, but concentrates mainly on the period since 1914. It examines the rise of Soviet communism, the rise of Nazism in Germany and the origins of the two World Wars and the Cold War.

References

AP102 Law and Society
(This subject is not being offered in 1985)
Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
This subject cannot be chosen as the basis for a major or minor in political studies
Assessment is by class work and essays

The objective in this subject is to explore the relationship between the law and society it purports to serve. Part of this relationship involves the nexus between changes in social attitudes and behaviour and the implementation and enforcement of the law. Implicit within this is the role and performance of law enforcement agencies in a modern democratic society. The question ‘For whose benefit does the law exist?’ provides a good starting point.

Preliminary reading

AP103 Foundations of the Third World
(This subject is not being offered in 1985)
Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is by class work and essays

What has produced the condition of underdevelopment in the Third World? What lies beneath the surface of the poverty that plagues much of the world’s population? These questions are considered in the context of the emergence of capitalism, European colonisation, and the making of a world economy.

Specific topics include the social origins of capitalism, the Industrial Revolution, the impact of European intrusions, cities and colonial economies.

Reference

AP104 Australia and South-East Asia
(This subject cannot be taken by students who have passed AT147, Modern South-East Asia.)
Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is by paper, and tutorial participation

Australia’s involvement with her neighbours in south-east Asia since 1945 is examined against the background of the crises within and the disputes between, the countries of the region. Topics considered include studies of communist parties, communalism, political violence, authoritarian, and military rule; student activism in Indonesia, Malaysia, Vietnam, Kampuchea; and Australia’s relationships with south-east Asia.

Reading guides are distributed

AP105 Contemporary South-East Asian History
(This subject cannot be taken by students who have passed AT147, Modern South-East Asia.)
Four hours per week daytime
or
Three hours per week evening
Prerequisite, nil
Assessment is by paper, and tutorial participation

In this historical introduction to south-east Asia, emphasis is on a study of social and political change in Indonesia, Malaysia and Indochina. The contribution of European colonialism to the growth of the nationalist movements and the search for stability and unity in the years following independence is accentuated.

Textbooks
Scott, J.C. The Moral Economy of the Peasant. USA, New Haven, Paperback, 1977
The subject examines the restructuring of the world economy since the 1950s and the implications of that restructuring for Australia and for the 'Third World'. It highlights the central role of transnational corporations in organising resources on a global scale and the influence of international financial institutions over economic development, particularly in the 'Third World'.

At the more immediate level, the activities of Australian community organisations involved in economic change both here and in Asia are also considered. The subject includes topics on transnationals and food; labour and export-based industrialisation in Southeast Asia; and the possible consequences for Australian society of the country's rising dependence on primary resources.

Textbook

Prerequisites
nil
Assessment is by essays and tutorial participation

References

Stage two
AP200 Advanced Australian Politics
Four hours per week daytime, or
Three hours per week evening
Prerequisite, any stage one political studies subject or
approved equivalent. A background in Australian
Politics and/or social and political theory is desirable.
Assessment is continuous

In this subject we attempt an analysis of power structure in Australia.
There are four main sections:
Section 1
The Condition of the People. This section surveys distribution of
wealth, distribution of income, aspects of poverty, and social
mobility.
Section 2
The Will of the People. This section analyses the social policy of the
Section 3
The Consciousness of the People. This section looks at theories of
hegemony and class consciousness in Australia.
Section 4
The Rule of the People? This section considers the question: who
rules?

Reading guides are distributed

AP201 Political Sociology
Four hours per week daytime, or
Three hours per week evening
Prerequisite, any stage one political studies subject, or
an approved equivalent (students may choose AP201
Political Sociology, or AS203 Sociology 2D, but not both)
Assessment is continuous

In this subject, key aspects of the relationship between politics and
society are examined. It is an introduction to the theme of power
and its exercise. Its main objective is to provide students with the
basic skills necessary to identify and understand major forms of
power, which they can apply to their immediate environment or to
the broader dimensions of society.

Topics to be considered include the historical background to political
sociology; classic views about the nature of human beings and
society; an analysis of the concepts of power, authority and
influence, with reference to Max Weber; the problem of locating
power in modern society and an examination of three theories of
power and society, namely Marxist, elitist and pluralist theories;
the definition of democracy and the debate about its various models.

Preliminary reading
Dowse, R.E. and Hughes, J.A. Political Sociology. Lond., John Wiley
and Sons, 1972, ch. 1

AP202 Europe, Capitalism and
The Third World
(This subject cannot be taken by students who have
passed AT146 Foundations of the Third World.)
Four hours per week daytime, or
Three hours per week evening
Prerequisite, any stage one political studies subject or
approved equivalent but students are recommended
to have taken AP103 or AP106
Assessment is by essays and tutorial participation

This subject relates the shaping of today's Third World to the
emergence of capitalism in Western Europe.
It examines the forces that have produced the uneven development
where some parts of the world are industrialised and rich and other
parts still technically primitive and poor.
The broad themes of the subject are the social origins of capitalism
and the process of proletarianism, the Industrial Revolution,
European colonisation and the making of a world economy.

Preliminary reading
AP203 Socialism and Development in China
(This subject is not being offered in 1985)
Four hours per week daytime
or
Three hours per week evening
Prerequisite, any stage one political studies subject or an approved equivalent
Assessment is continuous

After liberation in 1949, China began a program of centrally-planned, socialist, agricultural and industrial development. Today no one can deny the general success of that program in materially raising the welfare of the Chinese people. The course examines the origins of the policies and the development of the strategies that have led to both self-generated economic growth and greater distributive justice in the People's Republic of China.

Reference

AP204 Modern Japan
Four hours per week daytime
or
Three hours per week evening
Prerequisite, any stage one political studies subject, or an approved equivalent
Assessment by tutorial participation and papers

Discussion centres around the problems of Japanese nationalism reflected in the nature of Japan's modernisation, the consequences of her emergence as a world power, her defeat, and re-emergence as an economic power. An examination of the social configuration of Japanese society sheds light on the characteristic features which distinguish contemporary Japan from other industrialised societies, especially in politics, education, business operations and employer-employee relations.

Preliminary Reading

AP205 History of Modern China
(This subject cannot be taken by students who have passed AT246 The Chinese Revolution)
Four hours per week daytime
or
Three hours per week evening
Prerequisite, any stage one political studies subject, or an approved equivalent
Assessment by papers and tutorial participation

This subject is concerned with developing some understanding of modern China. Peasant movements and the impact of Western influence on the disintegration of China are taken into account. Special emphasis is on cultural, social and institutional change in twentieth century China with some examination of contemporary Chinese society.

Textbooks

References
Gu Hua, A Small Town Called Hibiscus. Calif., Panda Paperbacks, 1983

Stage three

AP300 Public Policy in Australia
Four hours per week
Prerequisites, AP100 or equivalent, two stage two political studies subjects
Assessment is continuous

In this subject the decision and policy-making structures and processes of the Australian Federal Government are examined. While the focus is on the Federal Government, other institutions and actors in the policy process will also, where necessary, be examined. This could include State Government, business and labour organisations, and other interest and pressure groups. The approach to the study of the decision and policy-making process is through a critical evaluation of the performance and programs of the Hawke Labor Government.

The ideological framework of the Labor Government is considered and contrasted with that of the previous Fraser Government as well as the policies and the impact of Western influences on the disintegration of China are taken into account.

Recommended reading

AP301 Communications Policy and the Information Society
Four hours per week
Prerequisites, two stage two political studies subjects
Assessment is continuous

This subject takes up the theme of information technology and the information society. It looks at the microelectronic revolution and the merging of computer communications, with telecommunications, and examines the policy implications both domestically and internationally.

The national telecommunications policy structure is examined and some recent developments and issues raised. The establishment of a domestic satellite system, the development of video systems and other information and data services, the recent initiative into Telecom, the issue of deregulation and privatisation of telecommunications services and the direction of policy under a Labor Government. Some related issues such as high technology ‘sunrise’ industries for Australia are raised also.

At the international level the policy structure is examined; in particular, the role of the International Telecommunications Union (ITU), the World Administrative Radio Conference (WARC), the International Telecommunications Satellite Organisation (INTELSAT), the European Committee on Post and Telecommunications (CEPT) and similar regional bodies. The key issue covered is the debate over the New World Information Order (NWIO).

Also examined is the challenge to the international telecommunications order by the emergence of new services such as teletext facsimile and by private corporate telecommunications systems such as IBM’s Satellite Business System (SBS). As well, the roles of American, Japanese, and European Telecommunications Corporations in the development of new equipment and systems, in particular information technology, and hence the information society, are discussed. Two different approaches to the development of an information society are considered.

The planned approach with public ownership of information technology and systems such as the French Telephonique program, or the free market, deregulatory approach of the United States Federal Communications Commission.
Finally a look at some of the broader issues associated with the emergence of an Information Society such as teleshopping, teleconferencing, telemedicine, ie. the ‘electronic’ home and ‘electronic’ office.

Recommended reading

AP303 Politics of the USSR: (This subject cannot be taken by students who have passed AP302 Comparative Politics: The Soviet Union)
Four hours per week
Prerequisites, two stage two political studies subjects
Assessment is continuous.

The subject introduces students to a comparative analysis of political systems through a study of Soviet government and society. The principal objective is to provide a framework for comparing communist political systems, but not to the exclusion of comparisons with western political systems.

The approach is to view socialism as an alternative social and political framework for modernisation and development to that provided by western capitalism. The institutional framework is examined, together with the economic and social transformation of the USSR, and the problems encountered by ‘developed socialism’ in the USSR.

Recommended reading
Lane, D. Politics and Society in the USSR. 2nd edn, Lond., Martin Robertson, 1978
Nettl, J.P. The Soviet Achievement. Lond., Thames and Hudson, 1967
Noves, A. An Economic History of the USSR. Harmondsworth, Penguin, 1972

AP304 Japan in Asia
Four hours per week
Prerequisites, two stage two political studies subjects
Assessment is by seminar participation and papers

A study of Japan’s involvement in south-east Asia or east Asia since 1952. The relationships between Japan and south-east Asian countries are examined against a background of the problems raised in AP105 and AP103 and in comparison to those discussed in AP307. Discussion centres around the consequences of dependency and the degree of complementarity in those relationships.

An alternative course examines Japan’s relationships with Taiwan, North Korea, South Korea, the People’s Republic of China and the USSR. Students are expected to investigate Japan’s relationship with one state and to contribute to discussions of the implications and consequences of Japan’s policies in east Asia.

AP307 Capitalism and Uneven Development: India
Four hours per week
Prerequisites, two stage two political studies subjects
Assessment is continuous.

Why does a country with an extensive and relatively advanced industrial base also suffer widespread poverty? The subject takes India as a case study of uneven development in the ‘Third World’ and discusses both the historical and contemporary empirical dimensions of this process. It relates the precolonial Indian society to the colonial experience and examines how class formation was affected. Post-independent India is examined in terms of the dominance of particular class interests. Topics include: the development of agriculture, agrarian relations, peasant struggles and industrialisation.

Recommended reading
Omvedt, C. We Will Smash This Prison. Lond., Zed Press, 1980
Mukherjee, R. The Rise and Fall of the East India Company. N.Y., Monthly Review Press, 1974

AP308 Seminar in Political Studies
Four hours per week
Prerequisites, two stage two political studies subjects
Assessment is continuous.

A series of advanced seminars on contemporary issues or an intensive study of a specific topic in political studies.

The topics to be offered are specific illustrations of one or more of the following broad themes within political studies: the politics of modern industrial society, social and political change in Asia, and the political economy of underdevelopment. These seminars include considerations of the methodological questions involved.

AP309 Chinese Politics A
(This subject cannot be taken by students who have passed AP305 Comparative Politics: China A)
Four hours per week
Prerequisites, two stage two political studies subjects
Assessment is continuous.

In this subject, students are introduced to the comparative analysis of political systems through a study of Chinese government and society. The intention is to provide a framework for the comparative analysis of communist political systems.

The approach is within a general context of economic, political and cultural development that explores the varying problems and issues encountered in the construction of socialism. The issues involved in the discussion over what is a socialist society provide the bridging theme in the comparative analysis of China and the Soviet Union.

The following are the core topics basic to an understanding of communist political systems: state and party; political control and leadership; political recruitment; communist ideology; socialism; political consciousness and participation; social and economic planning and management; social structure; class and conflict; bureaucracy and elites.

Textbooks

AP310 Chinese Politics B
(This subject cannot be taken by students who have passed AP306 Comparative Politics: China B)
Four hours per week
Prerequisites, two stage two political studies subjects
Assessment is continuous.

Students are expected to deal with particular issues in depth as case studies in selected areas: the family, education, health and social welfare, city and rural life, minorities and ethnic groups and Sinic-Soviet relationship.

Textbooks
Sociology

The Sociology course is designed to provide an understanding of the social world. It deals with the individual’s place in society and the social forces shaping the development of self. It also examines the nature of society and investigates social institutions such as the workplace, education and the family. The course covers varieties of social behaviour and considers the basic theoretical perspectives which explain social life. Basic techniques of gathering and interpreting data are also canvassed and students have the opportunity to gain first-hand experience of social research. In stage one sociology, basic concepts of sociology are explained by reference to the sociological analysis of contemporary Australian society. This is a full-year study, consisting of AS100 Sociology 1A and AS101 Sociology 1B.

At stage two, students are strongly advised to take AS201 Sociology 2B (Methodology of Social Research) if they intend to pursue degree studies in sociology. Two stage two subjects are required for a major or minor in sociology.

Students may enrol in either AS203 Sociology 2D or AP201 Political Sociology but not both.

At stage three, students completing a major must take four out of the six units offered.

For those students intending to pursue a career in applied sociology the Graduate Diploma in Urban Sociology is offered.

Subjects offered

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Subject details

Stage one

AS100 Sociology 1A
(Individuals and social groups)
Five hours per week daytime
or
Three and-a-half hours per week evening
Prerequisite, nil, but note that AS100 and AS101 are normally taken in the one year
Assessment consists of essays, project or examination

This subject is concerned with people as social beings. It takes up the questions of how individuals become socially aware, how their ideas of appropriate behaviour and their views of society are formed by that society and what is the nature of the interaction an individual has with the surrounding social world. The emphasis is on small-scale processes such as role learning, gender development, socialisation, social interaction and ritual, and small group dynamics. In addition, some social institutions which most directly concern us in everyday life are examined, including the family and peer groups.

Elementary methods of data analysis are taught but no statistical knowledge is assumed. Teaching is mainly by lectures and tutorials, and films and videotapes are used.

Preliminary reading

References

AS101 Sociology 1B
(Issues in contemporary Australia)
Five hours per week daytime
or
Three and-a-half hours per week evening
Prerequisite, AS100 taken in the same year
Assessment consists of essays, project, or examination

This subject is an introduction to sociological ways of thinking about contemporary society as a whole, and particularly about Australia. It emphasises the empirical study of various aspects of Australian society and its social institutions, examined within the framework of macro-sociological theory. The subject centres around a selection of topics taken from the following: poverty, unemployment, class structure, racial inequality, industrial sociology, education, families and kinship, urbanisation and models of capitalist industrial societies.

Elementary methods of data analysis are taught but no statistical knowledge is assumed.

Reference
Haralambos, M. Sociology: Themes and Perspectives Slough, University Tutorial Press, 1980

Stage two

AS200 Sociology 2A
(Social change)
Four hours per week daytime
or
three hours per week evening
Prerequisites, AS100 and AS101
Assessment is continuous.

Industrial and technological changes have been the defining features of the developed societies over the past 150 years accompanied by the struggles over their control. Sociologists, among other social analysts, responded to these phenomena by providing a range of explanations concerning the nature of human society. This subject is concentrated on just a few examples of important changes and they are examined by reference to major sociological perspectives.

The emphasis of the subject is on technological change and social movements. Both are subjects which are discussed outside academic sociology and provide a challenge for testing the relevance of sociological theory, for providing a means of understanding pressing contemporary problems.
Topics covered include sociological theories of social change, technological change, 19th Century industry, late 20th Century industry, changes in domestic life, literary representations of change, the women’s movement and democratic movements.

References

AS201 Sociology 2B (Methodology of social research)
Four hours per week daytime
or
Three hours per week evening
Prerequisites, AS100 and AS101
Assessment is continuous and usually based on one class test and assignments, including a major project.

Students intending to major in Sociology are encouraged to enrol for this subject which is offered in second semester.

This subject is designed to provide an understanding of the importance and range of methodologies that link theory with social research practices, and to provide the opportunity for practical experience in research by using different methods and designs.

In this subject, we examine the research process — the importance of ideology and philosophical underpinnings, the crucial role of problem formulation, ethical and logistic considerations — and the relationship between research design, explanation and policy implications. A range of examples from sociological research is used to illustrate the theory-research relationship, and to evaluate the strengths and weaknesses of differing approaches. Consideration is given to methods of data gathering, data analysis and presentation of results, using both quantitative and qualitative strategies. Specific areas covered include social survey research, sampling, scaling, content analysis, critical investigations and other qualitative strategies.

The combination of lectures, tutorials and assessment assignments is integrated so as to link both the theory and practice of research methodologies. Class participation exercises will provide ample opportunity for students to develop their own research interests and strategies.

References
Hughes, J.A. Sociological Analysis. Middlesex, Nelson, 1976
Wadsworth, Y. Do It Yourself Social Research. Victorian Council of Social Services, 1984

AS202 Sociology 2C (Sociology of deviance and social control)
Four hours per week daytime
or
Three hours per week evening
Prerequisites, AS100 and AS101
Assessment is continuous.

Contemporary definitions of deviance include both the kind of behaviour traditionally considered to constitute social problems (for example — crime, delinquency, alcoholism, mental illness, prostitution, and homosexuality), as well as other areas which are important but traditionally underemphasised by criminologists and sociologists. These include sexism, racism, unemployment, white collar and corporate crime, government corruption and structuralist critiques of society and the legal system. The study of deviant behaviour and social control raises questions about the nature of social order and the use of knowledge and power by decision-makers and social control agents in ways that reinforce the dominance of more powerful groups over the less powerful in society.

The subject is focused on different theoretical perspectives on deviance and the consequent variations in the sorts of problems studied, the methodology adopted and the types of results obtained. Such changing definitions of deviance also reflect historical and political changes within sociology, particularly the relationship between sociological research and social policy. An attempt is made to locate these questions within the context of Australian as well as overseas studies.

AS203 Sociology 2D (Political sociology)
Four hours per week daytime
or
Three hours per week evening
Prerequisites, AS100 and AS101, or an approved equivalent

For description of this subject see AS201 Political Sociology.

AS300 Urban Sociology
Four hours per week daytime
or
Three hours per week evening
Prerequisites, two stage two sociology subjects
Assessment consists of tests, class exercises, and an essay.

This subject deals with the growth of urban industrial societies over the last century, with particular attention devoted to Australian urbanisation and urbanism. The study shows how an understanding of urbanism and urban problems is ultimately dependent upon an adequate analysis of the role of cities in the broader development of the nation. Several theories of urban development are introduced in the context of contemporary urban issues such as the housing and energy crises, urban and regional planning, suburban sprawl, inner city redevelopment, social segregation and the emergence of urban action groups. The role of actors in the private sector in urban development is examined, together with their relationship to the various agencies of the State, as well as the State’s own important role in urban development.

Reference

AS301 Theory and Practice in Sociology
Four hours per week daytime
or
Three hours per week evening
Prerequisites, two stage two sociology subjects
Assessment is continuous

No application of sociological techniques can be productive without an understanding of the theoretical issues which inform sociological explanation. In this unit an examination is undertaken of the most influential social theories, their sources in 19th century thought and their present-day formulation. Three major theoretical streams are examined: Marxist theories, interactionist theories and functionalist theories. Examples of each are examined, including their content, core assumptions, ideological foundations and approaches to knowledge. The discussions are designed to enable students to see the practical relevance of these theoretical debates and to analyse contemporary writings on social issues, identifying their strengths, weaknesses and inconsistencies.

References

References
Wilson, P. and Braithwaite, J. Two Faces of Deviance. St Lucia, Queensland University Press, 1978

Faculty of Arts
AS302 Sociology of Organisations
Four hours per week daytime
or
Three hours per week evening
Prerequisites, two stage two sociology subjects
Assessment is continuous

This subject combines elements of the studies commonly referred to as 'organisational theory', 'industrial sociology' and 'sociology of work'. It includes the study of the various ways 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:

(a) major schools of organisation theory;
(b) bureaucracy and industrial society;
(c) the contemporary pressures for organisational change, including case studies of democratic and participative organisations.

Textbooks
Rose, M. Industrial Behaviour, Harmondsworth, Penguin, 1975

AS303 Current Issues in Sociology
Four hours per week daytime
or
Three hours per week evening
Prerequisites, two stage two sociology subjects
Assessment is continuous

Within the discipline of sociology, there are several fundamental problems of explanation and debates over the appropriate approach to the subject matter. These issues pervade every substantive area in the discipline. In this unit, some of these issues as they are debated currently in the area of gender inequality are observed. The major writings on gender and social control are examined and those questions which are important, both for sociological explanation and for social action, are highlighted.

References

AS304 Sociology of Minorities
Four hours per week daytime
or
Three hours per week evening
Prerequisites, two stage two sociology subjects
Assessment is continuous

Minority groups pose some special problems of sociological explanation. In this subject minority situations are studied as particular instances of social inequality and this analysis is linked to general sociological perspectives on social structure. Three types of minority groups are considered. These are racial minorities, ethnic or cultural minorities and sexual minorities. Australian examples of each of these types include Aborigines, non-Anglo immigrants and women. Australian data is looked at in general theoretical terms and comparisons drawn with minority situations elsewhere, such as Britain, USA, New Zealand and South Africa. Issues related to minority dynamics include education and ideology, violence and coercion, policy initiatives for overcoming discrimination and inequity and prospects for mutual accommodation among disparate groups.

References

AS305 Social Research and Policy
Four hours per week daytime
or
Three hours per week evening
Prerequisites, two stage two sociology subjects
Assessment is continuous

This subject is designed to allow students to refine their understanding of research and research strategies. A critical examination of sociological research in one major area is expressly linked with issues of policy. In the case of medical sociology, for example, the issues of health and health care provision are examined, with a view to providing the basis for understanding the role and significance of government policies pertaining to medical care. Other possible examples include the study of transnational social organisation and social demography. The subject is structured to allow for the possibility of students undertaking either individual or group research projects as part of their required work.
**Postgraduate courses**

**Graduate Diploma in Applied Social Psychology**

The graduate diploma program in applied social psychology has been designed to develop an understanding of social processes, and competence in interpersonal skills and social research methodology. Particular emphasis is placed on the application of psychological knowledge and techniques in social and organisational settings. The course structure provides the opportunity for some students to follow one of two streams within the course; an Applied Social Research stream or a Social Development and Social Influence stream.

**Entrance requirements**

Applicants must have a degree with a major in psychology, or equivalent, from a recognised university, college or institute. Students lacking an adequate background in social psychology may be required to complete appropriate subjects in the Bachelor of Arts and either a part-time course, or, in selected cases, a preliminary reading course, before being accepted for enrolment in a graduate diploma subject. A reasonable standard of statistical competence is required. For the Social Development and Social Influence stream, students are expected to enter the course with some prior studies in counselling and interviewing skills.

**Course structure**

The course has been designed to be taken by part-time study over two years, or full-time study over one year, but the Social Development and Social Influence stream is available only on a part-time basis. The course comprises eight subjects in all and each subject involves three hours of class meetings per week for one semester. The central theme of this course is skill development and training. Most subjects require preparation of seminar papers as part of the assessment procedure; some subjects include interviewing training, development of information presentation skills, and exercises using computer facilities. In addition, each student is required to undertake an individual research project which involves field work, such as interviewing and to present the result of this investigation in the form of a research thesis. It is customary for a full-time period of three weeks in each year of the course (six weeks for full-time students) to be devoted to practical training in an employment situation.

**The part-time course in Social Development and Social Influence**

Part-time students take two subjects each semester, and for each of the four semesters there is one subject dealing with theoretical issues and another dealing with skills training and methodology. The study program for part-time students is as follows:

**Subjects offered**

First year, semester 1
- AY400 Applied Social Psychology
- AY401 Research Design and Analysis

First year, semester 2
- AY403 Quantitative Methods in Social Research
- AY405 Small Group Processes or
- AY408 Statistical Analysis Procedures

Second year, semester 1
- AY404 Individual and Social Change and either
- AY405 Small Group Processes
- AY408 Statistical Analysis Procedures

Second year, semester 2
- AY406 Issues in Social Psychology
- AY407 Special Applications Option

It should be noted that the Department may offer only
- AY405 Small Group Processes or AY408 Statistical Analysis Procedures in any one year.

**The full-time course in Applied Social Research**

Full-time students will take four subjects each semester. The study program for full-time students is as follows:

Semester 1
- AY400 Applied Social Psychology
- AY401 Research Design and Analysis
- AY403 Quantitative Methods in Social Research and either
- AY405 Small Group Processes or
- AY408 Statistical Analysis Procedures

Semester 2
- AY412 Ethical and Professional Issues
- AY404 Individual and Social Change
- AY406 Issues in Social Psychology
- AY407 Special Applications Option

It should be noted that the Department may offer only
- AY405 Small Group Processes or AY408 Statistical Analysis Procedures in any one year.

**Progress through the course**

Usually the course can be completed in a minimum of two semesters for full-time students, but for all students a maximum of six semesters is allowed for completion of the required eight subjects. A program review committee of the Psychology Department will consider students’ progress at the end of each semester.
Applied Social Psychology subject details

AY400 Applied Social Research
(This subject is available only to students taking the Applied Social Research stream)

After a review of the current status of social psychology, including major theoretical perspectives, this subject presents students with a broadly-based model of applied social research. It then examines paradigms for social research in a variety of areas, for example: opinion or attitude research, law and society, and market research. Visiting lecturers who are currently working as researchers in these areas contribute to the course.

Preliminary reading

AY401 Research Design and Analysis

This subject reviews research designs and tools which are appropriate for the study of social processes, with particular emphasis on social survey techniques and field investigations. The theoretical bases of these techniques are studied, and students are encouraged to explore solutions to the problems of conducting research in a wide social context.

Major topics include: sampling; questionnaire construction and use; interview surveys; research planning and objectives.

Students are required to complete two major assignments — an essay on the application of social psychological research methods in the investigation of a particular social phenomenon, and a detailed proposal for their thesis research projects.

Textbooks

AY403 Quantitative Methods in Social Research
(This subject is available only to students taking the Applied Social Research Stream)

This subject provides a conceptual framework for understanding multivariate analysis and interpretation of social research data, and an opportunity to become familiar with the use of a range of multivariate techniques. These include analysis of variance and covariance; profile, cluster, factor, discriminant and multiple regression analyses.

Students are taught to use at least two social science computer packages, and are instructed in the basics of computer operation. Assignments involve the use of the computer to analyse data, and then interpretation of trends revealed by the analyses.

Preliminary reading

Textbooks

AY404 Individual and Social Change Processes

This subject provides a review and extension of the major areas of social psychological theory and research relating to change: changes which occur as a consequence of events happening in people's life-space; changes which occur as a consequence of social-science based interventions and human-service programs; and the evaluation and assessment of these programs. The concentration is on theoretical formulations and significant research developments, with emphasis on such topics as attitudes and attitude change, resistance to change, interpersonal influence, adaptations to changed life-situations, and human-service program assessment, monitoring and evaluation.

AY405 Small Group Processes
(This subject may not be available every year)

The intention in this subject is to develop students' skills in those areas of interpersonal processes especially related to applied social psychology: interviewing, group dynamics, communication. The program is organised into three parts:

(i) interviewing skills: training and practice in interviewing for the purposes of obtaining information;
(ii) group process skills: examining relevant theoretical conceptions of small-group processes and developing skills for working in groups and conducting group interviews;
(iii) communicating in groups: instructions and practice in presenting information and ideas to groups and in using instructional technology, such as video.

Preliminary reading

AY406 Issues in Social Psychology
(This subject is available only to students taking the Applied Social Research stream)

There are two components in this subject. The first is made up of two work placements which all students are required to complete. In order to be given a pass in the subject, students must complete these two placements satisfactorily. The second component constitutes a review of conceptual and methodological issues in the practice of applied social psychology. These issues are considered in terms of their implications for the work of the social science practitioner. Students submit a review of a conceptual or methodological framework which is influential in contemporary applied social psychology.

Preliminary reading

AY407 Special Applications Option

This subject allows students to gain research experience by carrying out an individual research study under staff supervision, and by presenting the results of this study in the form of a thesis. The thesis is one of the major requirements of the graduate diploma course, and is assessed by two examiners, one of whom is usually the students' research supervisor.

AY408 Statistical Analysis Procedures
(This subject may not be offered every year)

The aim in this subject is to develop skills in the use of social science computer software. This subject emphasises actual use of computer systems, and assists students to understand general principles of computer operation so that their skills may be readily adapted for use on a variety of types of computer hardware.

A variety of computer packages is introduced. Students become familiar with the Statistical Package for the Social Sciences, and then they are introduced to another statistical analysis package such as SAS, OASIS IV, P-STAT, or MINITAB.

In addition, students are introduced to concepts of database management as they are used in the social sciences. Students learn to operate data base management procedures using the SIR (Scientific Information Retrieval) software package.

By the end of the semester, students are expected to be able to make informed comparisons of the strengths and weaknesses of the major social science software packages.

References

Students will also be referred to manuals for the computer software packages used in the subject.
AY409  Personality and Social Development

(This subject is available only to students taking the Social Development and Social Influence stream; this subject may not be offered every year.)

This subject will survey a range of topical issues of current concern in developmental theory and research. Consideration will be given to theoretical models of social and personal development and change, and to current methodologies which support these models.

Topics will include: orthodoxy and eclecticism in the choice of developmental models; metascience and alternatives to contemporary social science; developmental theory in a life span context; constructions of social realities; continuity and discontinuity in development; current methodological issues.

References


AY410  Assessing Persons and Environments

(This subject is available only to students taking the Social Development and Social Influence stream; it may not be offered every year.)

Beginning with a conceptual framework for the study of psychological assessment, this subject reviews major approaches to the assessment of individuals and their environment. Beginning with an overview of the development of psychological testing, students are introduced to a cross-section of the most commonly used tests and assessment techniques, and then recent developments are reviewed.

Major topics include: test reliability and validity; assessment paradigms and techniques for measuring developmental changes; assessment of personality characteristics; measurement of attitude and performance; characteristics of environments.

In this subject students gain experience of test administration and Interpretation of results. As part of the assessment for the subject, students are expected to complete a detailed review of a major psychological test and its uses.

References


AY411  Counselling in the Human Services

(This subject is available only to students taking the Social Development and Social Influence stream; it may not be offered every year.)

This subject is designed for students who work, or intend to work, as providers of human services (for example, in fields such as health, education, welfare, personnel and guidance). It is assumed that students have undertaken some previous studies in basic counselling and interviewing, such as that provided by AY413 Counselling and Interviewing. Students who lack an adequate background in basic counselling and interviewing skills may be required to undertake additional preliminary or concurrent studies in this area.

The subject begins with a review of contemporary psychological theory, research and practice in counselling and interviewing, with particular emphasis on the 'social influence' model proposed by Stanley Strong. Various approaches to delivering services are discussed, including the 'people in systems' model proposed by Gerard Egan. The pattern of organisation of some of the human service systems operating in Victoria is examined. The trend towards the use of non-professional staff (such as volunteers) in human services considered, along with various models of training in counselling and interviewing. Overall, the course emphasises the application of concepts related to interpersonal communication, behaviour and experience which have been derived from research in the various specialisations of psychology: social psychology, developmental psychology, cognitive psychology, the psychology of personality, and the psychology of learning.

References

Janis, I. Short-term Counselling: Guidelines Based on Recent Research. New Haven, Yale University Press, 1981

AY412  Ethical and Professional Issues

In this subject, the philosophical, theoretical, ethical and political issues involved in working as a psychologist are examined. Starting with a consideration of the current ethics, attitudes, and value orientations implicit in psychology and in social psychology, a number of areas of concern to the practising social scientist and professional psychologist are explored. Included here are questions associated with choice of theoretical perspectives and methodology, use of research results and methods of evaluating proposed research, and working as a member of an interdisciplinary team. There is a detailed examination of the standards of conduct expected of a professional psychologist, and other professional considerations are also reviewed. Students are expected to become familiar with the Code of Professional Conduct and Advice to Members of the Australian Psychological Society.

References

Japanese subject details

**AJ400** JapaneseSociety A
This subject provides an introduction to problems which exist in Japanese society. The topics cover family problems, old age and social security, social problems relating to crime, suicide, gangster organisations, youth violence; dietary life and common diseases; female inequality, and theories on Japanese society. The program is based mainly on newspaper articles but some media broadcasts are included and specialist lecturers lead seminars on certain topics.
Students have the opportunity to deliver individual oral reports to improve their spoken Japanese.

**AJ401** JapaneseSociety B
Students extend their reading of topics introduced in Japanese Society A and also develop their conversational skills in this subject.

**AJ402** JapaneseCulture A
In this subject topics covering various aspects of modern Japanese culture are studied. For example, Koreans in Japan, Japanese repatriates from China, education, corruption, Japanese language, media, arts, sport, Japanese abroad and international understanding.

**AJ403** JapaneseCulture B
This subject allows students to extend their reading of topics introduced in JapaneseCulture A and to develop their conversational skills.

**AJ404** JapaneseBusiness and Industry A
This subject covers topics related to business; for example, employment and working conditions; advanced technology; structure of industry; trade friction; automobile industry; Japan and world trade; energy and tertiary industry.
Most of the material on which the program is based is selected from newspapers but some media broadcasts are also included. Emphasis is on the acquisition of vocabulary, characters and some practice in translation and précis writing.
Students have the opportunity to deliver individual oral reports to improve their spoken Japanese.

**AJ405** JapaneseBusiness and Industry B
This subject is divided into two components. In one, additional reading which extends the topics introduced in JapaneseBusiness A is covered. Here the emphasis is placed on the comprehension and active use of grammar structures. In the other component, students are divided into small groups for extra conversation practice.

**AJ406** JapanesePolitics A
In this subject students are introduced to various aspects of the Japanese political system through the reading of newspaper articles supplemented by some media broadcasts. Topics such as political parties and elections, Japan-Australiarelations, textbook controversy, defence, anti-nuclear movements, administration, government interference, politicians travelling abroad, environmental protection and refugee policy.

**AJ407** JapanesePolitics B
This subject is divided into two components allowing students to pursue further reading which extends the topics introduced in JapanesePolitics A and to develop their conversational skills.

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**Graduate Diploma in Japanese**

The Graduate Diploma in Japanese is an intensive language course based on an examination of Japanesecurrent affairs. It is designed to enable students to develop their language skills through reading recent Japanese newspaper articles and listening to media broadcasts. Specific training is focused on reading, aural comprehension and speaking.

The course has been planned so that students who have completed a three-year undergraduate program in Japanese can further their knowledge of the Japanese language and reach a stage where they have linguistic competence to deal with a wide variety of topics in the written and spoken language. Development of competence in grammar, particularly the understanding of long and complex sentence structures, and the acquisition of a wider vocabulary range, including a large number of characters, is essential. Students become familiar with a wide variety of journalistic and written styles found in newspapers. Training in translation and précis writing, and in the various styles and speech levels which characterise modern spoken Japanese, is also a part of the course.

Language development is focused on four major areas of Japanese studies: social, cultural, business and political. Students consider:

(a) general problems and trends as they are analysed by Japanese writers within the framework of the society as a whole; and

(b) the validity of assertions and generalisations which are made by Japanese, as well as by foreign writers.

**Entrance requirements**

Applicants must have a degree with a major in Japanese language, or equivalent, from a recognised university, college or institute. All applicants are assessed by a selection committee and in certain cases may be required to complete appropriate units of the Bachelor of Arts degree course, or undertake a preliminary reading course before being accepted for enrolment.

**Course structure**

The course may be completed part-time in the evening over two years. It comprises eight semester subjects and each involves four hours of class meetings per week. Usually, students enrol for two subjects concurrently in each of the four semesters but may in special circumstances, enrol for only one subject per semester.

Subjects on Japanese society and culture, and on business and politics are offered in alternate years. Reading materials are available through the department. In all subjects students are enrolled for two subjects concurrently in each of the four semesters but may in special circumstances, enrol for only one subject per semester.

The subjects offered at present are:

**AJ400** JapaneseSociety A
**AJ401** JapaneseSociety B
**AJ402** JapaneseCulture A
**AJ403** JapaneseCulture B
**AJ404** JapaneseBusiness and Industry A
**AJ405** JapaneseBusiness and Industry B
**AJ406** JapanesePolitics A
**AJ407** JapanesePolitics B

**Preliminary reading**


**References**


Graduate Diploma in Urban Sociology

This course is designed to supplement students' general education by providing them with the practical and conceptual skills necessary to work more effectively or secure employment in the fields of planning, community organisation, urban administration and research. More specifically the course is designed to provide knowledge of and experience in:

(a) the analysis of Australian urban development and its social impacts;
(b) the formation of national, state and metropolitan urban policies;
(c) the organisational processes and use of techniques and skills relevant to urban planning, administration and community organisation.

Entrance requirements

Applicants must hold a degree or diploma from an approved tertiary institution, including major studies in at least one of sociology, politics, economics, geography, planning or contemporary history. Students with majors in disciplines other than those listed may also be considered.

Course structure

The course entails one year of full-time study or two years' part-time study. Each subject builds on the previous one and involves three hours of class meetings per week for one semester.

The following subjects will be offered in 1985:

AS400 Urban Social Theory
AS401 Current Urban Research
AS402 Urban Policy
AS403 Research Report
AS404 Advanced Urban Research
AS405 Metropolitan Decision-making
AS406 Sociology and Planning
AS407 Community Organisation
BS465 Urban and Regional Economics

Each subject is designed to complement subjects in another courses relating to urban administration and planning or community development. Where possible, research is developed in cooperation with government departments, consultancy firms, community groups and research institutes. AS400, AS401, AS402 and AS403 are compulsory subjects.

Urban Sociology subject/details

AS400 Urban Social Theory

This subject is designed to:
(a) introduce students to the major theoretical perspectives used by social scientists to analyse urban development;
(b) examine the nature of the urbanisation process and related urban problems, and;
(c) develop an understanding of the role of the State in urban society.

AS401 Current Urban Research

This subject has three broad objectives: first, to introduce students to the range of subject areas and methodologies covered in contemporary urban research; secondly, to familiarise students with the information sources for Australian urban research and methods of data acquisition; and thirdly, to develop a limited competence with basic research techniques. This involves introductory statistical procedures relevant to urban research, use of Swinburne's computer facilities, and an introduction to the SPSS (Statistical Package for the Social Sciences) for purposes of data analysis.

AS402 Urban Policy

This subject is concerned with an examination of national, state, and local policies that pertain to urban areas. Course issues covered include consideration of what constitutes urban problems and policies, the significance of ideology to policy, formulating policy, putting ideas into operation, evaluation and analysis of policy, and the significance of political structure. Particular topics such as population, housing, land-use, transport, and public service provision will be used to exemplify issues and experts in various policy areas participate in the course.

AS403 Research Report

This subject provides students with the opportunity to gain research experience by carrying out a research study under staff supervision and presenting the results of the study in the form of a report. Students can undertake research individually or in small groups, subject to staff approval. The report is one of the major requirements of the graduate diploma course.

AS404 Advanced Urban Research

This subject is offered for those students who want more intensive first-hand training in research methods than that offered in AS401. Students undertake a group research program which involves taking a research issue through from conception to completion of a final report. The research program will involve students in survey design, data collection, interviewing, coding, computing, and research analysis. For students undertaking an empirical analysis in their research projects or for students seeking employment as research officers, this subject provides necessary additional training in urban research.

AS405 Metropolitan Decision-making

In this subject the decision-making process and the characteristics and functions of the major private and public decision-makerS operating in the urban environment are explored. The public sector is examined at all levels of government, while in the private sector particular attention is given to the role of property developers and the economic and political context in which developers operate.

AS406 Sociology and Planning

In this subject the role of the sociologist in the planning process is examined. The subject draws on the sociological theory outlined in AT484, as well as the research techniques developed in AT484. Topics to which these conceptual and practical skills are applied include: social mix, suburban estate design, the inner city, social segregation and residential mobility.

AS407 Community Organisation

This subject is concerned with analysing and involving students in community development programs and public participation at the local level. Students have the option of participating in various community programs and activities. Class discussion focuses on concepts of community, citizens' participation and social action research.
BS465 Urban and Regional Economics
This subject is designed to introduce students to the principles of economic analysis as they apply to the city. Particular attention is given to techniques of economic analysis such as cost-benefit analysis, program budgeting, investment analysis and demand forecasting. Topics to which these principles and techniques are applied include, housing, transport, and local government.

Master of Arts
The degree of Master (by research and thesis) may be undertaken in the following subject areas within the faculty: Historical and Philosophical Studies, Italian, Political Studies, Psychology and Sociology. Applications for masters’ candidature may be made by persons whose first degree or diploma has been completed to a sufficiently meritorious standard or whose background and experience is considered suitable. In the first instance, enquiries should be directed to the Head or Chairman of the appropriate department.

Subjects offered by other faculties
Listed here are subjects taught by departments in other faculties which may be taken by students enrolled in a Bachelor of Arts course. Any Arts student wishing to take one or more of these subjects must have the approval of both the Faculty of Arts and the teaching department concerned as enrolment in the subject may depend on the availability of places and/or on certain prerequisites.

Course regulations specify that:
(a) students taking both majors within the Faculty may take subjects taught outside the Faculty up to a maximum unit value of six;
(b) students taking one approved major outside the Faculty may take subjects taught outside the Faculty up to a maximum unit value of ten.

(For the purposes of this regulation, the subjects SM278 and SM279, Design and Measurement 2A and 2B are regarded as subjects within the Faculty of Arts.)

Faculty of Applied Science
The following Applied Science subjects are available to Arts students

SC173 Biology
SC174 Biology
Four hours of theory and practical work per week for two semesters
Prerequisite, nil
Assessment is continuous

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

Intending students are invited to discuss this subject with the relevant Department of Chemistry staff.

SM171 Mathematics
Five hours per week in first semester
Prerequisite, SM171
Assessment is continuous

A first-year subject which provides a foundation for studies in the theory of numbers, mathematical analysis, geometry and probability theory.

Intending students are invited to discuss this subject with the relevant Department of Mathematics staff.

SM172 Mathematics
Five hours per week in second semester
Prerequisite, SM171
Assessment is continuous

A first-year subject which extends the foundation studies in SM171 to linear algebra, multivariate calculus, geometrical topology and probability distribution theory.

SM271 Mathematics
Five hours per week in first semester
Prerequisite, SM171, SM172 or a tertiary mathematics equivalent
Assessment is continuous

A second-year subject in advanced calculus and the fundamentals of abstract algebra.

Intending students are invited to discuss this subject with the relevant Department of Mathematics staff.
SM272 Mathematics
Five hours per week in second semester
Prerequisite, SM271
Assessment is continuous

A second-year subject involving the study of major branches in geometry and analysis. Topics to be studied are chosen from: Projective geometry, Euclidean geometry, co-ordinate geometry; Vector spaces; Hilbert spaces; Topology; Finite geometries.

SM278 Design and Measurement 2A
Five hours per week daytime
or
Four hours per week evening
Prerequisite, SM278
Assessment is continuous

A second semester subject in research design and statistical analysis that is designed to complement concurrent and future studies in psychology. In this subject the emphasis is on understanding the methodology of basic research design and how the associated statistical analysis can provide answers to research questions. Students also receive instruction in the use of the Statistical Package for the Social Sciences (SPSS). This computer package will be used to analyse data both in this course and in second and third stage courses in psychology.

Topics to be studied include factorial designs with one and two factors and the associated analysis of variance, correlation coefficients and their applications, and regression analysis with an introduction to multiple regression.

Textbooks

SM279 Design and Measurement 2B
Five hours per week daytime
or
Four hours per week evening
Prerequisite, SM278
Assessment is continuous

A second semester subject in research design and statistical analysis that is designed to complement concurrent and future studies in psychology. In this subject the topics included in SM278 are extended and further topics in design and analysis are considered. The SPSS will be used to perform the various statistical analyses.

Topics to be studied include analysis of covariance, factor analysis, discriminant analysis and non-parametric methods.

Textbooks
As for SM278 and in addition:

References

(SP153 and SP154 are multi-disciplinary subjects taken as two single semester subjects, either together or separately.)

SP153 Science in Modern Society
Four hours per week during first semester
No prerequisite
Assessment by examination or assignment

SP154 Science in Modern Society
Four hours per week during second semester
No prerequisite
Assessment by examination or assignment

The object is to give students an appreciation of various branches of science and the roles science and technology play in modern society.

No formal training in science or mathematics is assumed. Each semester, four units are selected and typical units are:

The atmospheric environment
Nuclear energy
Physics and music
Physics and sport
Light and colour
Astronomy
Science and medicine
Science and foods
Aspects of genetics
Human physiology
Important chemicals in modern society
Computers in society
Aspects of geology
The typical unit is 14 hours of lectures

Intending students are invited to discuss this subject with the relevant Department of Physics staff.

SP250 Psychophysiology A
Five hours per week during first semester
Prerequisites, AT150 and AT151
Assessment is continuous

SP251 Psychophysiology B
Five hours per week during second semester
Prerequisites, SP250
Assessment is continuous

These subjects are designed to familiarise students with human physiological processes, especially those relevant to the study of psychology, and to introduce students to psychophysiological recording and monitoring techniques. This course is intended as a relevant option for students undertaking major studies in psychology.

Psychophysiology A introduces the autonomic nervous system, cardiovascular system and endocrine system, and includes a study of muscle physiology; major topics also included are: physiological responses to stress, and recording of physiological activity. Psychophysiology B focuses on neuroanatomy and the motor and sensory systems, with particular emphasis on higher cortical function and disorders or cortical functioning.

Textbooks
Faculty of Business

The following Business subjects are available to Arts students:

Economics

Economics is offered as a major in the Bachelor of Arts course (and is the Diploma of Arts course for students who first enrolled prior to 1982). Arts students intending to take an economics major must discuss their overall study program with a course adviser in the Faculty of Arts to ensure that their study plans will satisfy the requirements for a degree or diploma.

The Department of Economics offers a wide range of subject units which may be taken individually, as a minor strand over two years, or as a major strand over three years.

To complete Faculty of Arts requirements for a degree major in economics the following subject units must be taken:

Stage 1  BS111
Stage 2  BS211 and BS213
or One plus any other selected from: BS214, BS311, BS312, BS315, BS318 or BS319.
Stage 3  Three additional semester subjects from the list immediately above

For students taking a Bachelor of Arts degree the completed economics major has a unit value of eight. BS111 is a full-year subject with a unit value of two, but most semester subjects taught by the Business Faculty have a unit value of one. However, the three semester subjects taken by a Bachelor of Arts student at stage three level are credited together as having a unit value of four towards the Bachelor of Arts total unit value of twenty-four.

Students who first enrolled prior to 1982 are taking a Diploma of Arts degree, the completed economics major for a Diploma of Arts student has a unit value of seven.

It is important to note that BS111 is a prerequisite for all other economics units offered by the Faculty of Business and that every Arts student taking an economics major must also complete either BS211 or BS213.

BS111  Economics 1

The main objective of this subject is to teach students how economists think rather than what they think. Some of the methods adopted by economists are used to analyze economic problems within the framework of the Australian economic system. The course commences by examining the role of the contemporary market system in allocating resources and distributing output. This is followed by a detailed analysis of the determinants of the level and rate of change of national output, employment, prices and international reserves. Attention is then focused on the role of fiscal, monetary, prices and incomes, and balance of payments policies in achieving economic stabilization.

References

BS211  Managerial Economic Analysis

Prerequisite, BS111 Economics 1

Students who are contemplating major studies in economics should include this unit and/or BS213 Industry and Government in their course.

This unit shows how economic analysis can be used to assist business decision-making. Empirical studies are used as a means of illustration. The unit deals with these topics: demand analysis, (including empirical demand studies and production forecasting); production and cost analysis (opportunity cost, short-run and long-run production and cost problems); profit, and goals of firms; pricing policies of firms and public utilities and investment analysis.

Textbooks
Davies, J.R. and Hughes, S. Managerial Economics, Plymouth, U.K., MacDonald and Evans, 1979

BS213  Industry and Government

Prerequisite, BS111 Economics 1

Student, who are contemplating major studies in economics should include this unit and/or BS211 Managerial Economic Analysis in their course.

This unit deals with the structure, conduct and performance of industry in contemporary economic with special reference to Australia and considers the role of government in these economies.

A study of an Australian Industry as an integral part of the course Monopoly and the modern corporation (including the impact of transnational corporations), critique of corporate capitalism, and specific approaches to industry regulation policy are discussed.

Textbooks

References

BS214  Industrial Relations

Prerequisite, BS111 Economics 1

This unit provides a study of the Australian industrial relations system with some comparative reference to the systems of other countries. Topics to be studied include:

nature of industrial relations and an industrial relations system nature, sources and manifestations of industrial conflict the characteristics of the parties to the Australian industrial relations system: trade unions, employers governments and industrial tribunals, rule making processes: conciliation and arbitration, collective bargaining employee participation schemes.

References
BS311   Public Finance
Prerequisite, BS111 Economics 1
This unit involves an analysis of the economic rationale of government expenditure and revenue raising. It will cover the following topics:
(1) an introduction to the welfare economics and public choice paradigms and their implications for public sector revenue and expenditure,
(2) taxation analysis; criteria for evaluating taxes and tax systems; analysis of personal and corporate income tax with particular emphasis on the tax unit, the tax base and tax rates; analysis of present sales tax and excise tax arrangements and alternatives to these subsidies to commodities and consumers; taxes on the factors of production and schemes to reform the Australian tax system,
(3) issues for evaluating government expenditure programs (with particular emphasis on cost-benefit analysis).

References
Australia, Treasury Taxation Papers Nos. 1-15. Canberra, 1974
Brown, C.V. and Jackson, P.M. Public Sector Economics. Lond., Martin Robinson 1978

BS312   Economic Research
Prerequisites, BS211 Managerial Economic Analysis or BS213 Industry and Government
In this unit, the aim is to broaden students' familiarity with the nature and scope of research undertaken in economics and to increase students' ability to analyse and carry out economic research of a practical nature.

Topics may include: methodology in economic research; data sources; collection, analysis and presentation of data; selected topics in applied economic research (economic model building, cost benefit analysis, industry studies, aspects of industrial relations);
An integral part of this unit is a major research project. Students are expected to conduct an investigation and write a report on their research which will constitute a major proportion of the assessment in this unit.

References
There is no single prescribed reference for this course. Extensive use is made of current journal articles.

BS315   Monetary Economics
Prerequisite, BS111 Economics 1
This unit provides a study of the nature of and developments in Australian and international finance markets and considers 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. Australian finance markets; short-term money markets, official, buy back, commercial bill, and inter-company loan markets etc. international finance markets; foreign exchange markets, international financial centres. Monetary theory and policy; classical, Keynesian, neo-Keynesian and modern quantity monetary theories; policy implications of these.

References
Bruce, R McKern, B. and Pollard, I: Handbook of Australian Corporate Finance, Butterworths, Sydney, 1983
Hirst, RR. and Wallace, R.H. eds. The Australian Capital Market Melb., Cheshire, 1974

BS318   Urban Economics
Prerequisite, BS111 Economics 1
In this unit, students develop an analytical approach to appraising urban problems and policies. While the emphasis is on economic analysis, part of the course is devoted to discussing sociological and town planning perspectives of urban problems. The unit covers the following broad areas: urban location decisions, government and private roles in urban development, housing, transport, and the impact of resources development.

References

BS319   International Economics
Prerequisite, BS111 Economics 1
This unit provides a study of international trade and finance with special reference to Australia. Topics covered include: the nature of foreign exchange markets and the determination of exchange rates; balance of payments adjustment mechanisms; internal and external policy mixes — Australian policy aspects; international financial arrangements — historical developments, and current issues; the basis of international trade and the determination of trade patterns; trade restrictions; alternative approaches to industry development; Australia's industry assistance policies — current debate; international investment, international development issues e.g. economic integration, a new international economic order.

Textbooks
Lindert, P.H. and Kindleberger, C.P. International Economics. 7th edn, Homewood, Ill, Irvin, 1982

References
Industries Assistance Commission. Annual Report Canberra, AGPS, Various years

BS465   Urban and Regional Economics
This subject appears in the postgraduate subject details under Urban Sociology.

Other Business subjects offered
See the Faculty of Business Handbook for full details of:
BS103 Accounting 1A
BS109 Accounting 1C
BS110 The Australian Legal System
BS121 Introduction to Data Processing
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  — Accounting stream ............................ BS7
  — Data Processing stream ...................... BS7
  — Economics — Marketing stream ............ BS8
  — Mandatory units ............................... BS8
  — Elective units ................................. BS8
  — Professional institutes ...................... BS9
Bachelor of Business conversion course ......... BS10
Diploma of Business (Accounting) ............... BS10

Postgraduate courses

Graduate Diploma in Accounting .................. BS10
Graduate Diploma in Business Administration ... BS12
Graduate Diploma in Corporate Finance .......... BS13
Graduate Diploma in Management Systems ...... BS14
Graduate Diploma in Organisation Behaviour ... BS15
Subject details ..................................... BS16

The section indicator denotes the general position in the book of each section.
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Lecturers
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J. Gerstman, BA, BEc(Mon.)
D.J. Owens, BEc(Hons), MAdmin(Mon.)
H. Piterman, MEc(Mon.)
J. Watkins, MEc, DipEd(Mon.)
E.J. Wilson, BEc(ANU), MEc(Mon.)
P.O. Xavier, BEc(Hons)(W.Aust.), MA(Leic.)
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<td>Associate Diploma of Private Secretarial Practice</td>
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</tr>
<tr>
<td>Bachelor of Business</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Accounting</td>
<td>3 years</td>
<td>6 years</td>
<td>Four Group 1 subjects (including English) at Year 12 or equivalent</td>
</tr>
<tr>
<td>- Economics-Marketing</td>
<td>3 years</td>
<td>6 years</td>
<td>For the degree course, it is advisable to have studied mathematics to at least fifth form (Year 11) level</td>
</tr>
<tr>
<td>- Data Processing</td>
<td>3 years</td>
<td>6 years</td>
<td></td>
</tr>
<tr>
<td>Graduate Diploma</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- In Accounting</td>
<td>2 years</td>
<td></td>
<td>An appropriate tertiary degree or diploma.</td>
</tr>
<tr>
<td>- In Business Administration</td>
<td></td>
<td></td>
<td>For the Graduate Diploma in Accounting, applicants must have a degree or diploma in that field. For the other Graduate Diplomas a limited number of places are available for applicants with no formal qualifications but considerable work experience.</td>
</tr>
<tr>
<td>- In Management Systems</td>
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<tr>
<td>- In Organisation Behaviour</td>
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<tr>
<td>- In Corporate Finance</td>
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<tr>
<td>Degree Conversion Course</td>
<td>1½ years</td>
<td></td>
<td>Diploma from a recognised Victorian institution For diploma holders to convert to a degree</td>
</tr>
</tbody>
</table>
Entrance requirements

The normal entry requirements for the Bachelor of Business and Private Secretarial Practice Associate diploma are:

**Year 12**
Grade D (or better) in four VISE Year 12 Group 1 subjects including English. The subjects must have been taken in the one year. It is recommended that applicants have a background in mathematics at least to Year 11.
Group 2 subjects: Will not be recognised as satisfying entrance requirements.

Tertiary Orientation Program
Applicants must have satisfied the requirements of an approved Tertiary Orientation Program at a Victorian technical school or college. It is recommended that applicants have a background in mathematics at least to Year 11.

Other qualifications
Applicants must have gained a qualification deemed by the Victorian Institute of Secondary Education to be the equivalent of either of the above. Such qualifications would include interstate and overseas qualifications and certificate studies at a TAFE college.

Special Entry
Applicants who have not satisfied a Year 12 course of study and who are not less than 25 years of age. An aptitude test will be required.

Quota
Not all qualified applicants will be accepted because of the limited number of available places.

Applications
Full-time first year: to Victorian Universities Admissions Committee.
Part-time all years: to Swinburne
Full-time later years: to Swinburne
Special entry: to Swinburne.

Tertiary Orientation Program
The Tertiary Orientation Program which precedes the first or common year is recognised as a VISE Year 12 equivalent.
Details of this program appear in the handbook of the Swinburne College of TAFE.
For 1985, students from an Eastern Metropolitan region secondary school who meet the requirements for admission (see above) are guaranteed a place in the Faculty of Business.

Common year
All undergraduate students follow a common first year program which consists of introductory studies in accounting, applied economics, administration, data processing, quantitative methods and business law.

Second and third years
In second year students are free to choose between accounting data processing, or economics/marketing as a major area of study and from a wide choice of electives to complement these majors for the remainder of the course.

Exemptions
Exemptions may be granted for tertiary subjects studied at another institution; the maximum is six subjects (or twelve units). See the Bachelor of Business, degree course structure for unit values.
Applications should be made at the time of enrolment on a form available from the Student Administration Office accompanied by a photostat copy of results achieved in any previous tertiary studies. Students are advised to lodge these applications at the earliest possible moment. The same advice would apply for requests to complete subjects at some institution other than Swinburne.

Notice boards
Information for the benefit of all students is displayed on the notice boards on level 2 of the Business and Arts (BA) Building and it is advisable to check these from time to time. Other assistance is available at the General Office of the Faculty of Business on level 9 of the BA Building.

Textbooks
Unless otherwise specified students are advised not to purchase textbooks or references until classes commence. Books to be purchased are indicated by an asterisk * and further information will be given during the first lecture or class.

Standards of progress
All students, both full- and part-time are expected to maintain a minimum academic standard in order to be allowed to continue their studies.
The following criteria are those usually applied and unless otherwise specified, these refer to students enrolled in all business courses:

1 Full-time students
(a) Common year (normally 10 units of study)
(i) Students passing the equivalent of 7, 8 or 9 units may continue with their remaining common year units and some second year units on a full-time basis.
(ii) Students passing the equivalent of 5 or 6 units must change to part-time study and may not enrol for second year units in the following calendar year. In order to qualify for return to full-time study these students must pass all of their part-time load otherwise the part-time criteria listed (2) will apply.
(iii) Students passing the equivalent of 4 units or less will be excluded unless they can show cause why they should not be excluded from the faculty (see 4).
Note: Students with exemptions from common year units will have these criteria applied on a pro-rata basis.
(b) Second and third year (normally 8 units of study per year)
(i) Students in later years must pass 4 units per year to be allowed to continue on a full-time basis.
(ii) Progress will be reviewed at the end of each year and students not satisfying the criteria will be required to show cause why they should not be excluded, or sent part-time as appropriate.
2 Part-time students

Students who do not pass 2 units for the year will be required to show cause why they should not be excluded from the faculty. (See 4).

3 Completion of common year

Full and part-time students may not enrol for second or third year units unless they have completed or are concurrently completing all outstanding common year units. When a student is enrolled for both common year subjects and second year units, the common year subjects must not be dropped whilst retaining the later year units.

4 Reaquirement to show cause

Students who, under the set standards may be required to change to part-time or show cause why they should not be excluded from the faculty, may present a case (in writing) to the Student Review Committee setting out the relevant factors which have affected their performance in the previous year and why the Standards of Progress should not be applied in their case. In order to help students, the letter advising non-compliance with Standards of Progress will illustrate some of the guidelines used by the Student Review Committee.

5 Student Review Committee

(a) Composition

(i) A Chairman plus 2 members of the academic staff nominated by Faculty Board.

(ii) A student representative selected by the Chairman from the panel of student members on Faculty Board, provided that, if the student being reviewed so wishes, no student representative shall sit on the Review Committee for that interview.

(b) Procedure

(i) Students will be required to submit in writing full details of their reasons for poor performance.

(ii) In addition, the Faculty Secretary will seek information from relevant academic staff on the work of students who have appealed.

(iii) A decision will be made on the information provided by the student and relevant academic staff. The Student Review Committee may consider it appropriate to hold an interview with a student who has appealed.

(iv) No student will be excluded from the faculty or required to study part-time without first having the opportunity to present a case in person to the Student Review Committee.

Conditions of enrolment: number of units

(a) Full-time

Usually full-time students will remain enrolled for 4 units per semester.

(b) Part-time

Usually part-time students will remain enrolled for two units per semester.

Over-enrolments

Students wishing to enrol for more than 4 (full-timers) or 2 (part-timers) units should refer to the Faculty Secretary.

Students seeking to do one extra unit will be assessed on the basis of their previous record, students wishing to do 2 extra units must apply in writing to the Dean for permission.

Withdrawal from units

Students are required to withdraw from a unit by a date specified for each semester (nine weeks prior to the commencement of the examination periods – for 1985, Friday 11 April and 6 September), otherwise, the result in that unit will be shown as a fail. Provided a student withdraws in the correct manner and in due time from a unit, the unit withdrawn will not be counted as a fail or used in the assessment of progress. However, attention is drawn to (4), outlining the faculty expectations as to a standard enrolment per semester.

Transfer between part-time and full-time study

Subject to the fulfilment of any conditions set by the Student Review Committee, a student can transfer between full- and part-time study at normal re-enrolment times without special request.

Admission to examinations

Enrolment and satisfactory completion of prescribed assignment work, are normal prerequisites for admission to any final examination.

Withdrawal from study

A student who wishes to withdraw from study or to change a unit at any time during the year, should first discuss the difficulties with the tutors concerned.

Requests to complete subjects away from Swinburne

These should be lodged with the Faculty Secretary before enrolling in those units at another institution.

General

Part-time students

Part-time students will derive considerable benefit from being able to attend daytime classes for at least one unit per semester; they are encouraged to approach their employers for day release for this purpose.

Full-time students

Full-time students have about four hours each week for lectures and tutorials in each subject.
Faculty of Business Prizes

Annual awards are made by the following donors:

The Australian Society of Accountants Prizes
The best students in first, second, and third year accounting units.

The Economic Society of Australia and New Zealand Prizes
The best student with a major study in economics.

The Hungerford Hancock and Offner Prize
The best student in advanced financial management.

The Australian Computer Society Prize
The best student in final year data processing practical work.

The Datec Prizes *
The two best students in second year systems design.

The Arthur Andersen and Co. Prize
The student with the best aggregate performance in Financial Management and Accounting Theory.

The Bill Hibble, Arthur Andersen and Co. Prize
The best performance in a data processing programming unit.

The Touche Ross and Co. Prize
The best performance in degree auditing.

The Touche Ross and Co. Taxation Prize
The best aggregate result in Taxation and Advanced Taxation.

The BP Australia Prize
The best student in corporate accounting.

The Coopers and Lybrand Prize
The best student in cost accounting and management accounting.

Swinburne Graduate Society of Business Administration Mobil Oil Aust. Ltd Prize
Best overall student in the Graduate Diploma in Business Administration

Mobil Oil Aust. Ltd Prize
The best written presentation in Marketing Management 2

The Best overall student completing the Graduate Diploma in Organisation Behaviour.

The Butterworths Book Prizes
The top students in Administrative Studies 1

The ICI Prize
Australian Legal Systems

The Price Waterhouse Prize
Economics 1

The PRC Foresight Prize
Introduction to Data Processing

The Australian Society of Corporate Treasurers’ Prize
The best final year Data Processing student

The Statewide Prizes

The National Mutual T & G Prize

Best overall student completing the Graduate Diploma in Corporate Finance course.

The best second year students in Accounting, Data Processing, and Economics/Marketing.

The Organisation
Bachelor of Business (BBus)

The degree course leading to the award of Bachelor of Business offers major studies in accounting, data processing or economics-marketing, and special elective studies in accounting, economics, data processing, the business environment, quantitative methods and law.

Some aspects of the three major streams are as follows:

**Accounting stream**

This course comprises a major study in accounting, together with the business-related areas of commercial data processing, law, administration, economics and statistics. This diversity of disciplines supporting the accounting content results in the degree course providing an excellent base for either a specialist career in accounting or a stepping stone to a management career.

Students are exposed to contemporary business practices and the concepts and technology supporting modern business today. In particular micro-computing facilities will be used in appropriate accounting units.

Graduates in accounting are in heavy demand at present, in the accounting profession, industry, commerce and government. The employment opportunities available cover many diverse and challenging fields. Accountants in public practice offer specialist services in such areas as taxation, auditing and management. Accountants in industry, commerce and government cover the complete range of services necessary for the successful operation of business activity.

Some graduates in accounting never take up careers in what could be technically described as accounting. The analytical skills and the understanding of accounting gained through a basic qualification, stand one in good stead to pursue any one of a number of different career paths in the business world in both the public and private sector.

Satisfactory completion of the course enables graduates to join the Australian Society of Accountants (as a provisional member) and/or the Institute of Chartered Accountants (as a student member). These are the two major professional accounting bodies in Australia, membership of which is recognised world-wide. Further advancement in these professional bodies is dependent on successful completion of additional prescribed programs (such as the Graduate Diploma in Accounting/or the Institute's professional year).

**Data processing stream**

Employment opportunities for graduates in data processing are many and varied and the present shortage of trained data processing professionals is a continuing problem in the management of many businesses.

To keep pace with the increasing use of data processing, students cover accounting, economics, the business environment, quantitative methods in some depth, as well as a wide spectrum of data processing topics.

Although a graduate's first job will probably be in the field of programming, knowledge of other business-oriented disciplines as well as basic training in systems analysis and design will eventually lead to the fields of computer systems design or applications systems analysis.

Data processors need to:

(a) understand information systems and their relevance to the organisation in which they operate,

(b) be able to analyse systems to determine information requirements consistent with management objectives and constraints within the organisation,

(c) be able to apply the basic design and programming theories, principles and techniques, involved in the capture, processing, storing, analysing and presentation of information, in an economic and technically feasible manner,

(d) develop an ability to examine new ideas and technical developments critically and to be receptive to innovation,

(e) appreciate some of the social, moral and political attitudes that affect computer applications,

(f) establish a sound working relationship with other members of a data processing installation, to be able to communicate with colleagues who may not have a knowledge of computer techniques.
Economics-Marketing stream

Understanding the nature of the economic system is a fundamental requirement for a career in business. The applied economics stream consists of major studies in marketing and economics. It applies modern economic and marketing concepts to analysis and decision-making in both the private and public sectors. The course has been designed for students intending to pursue careers in marketing, management and government service.

Marketing is an exciting and expanding area in which to work. Dramatic changes in consumer and industrial markets are taking place and this trend is expected to continue. Business firms will be seeking more graduates with a practical understanding of how the market place works.

Economics is a disciplined way of approaching important social and business problems. It is used to investigate issues such as unemployment, inflation, the balance of payments and the role of government policy. Industrial and managerial economics include topics on demand, production, cost and pricing of firms in the modern business environment.

During the course students also undertake complementary studies in business-oriented disciplines such as accounting and law.

Employment prospects are good in a wide range of interesting and challenging fields, including:
- marketing
- advertising
- economic analysis
- market research
- administration

Teaching methods adopted in this course emphasise group projects, case studies and the opportunity to work on relevant practical problems.

Degree course structure

The course comprises twenty-six units. Ten units are studied in the first or common year.

Sixteen units, ten of which are mandatory, are studied over the second and third years.

The three major streams are:

- **Accounting**
- **Data Processing**
- **Economics/Marketing**

Each major stream includes various aspects of other disciplines and all students consult with faculty advisers before planning a course of study which will meet the degree course requirements.

**First year (common)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS103</td>
<td>Accounting 1A (1 unit)</td>
<td></td>
</tr>
<tr>
<td>BS104</td>
<td>Accounting 1B (1 unit)</td>
<td></td>
</tr>
<tr>
<td>BS108</td>
<td>Economics 1 (2 units)</td>
<td></td>
</tr>
<tr>
<td>BS111</td>
<td>Administrative Studies (2 units)</td>
<td></td>
</tr>
<tr>
<td>BS112</td>
<td>Introduction to Data Processing (1 unit)</td>
<td></td>
</tr>
<tr>
<td>BS106</td>
<td>The Australian Legal System (1 unit)</td>
<td></td>
</tr>
<tr>
<td>SM145</td>
<td>Quantitative Analysis for Business (2 units)</td>
<td></td>
</tr>
</tbody>
</table>

**Second and third years**

Full-time students will study four units each semester for four semesters; part-time students, two units each semester for eight semesters.

The mandatory units are listed in their usual order of completion.

- Mandatory units (10)
  - **Accounting**
    - BS202 Cost Accounting
    - BS203 Management Accounting
    - BS206 Contract Law
    - BS241 Fundamentals of Operations Research
    - BS201 Corporate Accounting
    - BS207 Law of Business Organization
    - BS226 Business Computer Systems
    - BS306 Taxation
    - BS301 Financial Management
    - BS300 Accounting Theory
  - **Data Processing**
    - BS225 Commercial Programming A
    - BS202 Cost Accounting
    - BS228 Business Computer Systems
    - BS203 Management Accounting
    - BS226 Commercial Programming B
    - BS227 Systems Design A
    - BS327 Systems Design B
    - BS329 Systems Software A
    - BS330 Systems Software B
    - BS334 Management Information Systems
  - **Economics-Marketing**
    - BS211 Managerial Economic Analysis
    - BS231 Marketing 1
    - BS216 Accounting for Marketing 1
    - BS213 Industry and Government
    - BS217 Accounting for Marketing 2
    - BS232 Marketing 2
    - BS215 Economic Techniques for Business
    - BS334 Marketing 3A
    - BS234 Marketing and the Law
    - BS312 Economic Research
  - **Elective units (6)**
    - Six elective units, other than those already completed as mandatory units, may be chosen from the wide range offered. The maximum allowed is eleven units from one discipline. Students may choose up to six elective units from the faculty of Arts without prior approval from Business but may not obtain credit for more than two Arts units at stage 1.

A student wishing to select an elective unit from a faculty other than Arts or Business must seek approval before enrolling.

**Preclusions**

BS202 Cost Accounting and BS203 Management Accounting and BS216/7 Accounting for Marketing 1 and 2, are mutually exclusive and students are precluded from counting both in a course.

Only students completing an Economics/Marketing major may enrol for BS216 and BS217.
Disciplines and unit codes
The number of units offered each year is governed by demand and the availability of appropriate staff.

**Accounting**
- BS103 Accounting 1A or BS104 Accounting 1B (1 unit)
- BS109 Accounting 1C (1 unit)
- BS201 Corporate Accounting
- BS202 Cost Accounting
- BS203 Management Accounting
- BS216 Accounting for Marketing 1
- BS217 Accounting for Marketing 2
- BS300 Accounting Theory
- BS301 Financial Management
- BS302 Advanced Financial Management
- BS304 Auditing
- BS306 Taxation
- BS404 Advanced Financial Accounting
- BS405 Advanced Auditing
- BS406 Advanced Taxation

**Applied Economics**
- BS111 Economics 1 (2 units)
- BS211 Managerial Economic Analysis
- BS213 Industry and Government
- BS214 Industrial Relations
- BS215 Economic Techniques for Business
- BS311 Public Finance
- BS312 Economic Research
- BS315 Monetary Economics
- BS318 Urban Economics
- BS319 International Economics

**Marketing and Administration**
- BS132 Administrative Studies (2 units)
- BS232 Marketing 1
- BS234 Marketing and the Law
- BS331 Organisation Behaviour
- BS335 Marketing 3A
- BS335 Marketing 3B

**Law**
- BS108 Australian Legal Systems
- BS181 Computers and the Law
- BS206 Contract Law
- BS207 Law of Business Organisations
- BS209 Industrial Law
- BS209 Legal Aspects of Commercial Paper
- BS306 Advanced Company Law
- BS309 Law of International Trade

**Data Processing**
- BS121 Introduction to Data Processing
- BS225 Commercial Programming A
- BS228 Business Computer Systems
- BS226 Commercial Programming B
- BS227 Systems Design A
- BS227 Systems Design B
- BS228 Management Information Systems
- BS229 Systems Software A
- BS330 Systems Software B
- BS422 Commercial Programming C

**Quantitative**
- SM145 Quantitative Analysis for Business (2 units)
- SM221 Applied Statistics 1
- SM222 Applied Statistics 2
- BS241 Fundamentals of Operations Research
- BS242 Linear Programming
- BS343 Computer Programming and Packages
- BS344 Business Forecasting
- BS345 Simulation
- BS346 Quantitative Cases

**Professional institutes**

**Australian Society of Accountants**

**Accounting stream**
To be eligible for membership of the various professional institutes, students must complete the following requirements:

- **Provisional membership** — the completion of the degree requirements
- **Associate membership** — the completion of the degree requirements plus
  - Auditing
  - Taxation

**Economics/Marketing stream**
To be eligible for entry to the professional year of the Institute of Chartered Accountants, graduates must have completed

- Mandatory units plus
- Auditing
- Taxation

**Institute of Chartered Accountants**

**Accounting stream**
To be eligible for entry to the professional year of the Institute of Chartered Accountants, graduates must have completed

- Mandatory units plus
- Auditing

**Economics/Marketing stream**
To be eligible for entry to the professional year of the Institute of Chartered Accountants, graduates must have completed

- Mandatory units plus
- Auditing

**Australian Computer Society**

Data processing stream graduates are eligible for membership of this society. Other graduates may qualify for membership by choosing appropriate data processing electives.
Institute of Chartered Secretaries and Administrators

Students who proceed to the Graduate Diploma in Accounting in order to become members of the Institute of Chartered Secretaries and Administrators (ACIS), are advised that a prerequisite for entry to the ACIS is completion of second year economics units BS213 Industry and Government and BS211 Managerial Economic Analysis.

The Bankers' Institute of Australasia

The Bankers’ Institute of Australasia grants status of Senior Associate to holders of the Bachelor of Business degree whose course has included

Cost accounting
Management accounting
Contract law
Corporate accounting
Law of business organisations
Financial management
Accounting theory
Managerial economic analysis

Bachelor of Business conversion course

This is a three-semester (1 1/2 year) part-time course for students who have completed the diploma of business course and wish to qualify for a degree. They will; be selected on the basis of their diploma results together with a recommendation from the awarding college or institute.

Students who have prior qualifications to the Diploma of Business such as the Diploma of Commerce or the Accountancy Certificate, should upgrade this qualification to the equivalent of the Diploma of Business (Accounting) at an institution other than Swinburne before applying for entry to the degree conversion course.

Course structure

The course comprises six units taken (two per semester) over three semesters. A unit involves four hours per week each semester, in the form of either lectures or classes. Units will be selected from those offered for the degree course.

Each student’s program is planned individually at the time of enrolment and the course is flexible enough to cater for a wide variety of choice of subject matter.

Provisions

(1) Students are required to take six units but will be precluded from attempting any units, the subject matter of which has been substantially covered in any previous course.

(2) This provision must be fulfilled before the final semester of the conversion course is undertaken.

- Diploma of Business (Accounting) students must pass at least one of the following units:
  - BS302 Advanced Financial Management
  - BS300 Accounting Theory
  - BS310 Budgeting

- Diploma of Business (EDP) students must pass at least one of these following units:
  - BS329 Systems Software A
  - BS330 Systems Software B
  - BS324 Management Information Systems

Every unit will not be offered every year, but students will be advised of the units available at the time of enrolment.

(3) Students should complete the course in not more than four consecutive semesters. They will only be allowed to suspend or prolong their studies in very special circumstances.

Diploma of Business (Accounting)

This course is being phased out and is not available for new enrolments.

Students currently enrolled in the course should consult previous handbooks for course details.

Associate Diploma in Private Secretarial Practice

First year

- BS191 Private Secretarial Practice A
- BS111 Economics 1
- BS132 Administrative Studies 1
- BS102 Accounting

Second year

- BS291 Private Secretarial Practice B (2 units)
- BS281 Human Behaviour in Organisations (1 unit)
- BS282 Secretarial Administration (1 unit)
- BS110 Legal Studies (1 unit)
- BS250 Legal Studies 2 (1 unit)
- BS172 Data Processing—S (1 unit)
- AT295 Business Communications (1 unit)

Total number of units = sixteen.

The Associate Diploma is of two years’ duration full-time and is not generally available on a part-time basis. Students are admitted with or without a background of stenographic skills, additional time being allocated within the course for the development of these. A prior knowledge of accounting and economics would be useful although not essential.

The course is designed for students who wish to become private secretaries at management level. Diplomates are eligible to apply for Licentiate Membership of the Institute of Private Secretaries. Following two years’ experience they may apply for Associate Membership.

Students who require an intensive course in shorthand and typewriting, would be better advised to refer to the handbook of the Swinburne College of TAFE where descriptions of business certificate courses are given in detail.

Graduate Diploma in Accounting

The graduate diploma course in 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:

(1) to assist students to gain a deeper understanding of the theory and practice of accounting in specialised areas of relevance to their employment.

(2) to develop an awareness 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.

(3) to develop further, the students’ understanding of the inter-relationship between the accountant and other members of the organisation in which they are employed by studying related disciplines such as marketing administration, secretarial practice, economics and operations research.

The program builds on undergraduate studies.
Entrance requirements

(1) Applicants must have an approved tertiary qualification with an adequate accounting content plus at least two years' related work experience.

(2) Diplomates in commerce (pre-1967 course) and other members of The Australian Society of Accountants who have not completed a tertiary course of education over three post-HSC years may be admitted to the course, provided they have relevant work experience.

Course structure

Prior to 1978
Students who enrolled for the first time prior to 1978, must continue their courses under the regulations existing at that time. These are listed in the handbooks for 1978 and in earlier editions. These students may, however, substitute two additional units for the Research Paper, thus completing ten units in all.

Revised 1978 structure
The course comprises eight units, of which, at least four must be selected from Group 1 (including BS651 Current Issues in Accounting). The remaining units may be selected from either Group 1 or Group 2.

Croup 1

BS651 Current Issues in Accounting — (compulsory unit)
BS652 Profit Planning and Control
BS653 Auditing and EDP
BS654 Contemporary Auditing
BS655 Corporate Taxation
BS656 Taxation Planning
BS658 Quantitative Approaches to Financial Policy
BS659 Investment Analysis
BS672 Systems Analysis
BS677 Management Systems

Croup 2

BS464 Australian Industrial Relations
BS463 Current Issues in Economics
BS583 Marketing Administration 1
BS584 Marketing Administration 2
BS585 Secretarial Practice and Procedures
BS586 Personnel and General Administration
BS588 Administrative Policy
BS589 Management, Organisation and People
BS657 Introductory Computer Accounting
BS751 Research Paper

The range and structure of subject areas should meet the detailed course objectives. BS651 Current Issues in Accounting is designed so that students will be aware of the current problems and issues in accounting, and be able to evaluate and assist in solving these problems. It is a flexible, continually changing unit which keeps abreast of contemporary issues.

The specialised accounting units which make up the remainder of Group 1 are designed to enable students to pursue further studies in these areas.

All Group 1 units are designed to encourage students to master the application of concepts to practical situations. This is achieved by means of a large practical assignment in each Group 1 unit as a part of the students' assessment.

The range of units in other disciplines listed in Group 2 enables students to develop a greater awareness of the inter-relationship between the accountant and other members of the organisation in which they are employed.

Standards of progress

The following should be read in conjunction with paragraphs 4 and 5 of the undergraduate 'Standards of Progress' as a provision applying to Graduate Diploma in Accounting students.

(1) At least one unit must be passed each semester, until all course work is completed, unless a deferral of study is granted.

(2) Students enrolled in BS751 must submit a research paper in the semester following completion of the course work, although an extension of one other semester may be allowed. Students who are granted an extension are required to re-enrol within three weeks of the commencement of the following semester to confirm their candidature, otherwise a fail will be recorded.

Any student who has failed to submit a research paper of the required standard within the specified time, may apply to have the research paper topic reconsidered. If the topic is approved the student will be permitted to re-enrol in the unit.

Professional institutes

Australian Society of Accountants
Students may, by an appropriate selection of units, specialise in Management Accounting or External Reporting to satisfy the criteria for the new professional schedule of the Australian Society of Accountants.

Institute of Chartered Secretaries and Administrators
Students seeking 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 BS586 Personnel and General Administration, the co-examined units, in their course of study.

Faculty of Business
Graduate Diploma in Business Administration

This program is offered for qualified executives or potential executives, who have not undertaken significant studies in the administration/management fields, but in the course of their employment, feel the need for a broader knowledge of this area.

The program gives candidates:
(1) A working knowledge of the factors affecting the task of the manager and methods of analysing these factors. Particular emphasis is on the needs of middle-management of small and medium-sized organisations.
(2) An opportunity to examine and practice problem-solving and decision-making in management situations, which should equip students in any type of business organisation with the ability to develop logical and creative approaches to their jobs.

After completion of the program, candidates will have improved their analytical skills and their effectiveness in dealing with managerial responsibilities. Moreover, participants will have a broader outlook, extending beyond their immediate specialist areas.

Entrance requirements

Entrance is open to graduates who hold a degree or diploma or its equivalent. The program is available also to a restricted number of candidates whose position or experience in employment is sufficient indication of their capacity to complete the course.

Admission is determined by a selection committee. In addition to academic achievements selection depends upon maturity, work experience and executive potential. Accordingly, each applicant is invited to attach to the application form a detailed curriculum vitae.

It is expected that most people who gain direct entry to the course should complete the qualification with two years of part-time study, but, in order to continue in the course, students must maintain a satisfactory standard of progress.

Course structure

First year
BS457 Introduction to Financial Management
BS461 Economics
BS581 Administration of Organisational Systems
BS594 Quantitative Methods
BS595 Marketing Management

Second year
BS466 Industrial Relations (½ unit)
BS582 Administration of Human Resources
BS552 Financial Structures and Policy
BS587 Business Policy
BS596 Marketing Management

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 second-year units are compulsory, except that students who have successfully completed BS464 Australian Industrial Relations will be exempted from BS466 Industrial Relations. In the first year, candidates are introduced to current thought in the area of marketing, economics, finance and organisation theory. Second year covers the important areas of marketing strategy, financial management, human relations, industrial relations and organisational change. These aspects are viewed in the overall light of corporate strategy (business policy). Thus, the emphasis in the second year is on the effective application of knowledge acquired in the first year.

The unit BS466 Industrial Relations is a half-unit and will be incorporated in the Wednesday evening seminar program. Because of the integrated nature of the course, students are required to complete all first-year studies before attempting second year.

Preclusions

Depending on previous training, candidates may be precluded from some of the first year units and assigned 'alternative' units in their place.

Alternative units

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 studied labour relations before must select BS464 Australian Industrial Relations as their first alternative. Other alternative units are chosen after consultation with members of staff.

The following units may be available in 1985:

BS561 Current Issues in Accounting
BS564 Contemporary Auditing*
BS565 Corporate Taxation
BS566 Taxation Planning
BS639 Investment Analysis*
BS546 Current Issues in Economics*
BS464 Australian Industrial Relations
BS672 Systems Analysis
BS677 Management Systems
BS585 Secretarial Practice and Procedures
BS586 Personnel and General Administration

The units marked with an asterisk * require students to have completed specific prerequisite studies.

Standards of progress

A sub-committee reviews the results of any candidate who fails to reach a satisfactory standard of progress. The decision rests with this committee as to whether the candidate is to be allowed to continue the course.

Methods of study and instruction

More than one method of instruction is used, so active participation is essential. Participants work in groups or syndicates to encourage co-operative thought. In addition to classroom time, formal syndicate studies are programmed for each week. During these formal sessions ample opportunity arises for questions and discussion centred about case studies or short papers prepared by staff members for analysis.

The nature of the work schedule usually requires participants to engage in further syndicate work of a less formal nature. A residential weekend seminar is held in the second year of the course.

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 8.00am and 10.00am and between 10.30am and 12.30pm. In addition, special seminar/syndicate sessions will be scheduled for one evening (normally Wednesday) between 6.00pm and 9.00pm.

The units listed as alternative units are offered on different evenings.
Faculty of Business

Graduate Diploma in Corporate Finance

This course is intended to further career prospects for people who are presently employed in, or want to be employed in, the area of corporate finance, but who have undertaken little or no undergraduate study in corporate finance. These people may include, among others:

- graduates from disciplines such as engineering, law, data processing or other related fields, who have moved, or want to move, into financial management or corporate finance positions.

Course objectives

to provide participants with a broadly-based training in all major aspects of contemporary corporate finance.

- to integrate the associated disciplines encompassed by the corporate finance function (e.g. economics, law, corporate strategy, quantitative methods) with the corporate finance core of the course.

- to improve significantly, specific decision-making and management skills by emphasising the practical application of theoretical concepts developed during the course.

Entrance requirements

The course is intended for graduates and diplomates who have sufficient professional experience to benefit from it. Entrance is also available to a restricted number of mature non-graduates or diplomates whose position or experience is sufficient indication of their capacity to complete the course.

Course structure

The course is organised into an eight-unit structure to be completed over two years of part-time study at the rate of two units per semester. In order to continue in the program, candidates must maintain a satisfactory standard of progress. Consistent with the course objectives of a broad coverage and the integration of related disciplines, there are no elective units offered.

First year

Semester 1
BS752 Corporate Financial Management 1
BS662 Financial Institutions and Markets

Semester 2
BS753 Corporate Financial Management 2
BS684 Legal Aspects of Finance

Second year

Semester 1
BS754 Investment Management
BS571 Quantitative Methods in Finance

Semester 2
BS663 International Finance and Monetary Theory
BS755 Research Project (practical application of concepts and techniques)

Preclusions

Candidates may be precluded from attempting a unit in the unlikely event that they have recently passed an equivalent unit elsewhere. In such instances candidates may select an elective unit after consultation with appropriate staff members.

Standards of progress

The following should be read in conjunction with paragraphs 4 and 5 of the undergraduate 'Standards of Progress' as a provision applying to Graduate Diploma in Corporate Finance students:

'At least one unit must be passed each semester until all course work is completed, unless a deferment of study is sought and approved.'

Time-table

All unit sessions will be held on Mondays and Wednesdays between the hours of 5.30pm and 7.30pm. In addition, occasional evening seminars may be scheduled.
Graduate Diploma in Management Systems

The Graduate Diploma in Management Systems involves two years' part-time study. Classes are conducted in the evening.

General objectives

This course is offered to people working in a data processing environment who wish to pursue an advanced course of study and improve their career opportunities.

After completing this course, candidates should be able to:

1. develop their understanding of the application of management systems methodology to the problems of commerce, industry and government;
2. evaluate the changes and advances in the field of computing technology and use sound reasoning to determine the applicability of these developments;
3. fully appreciate the effects of various proposed solutions.

Course structure

The course is in two parts, mandatory units and elective units. The compulsory part of the course is concentrated on the 'systems and management' side of data processing. The range of the investigation, analysis, design and development of management systems will form a major part of the course. Project and operation management is covered in depth to ensure that students have a thorough understanding of how systems can be developed and operated efficiently. The course stresses commercial applications with particular emphasis on the involvement of the eventual users of these systems in the process of their development.

The program is made up of eight units and candidates are required to take these from two groups as follows:

Group 1
- BS572 Systems Analysis and Design
- BS675 Systems Project Management
- BS676 Operations Management
- BS677 Management Systems

Group 2
- Students must take an approved pair of units from this section:
  - BS589 Management Organisation and People
  - BS588 Administrative Policy
  - BS547 Introduction to Financial Management
  - BS552 Financial Structures and Policy
  - BS651 Current Issues in Accounting
  - BS652 Profit Planning and Control

Preclusions

It is not normal policy to grant preclusions, however, if students have appropriate prior training, they may be allowed to choose other approved units including BS678 Systems Development Project (2 units).

Extension seminars

In addition to normal class contact each student is required to attend six three-hour seminars in each year of the course. The aim of the seminar program is to present the latest developments and trends in the data processing industry or present specialised topics of particular interest to the computer industry.
Graduate Diploma in Organisation Behaviour

This course is for managers who wish to extend their knowledge of human behaviour within organisations. Most students in this course aspire to, or occupy middle and senior management positions in large or small organisations.

The object of the course is to give candidates:

1. A knowledge of the human factors that affect the task of management, together with a study of available methods for the analysis of these factors.
2. An opportunity to examine and to practise problem-solving and decision-making when handling people in the organisational context.
3. A broadened outlook beyond their immediate area of specialisation.

Course structure

The program is an intensive two-year, part-time course. The units (all of which are compulsory) are listed below. The first year introduces candidates to the areas of psychology and interpersonal skills, together with a study of organisation theory.

The second year deals with the management of conflict and change, and leadership. These aspects are examined and applied in the overall pattern of organisational strategy.

Because of the integrated nature of the course, students are required to complete all their year one studies before attempting year two.

Year one

- AT693 Psychology and Interpersonal Skills
- BS681 The Organisation

Both these units run for the whole academic year and have a total class time commitment of 5 hours per week.

Year two

- BS662 Managing Conflict and Change in Organisations
- BS663 Management and Leadership in Organisations

Each unit runs for 4 hours per week. The first is conducted in first semester only and the second in second semester.

Entrance requirements

Entry is open to university or other graduates who hold a degree or diploma, or its equivalent. The program is also available to a restricted number of candidates whose position or experience is sufficient to undertake the course. Admission is determined by a selection committee. In addition to academic achievements, selection depends upon experience and development potential. Accordingly, each applicant is asked to attach to the application form a detailed curriculum vitae. A letter of support from the employer is required at the selection interview.

Progress during the course

In order to continue in the course, students must maintain a satisfactory standard of progress, but it is expected that most candidates will complete the course with two years of part-time study.

Methods of learning

A wide variety of teaching methods is employed ranging from structured lectures or discussion to unstructured experiential type activities. Skills relating to work in groups are stressed and these should be developed by active participation in syndicates.

Professional Institutes

Graduates of this course are eligible to apply to the Institute of Personnel Management, Australia for membership of this professional society.

Time-table

Sessions for both year one and year two units are organised on a block system. Both first-year units are offered on Wednesday morning 8.00am to 1.00pm and second-year sessions on Friday 8.00am to 12.30pm. Special or syndicate sessions may be scheduled where appropriate. A residential or seminar program in addition to the usual 5 hours per week is scheduled each year as an integral part of the course.

Note

A considerable out-of-class time commitment is a necessary element in this learning experience.

Lecturers

The teaching program is conducted by staff from the faculties of both Business and Arts.

Master of Business

1. Intending applicants for admission to the Degree of Master in the faculty of Business must contact the Head of the Department in order to discuss appropriate application procedures and requirements.
2. Applicants must allow 2-3 months for a successful application to be finalised.
3. Applicants wishing to apply for a postgraduate award must therefore submit their application to the Institute by 31 October in order to have the candidature finalised by the closing date for these awards.

A wide variety of teaching methods is employed ranging from structured lectures or discussion to unstructured experiential type activities. Skills relating to work in groups are stressed and these should be developed by active participation in syndicates.
## Business subject details

###  BS102  Accounting 1S

**Prerequisite:** nil

A terminal subject in the associate 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:**
- basic accounting concepts;
- office accounting techniques and controls, payroll preparation, asset valuations (book and tax records), inventory control relationships to computer systems; budgeting;
- accounting for different forms of ownership — sole proprietorships, partnerships, companies, manufacturers, contractors and service performers;
- interpretation of the balance sheet.

**Textbook**

**Recommended reading**
Goldberg, L. and Hill, V.R. Elements of Accounting, Melb., Melbourne University Press, 1973
Mahoney, D.J., Berger, P. and Wolff, A.V. Century 21 Accounting, Australian edn, Syd., Ashton and South Western, 1977

###  BS103  Accounting 1A

**Prerequisite:** nil

An introduction to accounting methods and techniques for students with no prior knowledge of book-keeping or accounting.

The unit is divided into three 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 debtors, creditors and inventories; bank reconciliation statements; incomplete records; accounting for owners equity in alternative types of business organisations.

**References**
Goldberg, L. and Hill, V.R. Elements of Accounting, Carlton, Melbourne University Press, 1973

**Textbook**

###  BS104  Accounting 1B

**Prerequisite:** a result of 'C' or better in HSC Accounting or equivalent experience

The object is to provide a supplementary unit in accounting methods and techniques for students with some prior knowledge of book-keeping or accounting. The course content is as for BS103 — see above.

**Textbook**

###  BS108  The Australian Legal System

This unit introduces students to our legal system. The general objectives are:
- to provide an understanding of the nature of law, its historical origins and institutional setting in Australia;
- to provide an understanding of the conventional processes of legal reasoning used in the system;
- to create an awareness of the influence of the judiciary in the law-making function and in so doing to detail areas of substantive law selected from tort and contract;
- to create an awareness of the role and limitations of the non-court tribunals and commercial arbitrators as alternatives to the court system;
- to create an awareness of the interrelationships which exist between the courts, parliaments, the non-court tribunals and commercial arbitrators;
- to introduce students to the roles of contract law.

**Textbooks**
Latham, P. Australian Business Law, Syd., CCH 1984

**References**
Bates, N. An Introduction to Legal Studies. 3rd edn, Syd., Butterworths, 1979
Bryerbrooke, E.K. et al. Ignorance is No Excuse, Melb., Cheshire, 1976
Caffrey, B. Torts for the Non-Lawyer, Canberra, Signal Books, 1979
Howard, C. Australia's Constitution, Syd., Penguin, 1978
Legal Resources Book Melb., Fitzroy Legal Service, 1979
Pearce, D. Statutory Interpretation, Melbourne, 2nd ed. Butterworths, 1960

###  BS109  Accounting 1C

**Prerequisites:** BS103 or BS104 Accounting 1B

Accounting theory and practice are examined in a historical cost accounting system. This unit includes the following topics: revenue and expenses; accounts receivable, cost of sales and inventory valuation; assets and depreciation; liabilities; accounting for shareholders' equity; performance evaluation; analysis and interpretation and funds statements.

**References**
Barton, A.D. The Anatomy of Accounting, 2nd edn, St. Lucia, University of Queensland Press, 1977

**Textbook**
BS110 Legal Studies
This unit introduces Associate Diploma students to our legal system. The general objectives are:
- to provide an understanding of the nature of law, its historical origin and institutional setting in Australia;
- to provide an understanding of the conventional processes of legal reasoning used in the system;
- to create an awareness of the influence of the judiciary in the law-making function and in so doing to detail areas of substantive law.

Prescribed texts
Bates, N. An Introduction to Legal Studies. 3rd edn, Syd., Butterworths, 1979
Equal Opportunities Act 1977
Commercial Clerks Determination No 2, 1981

References
Legal Resources Book. Melb., Fitzroy Legal Service, 1979
Pearce, D. Statutory Interpretation. Melb., Butterworths, 1974
Your Rights. Melb., Vtc, Council for Civil Liberties, 1980

BS111 Economics 1
The main objective of this subject is to teach students how economists think rather than what they think. Some of the methods adopted by economists are used to analyse economic problems within the framework of the Australian economic system. The course commences by examining the role of the contemporary market system in allocating resources and distributing output. This is followed by a detailed analysis of the determinants of the level and rate of change of national output, employment, prices and international reserves. Attention is then focused on the role of fiscal, monetary, prices and income balance of payments policies in achieving economic stabilisation.

References

BS121 Introduction to Data Processing
This course is an introduction to commercial data processing with an emphasis towards the use of computers in business rather than the technical details of computers. A 4th Generation Language is used to build simple business systems on the faculty’s PRIME computer.

Topics include:
- introduction to computers and computing in business;
- introduction to simple business systems;
- building business systems on a computer with particular reference to file concepts;
- programming in PRIME INFO BASIC;
- computer types, micros, minis and mainframes, and computer peripheral equipment;
- an introduction to a commercial data processing package and its facilities.

The unit is taught as far as possible in laboratory style. Classes are coupled in theory/practice sequence so that each alternate class is conducted in the PRIME room with hands-on experience. This is used to implement the work discussed in the previous theory session.

Preliminary reading

BS122 Data Processing — S
This unit is compulsory for students studying for the Associate Diploma in Private Secretarial Practice and is available only to students in that course.

Topics include: word processing concepts; introduction to computers; introduction to data processing; computer programming; computer packages; word processing systems survey.

References
Current journals including Modern Office
Rydges

BS132 Administrative Studies 1
This subject is designed to assist students to attain their full potential in future relationships within the business world.

A formal study is made of current theories, concepts and practices relating to the behaviour of people in formal organisations in which essential objectives must be attained within a system of superior—subordinate relationships. In this respect the behaviour of people, having respectively, supervisory and subordinate roles in organisations is dealt with via such themes as:
- the nature and complexity of organisations and their environments,
- organisational effectiveness,
- group dynamics,
- interpersonal relations and social influences on individual behaviour,
- organisational effectiveness,
- the functions of managers in complex organisations,
- the use of conceptual models, especially the Open System model for problem-solving.

In addition, tutorial exercises are used to enable students to experience and to share relationships within constructed situations.

References

BS17
BS181  Computers and the Law
Prerequisite, BS109 Australian Legal Systems

Course objectives
The aim of the course is to enable students to explore:
(i) the application of existing law to computer development, manufacture, acquisition and use;
(ii) the law in relation to computer abuse.

Course outline
To meet objective (i) above, students will examine the application to computer technology of existing law and practice, pertaining to:
(a) patents and copyright;  Development/Manufacture
(b) negligent manufacture;  Acquisition
(c) negotiating and concluding contracts for the acquisition, lease or rental of computer resources;  Use
(d) performance deficiencies involving breach of contract, breach of warranty or misrepresentations;
(e) output errors or performance malfunctions involving, e.g. defamation or third party economic loss.

To meet objective (ii) above, students will examine:
(a) 'computer crime', with a view to assessing the adequacy of the present law to meet the challenges inherent in the successful prosecution of computer criminals; and
(b) the issue of 'invasion of privacy', with a view to determining the appropriate legal response to the dangers of personal data storage.

References
Fleming, J.G., Torts, 5th edn, Syd., Law Book Co. 1977
Specialised books, articles and legal cases will also be referred to

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, on restricted matter, are expected.

Textbooks
Complete booklist available upon enrolment

BS145  Quantitative Analysis for Business
A first year subject in the Faculty of Business common year. For students without an HSC mathematics or equivalent, the course is four hours per week for two semesters. For students with an appropriate mathematics background, the average time allocation is three hours per week for two semesters.

The primary purpose of this subject is to bring all students up to a higher level of numeracy and to develop a method of approach which they will be able to apply in subsequent areas of their courses. In doing this, the unit will provide students with a knowledge of particular techniques in mathematics and statistics so that they may achieve a greater understanding of the quantitative procedures applied in various disciplines of their business 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, partial differentiation; 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; index numbers; correlation and regression; time series analysis.

Optional enrichment units are offered in a selection of topics which includes inventory, Markov chains, decision theory, input-output analysis, sampling techniques, quality control, and tests of hypotheses.

References

BS201  Corporate Accounting
Prerequisite, BS109 Accounting 1C

(a) Unit objectives
The overall unit objective is to develop in students an ability to think through corporate accounting issues and specifically:
1. To develop in students an awareness of the financial accounting function within a company.
2. To develop students' problem-solving abilities in the application of the principles of corporate accounting to the solution of practical problems.
3. To develop student awareness of contemporary issues in the practice of financial accounting; by reference to actual situations where appropriate.
4. To develop students' independent research skills by the assignment of research areas within the course.
5. To develop student awareness of the inter-relationship between corporate accounting and corporate law.

(b) The unit covers the following areas:
- share capital and other forms of finance, business combinations, including amalgamations, mergers and takeovers,
- group accounting. Particular emphasis is on this topic, it includes the preparation of consolidated accounts, equity accounting and joint ventures
- availability of profits for distribution
- presentation of financial reports including 7th Schedule and Accounting Standards requirements
- reconstruction and company liquidation
Textbooks
Leo, K.J. and Hoggert, J.R. Company Accounting in Australia. Rook, N.S.W., Wiley, 1984
Australian National Companies and Securities Legislation, C.C.H Australian or Government Printer.

References
Australian Society of Accountants: Members’ Handbook

BS202 Cost Accounting
(Prerequisite BS109 Accounting I)
A mandatory second-year degree unit for both accounting and data processing streams.
This unit is designed to develop basic costing concepts of product and period cost into an examination of the design and operation of costing procedures for inventory measurement and cost control. Among the topics covered are absorption costing, standard costing, and variable costing systems. The unit also examines aspects of the design of a system of internal control for management applications.
Prescribed text

BS203 Management Accounting
(Prerequisite BS202 Cost Accounting)
In this unit the material in BS202 Cost Accounting is built on with the object of developing both the student’s understanding of the role of the management accountant within the management process of an organisation, and to acquire and apply various techniques and concepts designed to prepare and present relevant accounting information to management. Among topics covered are, an introduction to budgeting (including computerized budgeting), cost volume profit analysis, incremental costing, discounted cash flow techniques, behavioural aspects of accounting, transfer pricing, and performance evaluation and measurement.
Textbooks
References
Shillinglaw, G. Managerial Cost Accounting. 5th edn. Homewood Ill., Irwin, 1982

BS206 Contract Law
Prerequisite, BS108 Australian Legal Systems
The general aim of this unit is to enable students to gain an understanding of the law applicable to bargains or agreements concluded during the course of business. Particular attention is given to the legal repercussions of negotiating and concluding a bargain (including the impact of statute) and breaching obligations undertaken.
References
Caffrey, B.A. Curdebook to Contract Law in Australia. 1st edn, Syd., CCH Australia Ltd., 1980
Guest, A.G. Chitty on Contracts. 24th edn, Lond., Sweet and Maxwell, 1977
Goods Act 1958 (Victoria)
Goods (Sales and Leases) Act 1981 (Victoria)
Trade Practices Act 1974 (Commonwealth)
Bills of Exchange Act 1909 (Commonwealth)
Textbook

BS207 Law of Business Organisations
Students enrolled in this unit will be expected to have passed BS206 Contract Law.
This unit is compulsory for students in the accounting stream; optional for others
The intention here is to undertake a comparative analysis of the form of business organisations. Essentially this involves an analysis of corporations, partnerships, trusts and unincorporated associations.
Prescribed texts
Companies Act 1981
Partnership Act 1958
Teaching Materials and Cases on Commercial Transactions. Syd., Butterworths, 1979
Horsley, M.G. The Law and Administration of Associations in Australia. Syd., Law Book Co., 1977
Lipton, P. and Herzberg, A. Understanding Company Law. Syd., Law Book Co., 1982
Horsley, M.G. The Law and Administration of Associations in Australia. Syd., Law Book Co., 1977
Lipton, P. and Herzberg, A. Understanding Company Law. Syd., Law Book Co., 1982
BS208 Industrial Law

The general objective is to assess the impact of law upon the relationship between employer and employee.

The following matters are analysed in this subject:
- the right to work; the formation of the contract of employment and factors impinging thereon, including discrimination and compulsory unionism;
- the rewards and obligations of work; an analysis of the operation of the Federal Conciliation and Arbitration Commission, the Victorian Industrial Commission and Conciliation and Arbitration Boards, and the mutual obligations placed on employers and employees pursuant to common law;
- the work environment; an assessment of the legal and arbitral response to technological change, management prerogatives and worker participation;
- the cessation of work; an analysis of the judicial, legislative and arbitral response to strikes, wrongful and unfair dismissals, and employment related injuries as examples of temporary or permanent cessation of work.

References
- Guidebook to Australian Industrial Law. 3rd edn, Syd., CCH Australia Limited, 1983
- Guidebook to Workers Compensation in Australia. 3rd edn, Syd., CCH Australia Limited, 1983

BS209 Legal Aspects of Commercial Paper

Students enrolled in this unit will be expected to have passed BS206 Contract Law.

The objective of the unit is to extend and develop the principles of contract by canvassing such areas as the financing of contractual obligations, the alternative methods of securing financial obligations and the insuring of property acquired pursuant to contract. By analysing these areas students will develop an awareness of problems associated with presently employed credit, security and insurance practices and the consequent need for reform.

Prescribed text

References
- Bills of Exchange Act 1909 (Commonwealth)
- Instruments Act 1938 (Victoria)
- Credit Act 1981 (Victoria)
- Chattel Securities Act 1981 (Victoria)

BS211 Managerial Economic Analysis

Prerequisite: BS111 Economics 1

Students who are contemplating major studies in economics should include this unit and/or BS213 Industry and Government in their courses.

The unit shows how economic analysis can be used to assist business decision-making. Empirical studies are used as a means of illustration. It deals with the following topics: demand analysis (including empirical demand studies and forecasting); production and cost analysis (opportunity cost, short-run and long-run production and cost problems); profit, and goals of firms; pricing policies of firms and public utilities and investment analysis.

Textbooks
- Davies, J.R. and Hughes, S. Managerial Economics. Plym., U.K.
- MacDonald and Evans, 1979

References
- Pappas, J.L. Brigham, E.F. and Hirschev, M. Managerial Economics. 4th edn, Chic., Dryden Press, 1983

BS212 Industry and Government

Prerequisite: BS111 Economics 1

Students who are contemplating major studies in economics should include this unit and/or BS211 Managerial Economic Analysis in their courses.

The unit deals with the structure, conduct and performance of industry in contemporary economies with special reference to Australia and considers the role of government in these economies. A study of an Australian industry is an integral part of the course.

Monopoly and the modern corporation (including the impact of transnational corporations), critiques of corporate capitalism and specific approaches to industry regulation and policy are discussed.

Textbook

References
- Pappas, J.L. Brigham, E.F. and Hirschev, M. Managerial Economics. 4th edn, Chic., Dryden Press, 1983

BS213 Industry and Government

Prerequisite: BS111 Economics 1

Students who are contemplating major studies in economics should include this unit and/or BS211 Managerial Economic Analysis in their courses.

The unit deals with the structure, conduct and performance of industry in contemporary economies with special reference to Australia and considers the role of government in these economies. A study of an Australian industry is an integral part of the course.

Monopoly and the modern corporation (including the impact of transnational corporations), critiques of corporate capitalism and specific approaches to industry regulation and policy are discussed.

Textbook

References
- Pappas, J.L. Brigham, E.F. and Hirschev, M. Managerial Economics. 4th edn, Chic., Dryden Press, 1983

BS214 Industrial Relations

Prerequisite: BS111 Economics 1

This unit provides a study of the Australian industrial relations system with special comparative reference to the systems of other countries.

Topics to be studied include:
- nature of industrial relations and an industrial relations system
- nature, sources and manifestations of industrial conflict
- the characteristics of the parties to the Australian industrial relations system: trade unions, employers, governments and industrial tribunals
- rule-making processes: conciliation and arbitration, collective bargaining, employee participation schemes.

References
BS215  Economic Techniques for Business

Prerequisites: BS111 Economics 1 and SM145

Quantitative Analysis for Business (or an approved equivalent).

Objectives

The aim of this unit is to provide students with some techniques and skills generalised in economic and marketing research in business. Emphasis is given to the analysis and interpretation of information which graduates are likely to use in practice.

Course outline

Statistical computing
Collection and sources of data
Data analysis
- Exploratory data analysis
- Estimation
Experimental design
Econometric modelling and forecasting
- Economic and social indicators
- Simple linear regression models
- multiple regression and economic modelling

Textbook


References

Australian Bureau of Statistics publications e.g. Australian National Accounts, National Income and Expenditure. Canberra, Australia, Annual
Institute of Applied Economic and Social Research, Melbourne University, Australian Economic Review, Quarterly

BS216  Accounting for Marketing 1

Prerequisite, BS109 Accounting 1C

This unit together with BS217 is a mandatory unit in the economics/marketing stream. They are not available to students taking either the accounting or data processing stream.

The unit is designed to introduce students to the role of management accounting in planning and controlling the marketing function in organisations.

The content includes:


Prescribed text


BS225  Commercial Programming A

Prerequisite, BS121 Introduction to Data Processing

In this unit, a knowledge of the fundamentals of program development is presumed, as well as an understanding of basic computer concepts.

While ANS COBOL language facilities are covered in some depth, and solutions to the major programming assignments will be written using COBOL, other industry-accepted commercial languages are also examined and compared. These include BASIC, RPG II and PL/I.

The following topics are covered:

COBOL language features. Form of the language, program layout, data types, arithmetic instructions, input and output instructions, conditional and loop instructions, editing and data manipulation, table handling;

Program development techniques. The stages leading from the system specification to the coding activity. Problem analysis. Logic aids e.g. pseudocode and structured flowcharts. Documentation. Program structure. Program design for implementation and maintenance;

Program writing techniques. Program debugging, program testing, test data generation, diagnostic aids. Program test documentation, coding standards,

Major programming assignments approach realistic commercial complexity, and include the areas of group reporting, table handling, sequential file updating.

References

Notes are distributed for each topic.

BS226 Commercial Programming B
Prerequisite BS225 Commercial Programming A
A thorough knowledge of basic programming techniques and an
understanding of the COBOL programming language is
presumed. Upon completion of this unit, the student will have
experienced many aspects of program development and programmer
responsibility, in a simulated working environment. Special emphasis
is placed on the application of improved programming productivity
techniques.
A selection of the following topics is treated by lecture, research
assignment, or programming project:
- structured programming; top-down development; development
- system options: user considerations of these options
- screen and report design
- communication skills
- systems control: the need for accuracy, security and the stages
- the systems life cycles
- system options: user considerations of these options
- feasibility studies
- user responsibilities

Textbook
LO. Hicks, Jr., Information Systems: A User Approach West
Publishing Company, St. Paul, 1984

References
A detailed reading guide is issued for each topic. The following are most commonly referenced:
- Semprevivo, P.C. Systems Analysis. Chicago, SRA, 1982
- Burch, J.G., Strater, F.R., Grudnitski, G. Information Systems Theory and
  Practice. N.Y. John Wiley, 1983
- Gore, M. and Stubbe, J. Elements of Systems Analysis for Business
  Data Processing. Iowa, Wm. C. Brown, 1979

BS228 Business Computer Systems
Prerequisite, BS221 Introduction to Data Processing

The intention of this unit is to enable students to apply appropriate

techniques to develop user systems and to understand the
development process of major transaction processing systems.

Topics covered
- corporate transaction processing systems
- user development tools
- approaches to developing user systems
- screen and report design
- communication skills
- systems control: the need for accuracy, security and the stages
- the systems life cycles
- system options: user considerations of these options
- feasibility studies
- user responsibilities

Textbook
LO. Hicks, Jr., Information Systems: A User Approach West
Publishing Company, St. Paul, 1984

References
A detailed reading guide is issued for each topic. The following are most commonly referenced:
- Semprevivo, P.C. Systems Analysis. Chicago, SRA, 1982
- Burch, J.G., Strater, F.R., Grudnitski, G. Information Systems Theory and
  Practice. N.Y. John Wiley, 1983
- Gore, M. and Stubbe, J. Elements of Systems Analysis for Business
  Data Processing. Iowa, Wm. C. Brown, 1979

BS231 Marketing 1
Prerequisite, nil

Marketing 1 is a mandatory unit in the economics/marketing stream and an elective unit in the accounting and data processing streams.

Objective
To give students a broad understanding of the marketing
environment and an overview of the total business function in
particular with respect to planning and decision-making;
to enable students to apply their knowledge of accounting
tools to business situations. To achieve this, emphasis is on case
study analysis and management games;
to increase the practicality of business education by introducing
students to business situations. The emphasis is on case
study analysis and management games;
to increase the practicality of business education by introducing

Textbook

Recommended reading
Brookes, C.H., Grouse, P.J., Jeffrey, D.R., Lawrence, M.J. Information
Association for Systems Management, Journal of Systems

References
Rados, D.L. and Gilmour, P. Australian Marketing Case Book,
Brisbane, University of Queensland Press, 1981
BS232  Marketing 2  
Prerequisite: students enrolled for this unit should have passed BS231 Marketing.
Marketing 2 is a mandatory unit in the economics/marketing stream and an elective unit in the accounting and data processing streams.

Objectives
(1) To give students an opportunity to consolidate their Marketing 1 material.
(2) To develop further, their analytical, creative and communications skills.
(3) To develop further, the subject matter which is addressed in Marketing 1.
(4) To develop further, the following specific skills.
4.1 To introduce the student to the basic principles of marketing research.
4.2 To develop further, an understanding of the importance of demographic factors to analyse future market opportunities.
4.3 To develop an in-depth understanding of various ways of examining consumer behaviour as an input to marketing research and marketing decision-making.
4.4 To introduce students to the special aspects of industrial marketing.
4.5 To develop further, an understanding of product policy in relation to marketing programs.
(5) To create an environment where students learn to deal with others (syndicate work) in a problem-solving situation.
(6) To give students practice in applying Marketing theory and the above skills to real-world marketing situations.

Framework
Introduction to the market research process; problem definition, research approaches and interpretation of data.
Marketing opportunities in the 1980s; the impact of the family life cycle and demography on expenditure patterns; market location.
Consumer behaviour analysis; market segmentation; the impact of family social class, peer group and culture.
Quantifying demand; understanding demand determinants, presentation of data.
Derived demand and end-use analysis.
Comprehensive cases on product, pricing, distribution and advertising strategies.
Method of instruction
Similar to that of Marketing 1, but students will be more involved in field work and research into the Australian consumer environment.

References
Comprehensive handout material will also be given.

BS234  Marketing and the Law
Prerequisite, BS108 The Australian Legal System

The unit involves an examination of the legal controls imposed on the manufacturing, retailing, distribution and financing of consumer goods including an examination of the Trade Practices Act 1974-17.

Topics involved in this study are:
- the liability of manufacturers and retailers of goods at common law and under statute; proprietary interests in products; packaging and labelling of goods; advertising and promotion of goods; restrictive trade practices.

Textbooks
*Goods Act 1958 (Vic)
*Goods (Sales & Leases) Act 1981 (Vic)
*Consumer Affairs Act 1972 (Vic)
*Trade Practices Act 1974 (Cth)

References

85241  Fundamentals of Operations Research
Prerequisite, SM145, Quantitative Analysis for Business or equivalent.

The unit provides:
- an awareness of a range of quantitative techniques and their application to a variety of accounting, economic and business problems;
- an understanding of the interrelationships between 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 is on the practical solution of specific business problems and in particular on the recognition, formulation and interpretation stages of solution. Areas of study will include:
- the general problem of resource allocation with emphasis on linear programming including an introduction to post-optimal analysis and the determination of transfer prices in a decentralised organisation;
- use of quantitative analysis to plan and control working capital requirements, including an evaluation of approaches to inventory and cash management problems; forecasting, with particular emphasis on short-term product demand; general approaches to planning and decision-making including an introduction to financial modelling and its applications; development of models using FORTRAN.

Case studies and assignments are an integral part of the course and are evaluated as part of the overall assessment in the unit. They include the use of computer packages.

Preliminary reading

References
To be advised during lectures.

BS242  Linear Programming
Prerequisite, BS241 Fundamentals of Operations Research or equivalent

This unit examines generally the application of linear programming and related methodology 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.

Consideration will be given to:
- sensitivity analysis
- fixed charges
- discrete solutions
- multiple objectives

within the context of production, marketing, economic and finance environments.

Case studies and assignments are an integral part of the course and are evaluated as part of the overall assessment in the unit.

References
A detailed list of texts and journal articles is made available.
BS243  Computer Programming and Packages

Prerequisite, BS21 Introduction to Data Processing

The purpose in this unit is to bring students up to the stage where they can recognise the benefit of, and use a computer to assist in the solution of, business problems.

The emphasis is on interactive computing. Application areas are directed towards topics covered in other degree units.

The unit has both a programming and a packages component.

Programming

This component is based on the language BASIC using IBM microcomputers. The aim is to bring students to the stage where they can write programs to perform analytical routines commonly found in business. Coverage includes:

- input-output procedures;
- structured programming in as far as BASIC allows including statement modifiers;
- method of writing interactive programs including string functions;
- file handling procedures;
- format of a report.

Packages

Students are introduced to a variety of packages associated with the subject areas in which they are specialising, e.g., accounting, finance, economics, marketing and statistics.

Students should then be able to:

- use packages confidently;
- evaluate capabilities of packages and select between alternatives available;
- assess when the use of a package is applicable.

References

The majority of reference material consists of computer manuals and user guides.

BS244  Business Forecasting

The purpose in this unit is to provide students with:

- an awareness of the various forecasting techniques and their appropriate areas of applicability;
- experience in their application, including the use of packages in areas such as economics, marketing, accounting and finance.

Case studies will form an integral part of the course and use is made of packages and published forecast data.

Course content includes:

- an overview of forecasting methods, their general areas of application and criteria for selection of procedures, including cost-benefit analysis;
- extrapolation methods — time series analysis for both short and long term forecasting. Analysis of trend, seasonal and cyclical factors.
- identification of appropriate areas for application;
- causal models — the use of linear regression models. The appropriate areas of application and the need for cost-benefit appraisal before undertaking;
- the nature and use of input-output analysis. Construction of input-output tables and solution of system. Relationship between the individual firm and national statistics;
- use of lead/lag indicators;
- qualitative procedures — including the role of market research, delphi methods, consensus etc. in predicting future behaviour.

References


Firth, M., Forecasting Methods in Business and Management. Lond., Arnold, 1977


BS256  Legal Studies 2

Prerequisite, BS108 The Australian Legal System

Course objective

To create in secretarial students, an awareness of commercial concepts and documentation relevant to their future employment.

Course content

In meeting the above objective, students are made familiar with a variety of contracts (e.g., sale of goods, provision of services, insurance, loans, employment) and security documents (e.g., land and chattel mortgages).

References

Teaching material in the form of actual documents is distributed to students and their form and content explained by reference to existing law. Recourse to textbooks is made in the context of solving enquires arising from real-world documentation.


BS281  Administrative Studies 2

(Human Behaviour in Organisations)

Prerequisite, BS132 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 experiences will be employed to facilitate the learning of theoretical concepts and transfer of learning into the workplace.

Topics include: personality theory; values and values classification; learning, perception, motivation; role theory; group dynamics and interaction theory; interpersonal communications and perception; conflict and conflict management; change and the resistance to change; the effects of organisation structures on human behaviour; organisation development (OD).

Textbook

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites/Readings</th>
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<tbody>
<tr>
<td><strong>BS282</strong></td>
<td>Administrative Studies 2</td>
<td>(Secretarial Administration)</td>
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<tr>
<td></td>
<td></td>
<td>This one-semester unit provides potential private secretaries with an understanding of:</td>
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<td>- the nature, objectives and characteristics of the business organisation and its environment;</td>
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<td>- the functional activities of, and problems associated with, the general, financial, personnel, production, marketing and data processing managers and the company secretary.</td>
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<td>The teaching method is based on a combination of lecturelets, case-studies, tutorial papers and class discussions.</td>
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<td>Particular attention is given to the duties of a secretary in each of the above areas.</td>
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<td><strong>Recommended reading</strong></td>
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<tr>
<td><strong>BS291</strong></td>
<td>Private Secretarial Practice B</td>
<td>A second year subject requiring the practical application of more advanced stenographic skills. Minimum shorthand dictation speeds are 100 wpm, and opportunity is available for students to reach 120 wpm, thereby gaining credit for the increased speed. A minimum accurate copy typing speed of 55 wpm is required, with corresponding ability in the preparation of typewritten transcripts from dictated material. Regular assignments given on secretarial knowledge and duties. Continuous assessment throughout the year.</td>
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<td><strong>Textbook</strong></td>
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<td>Complete booklist available upon enrolment.</td>
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<tr>
<td><strong>AT295</strong></td>
<td>Business Communications</td>
<td>Prerequisite, nil</td>
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<td>A year-long unit designed principally for students of Private Secretarial Practice, to assist them in the preparation of letters, memos and other business documents; to improve their knowledge and understanding of the English language; and to facilitate generally, communication between persons or groups within the business structure.</td>
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<td><strong>Textbooks</strong></td>
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<td>Lists available on enrolment.</td>
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<tr>
<td><strong>SM221</strong></td>
<td>Applied Statistics 1</td>
<td>Prerequisites, SM145 Quantitative Analysis for Business and BS111 Economics 1.</td>
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<td>This unit is designed to develop a student's ability to carry out statistical analyses relevant to the social sciences. Particular emphasis is given to the accounting, economic and market research areas of business statistics.</td>
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<td>The unit provides a balance between theory and practice and includes a wide variety of statistical techniques. Emphasis is given to the realities of statistical practice including the development of communication skills.</td>
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<td><strong>Topics include:</strong></td>
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<td>- data handling: exploratory data analysis including data transformations; estimation; collection of data including sampling techniques; data sources with particular emphasis on official collections of the Australian Bureau of Statistics; statistical computing including an introduction to SPSS.</td>
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<td>- demography: rates and ratios; The Life Table; population estimates and projections;</td>
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<td>- experimental design: designs for comparing two populations; hypothesis testing using parametric and non-parametric methods. Product testing;</td>
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<td>- regression: linear regression model, coefficient of determination, prediction and forecasting; multiple regression model.</td>
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<td>Miller, S., Experimental Design and Statistics. Lond., Methuen, 1975</td>
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<tr>
<td><strong>SM222</strong></td>
<td>Applied Statistics 2</td>
<td>Prerequisite, SM221 Applied Statistics 1.</td>
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<td>This unit extends a student's knowledge of the theory and practice of statistics with an emphasis on practical realities of statistical analysis of commercial production, sales and marketing of goods and services.</td>
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<td>- Experimental design and the analysis of variance: X² and f distributions. Tests for independence and homogeneity. One-way and two-way analysis of variance;</td>
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<td>- multiple regression and correlation: dummy variables, multicollinearity and serial correlation. Graphical and numerical methods in the examination of regression residuals;</td>
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<td>- statistical computing: more complex statistical analysis using SPSS. Analyses of census data using SIR (CENSYS).</td>
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<tr>
<td></td>
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<td><strong>References</strong></td>
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</tbody>
</table>
BS300 Accounting Theory
Although there are no formal prerequisites for accounting theory, it is preferable that the unit be studied in the final year of the course.
The objectives of this unit are:
- to examine the development of the theory of accounting and the methodology used by accounting theorists.
- to describe and critically analyse a framework of accounting concepts including assets, liabilities and income.
- to use the methodology and the framework developed in the unit to study some specific issues in financial accounting including accounting for long-term leases, deferred tax accounting, various inflation accounting systems and cash flow accounting.

Although the subject is concerned with theory, considerable use is made of practical problems in parts of the course. These are designed to illustrate the alternative techniques available while the theoretical framework is used to evaluate and choose between the alternatives.

Textbook

References
- Barton, A.D. An Analysis of Business Income Concepts. Lancaster, University of Lancaster, International Centre for Research in Accounting, 1975
- Hendriksen, ES., Accounting Theory. 4th edn, Homewood, Ill., Richard D. Irwin, 1982
- Sterling, RR, ed. Research Methodology in Accounting. Lawrence, Kansai, Scholars Book Co., 1972

BS301 Financial Management
Students enrolled in this unit will be expected to have passed BS201 Corporate Accounting.
The unit deals with the analytical methods and techniques required to assess a company's performance. The interpretation of the analytical data to 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 project funds statements are used to show the interrelationship 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.
The unit also includes a financial analysis of take-over proposals.

Textbook

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 analysing risk in this manner are discussed.

References
- Harvard Business Review, Capital Investment Series

BS304 Auditing
Prerequisite: Students enrolled in this unit are expected to have passed BS201 Corporate Accounting.
The broad objective of this subject is to familiarise students with the underlying concepts, objectives, and reporting function of the auditor. The unit deals with both theoretical and practical aspects of auditing. The aim is to integrate the concepts of auditing with practical approaches taken by the auditor to ensure students gain a complete picture of the audit process. Theoretical topics include auditing methodology and the formulation of auditing standards; audit independence; audit evidence; the rights, duties and legal liability of auditors; the audit report and the concept of truth and fairness; internal control. The various approaches to the sufficiency of audit evidence; computer audits, internal and management audits and materiality.

References

BS26
The purpose of the unit is to consider the legal aspects of international trade emphasising the following topics:

- international contracts of sale of goods, including a study of trade terms, performance of the contract, acceptance and rejection of goods, and the rights of unpaid seller and buyer;
- the proper law of a contract and jurisdiction to determine disputes;
- financing and insurance involved in export sales;
- the role of tariffs and protection policies; producer and commodity agreements;
- methods of transportation and distribution of goods and the legal principles relating thereto;
- comparison of the role of developing and developed countries with respect to international trade.

**References**

Greig, D. International Law. Syd., Butterworths, 1976


BS311 Public Finance
Prerequisite, BS111 Economics 1
This unit involves an analysis of the economic rationale of government expenditure and revenue raising. It will cover the following topics:

- an introduction to the welfare economics and public choice paradigms and their implications for public sector revenue and expenditure;
- taxation analysis; criteria for evaluating taxes and tax systems; analysis of personal and corporate income tax with particular emphasis on the tax unit, the tax base and tax rates; analysis of present sales tax and excise tax arrangements and alternatives to these; subsidies to commodities and consumers; taxes on the factors of production and schemes to reform the Australian tax system;
- techniques for evaluating government expenditure programs (with particular emphasis on cost-benefit analysis).

References
Australia, Treasury Taxation Papers Nos. 1-15, Canberra, 1974
Brown, C.V. and Jackson, P.M. Public Sector Economics. Lond., Martin Robertson, 1978

BS312 Economic Research
Prerequisites, BS211 Managerial Economic Analysis or BS213 Industry and Government
The Intention of this unit is to broaden the students' familiarity with the nature and scope of research undertaken in economics, and to increase students' ability to analyse and carry out economic research of a practical nature.

- Topics may include: methodology in economic research; data sources; collection, analysis and presentation of data; selected topics in applied economic research (economic model building, cost benefit analysis, industry studies, aspects of industrial relations);
- An integral part of this unit is a major research project. Students are expected to conduct an investigation and write a report on their research which will constitute a major proportion of the assessment in this unit.

References
There is no single prescribed reference for this course, but extensive use is made of current journal articles.

BS315 Monetary Economics
Prerequisite, BS111 Economics 1
This unit provides a study of the nature and developments in Australian and international finance markets and considers various aspects of monetary theory and policy. The topics to be studied include:

- finance markets; nature and role of finance; economic development and financial development, evaluating the performance of finance markets.
- Australian finance markets; short-term money markets, official, buy back, commercial bill, and inter-company loan markets etc
- International finance markets; foreign exchange markets; international financial centres. Monetary theory and policy; classical, Keynesian, neo-keynesian and modern quantity monetary theories; policy implications of these.

BS318 Urban Economics
Prerequisite, BS111 Economics 1
In this unit, students develop an analytical approach to appraising urban problems and policies. While the emphasis is on economic analysis, part of the course is devoted to discussing sociological and town planning perspectives of urban problems. The unit covers the following broad areas: urban location decisions, government and private roles in urban development, housing, transport, and the impact of resources development.

References

BS319 International Economics
Prerequisite, BS111 Economics 1
This unit provides a study of international trade and finance with special reference to Australia. Topics covered include: the nature of foreign exchange markets and the determination of exchange rates; balance of payments adjustment mechanisms; internal and external policy mixes — Australian policy aspects; international financial arrangements — historical developments, and current issues; the basis of international trade and the determination of trade patterns; trade restrictions; alternative approaches to industry development; Australia's industry assistance policies — current debate; international investment; international development issues etc. economic integration, a new international economic order.

Textbooks

References
Industries Assistance Commission, Annual Report, Canberra, ACPS, Various years
BS324 Management Information Systems
Prerequisite. BS327 Systems Design B
In this unit, a student develops an awareness of the scope and the problems associated with computerised management information systems. As this is the final systems unit, it builds extensively on material taught in previous units. The theory is developed using practical assignments and seminars where appropriate.

Topics covered:
thorities of information including quality, uses, sub-systems, information requirements by levels of management, effect of computers on the flow of information, the data administrator; project planning, selection, justification, phasing and evaluation; selection and justification of resources and methods to be used including hardware, software, packages, distributed systems, suppliers, consultants, software houses and bureaux, data processing staff; the design process, design as an iterative and a creative process, checking of stages against objectives, re-evaluation of design; the implementation process, impact of new techniques on planning, trial runs, file creation systems, degraded operation; management and information systems; distinguishing the roles of management and data processing staff, education and training, management involvement and influence; information systems failures, symptoms, causes, responsibilities of users; social implications of using computers, privacy, security and control; future developments in the industry.

References
A detailed reading guide is issued for each topic, and general references include:

BS327 Systems Design B
Prerequisite. BS227 Systems Design
Data base and data communications techniques are now established as the means by which the rapid growth demanded of the data processing industry in the foreseeable future, may be achieved. Students successfully completing this unit will be able to:
- identify the symptoms of isolated application development, and state the benefits which application integration, via a data base approach, can realize;
- demonstrate the importance of data independence, data structuring, and data base administration in achieving the objectives of data base; compare broad features and merits of DL/1, CODASYL and Relational Data Base Management Systems;
- design simple data bases using the techniques of data analysis and normalization;
- classify on-line applications into their classical types, and identify the purpose of and benefits to be derived from such application types; use the terminology of data communications to describe data flow through the hardware components of typical on-line system configurations, including distributed systems;
- match the requirements of an on-line application to characteristics of available terminal types, including intelligent terminals;
- state how typical functions of modern data communications software packages can improve the productivity of on-line application developers, and end users;
- list the decision steps involved in on-line system design, and be able to apply certain design calculations (such as queuing theory) and human factors decisions (such as screen design) to a simple on-line application.

BS328 Information Systems Analysis
This unit will not be offered after semester 2 1984. It is replaced by BS228 Business Computer Systems

BS329 Systems Software A
Prerequisite. BS226 Commercial Programming B
This unit provides a practical programming basis for the examination of systems software principles and components, such as operating systems, in the unit Systems Software B. These topics are included:

An overview of systems software
What systems software is; examples; limitations of applications programming;
the need for special language attributes — flexible manipulation and definition of data types, table (list) processing, string functions, inter-program communication;
the need for special techniques — fundamental nature of data structures, dynamic coding, concept of algorithms.

Systems software languages
Examples: one or more of the following high-level languages will be examined from a systems programming point of view,
BASIC-PLUS, PASCAL, PL/I, USP;
examples: low level languages;
machine instructions, assembler, macro language, 110 programming — file/device handling, data communications, channel programming.
Systems programming techniques may include:
Data structures:
- list processing — stacks, queues and dequeues, and their representation in sequential and linked storage;
other structures — trees, digraphs;
applications — the control of processes; physical file and data base structures.

The dynamic coding environment:
- the problems — example situations; real-time systems and general multi-programming;
coding techniques — re-entrant, re-usable, refreshable (and recursive) coding;
resource sharing — general inter-program communications, double update deadlock.
Common algorithms, including: compaction, encoding, sorting, searching.
In addition, several practical programming projects are undertaken.

Hardware
An overview of computer architecture involving comparison between different machines. Processor and peripheral principles, including graphics, are examined.

References
No prescribed texts. References will be announced during lectures.

Faculty of Business

BS29
BS330  Systems Software B
Prerequisite, BS329 Systems Software A
Productivity of systems designers and programmers, is improved by an ability to exploit the facilities offered by the systems software, implemented on the computer system with which they are involved. In this unit, the purpose, structure and application are examined of some important system software components, notably operating systems. Students successfully completing this unit should readily adapt to the characteristics and requirements of most commercial operating systems.
A selection of the following topics is covered.
Systems software
Language translators, operating systems, data base and data communications management systems, utilities and programming aids.
Operating systems
The FACOM Operating System OSIV/F4 is examined mainly from a user point of view. Practical experience is gained in writing JCL, and submitting jobs. The concepts of resource scheduling, job scheduling and virtual storage are covered.
Technical system management
The systems programmer, system performance monitoring and tuning, managing system failures and job accounting.
References
Reading guides will be issued by the lecturers.

BS332  Business Cases
No formal prerequisite is required, but it would be preferable for students to have studied BS31 Marketing 1.
This unit is concerned with how business and non-business organisations make and carry out decisions. Business Cases is a challenging course as students are given an opportunity to apply their knowledge of the various units which make up the Bachelor of Business, to practical situations.
Objectives
To enable students to Interrelate the disciplines taught at the various stages of their studies; to give students an overview of how an organisation functions; to give students an opportunity to develop and practice their analytical and communication skills.
Framework
The course deals with the planning and implementation of strategy. Major topics include: the setting of objectives; analysis of the present position; strategy formulation; strategy implementation.
Means of achieving objectives
Emphasis is placed on the appreciation of strategy concepts, hence the analysis of case studies and the use of management games are important aspects of the course. Students may also be given the opportunity to investigate a real life business/non-business problem.
References
To be advised.

BS331  Organisational Behaviour
Prerequisite, BS132 Administrative Studies 1
A third year unit in the degree course in business.
One of the principle objectives is to help prepare students for their entry into organisational life, or in the case of part-time students to allow them to understand their organisational environment better. This is achieved through a detailed study of the psycho-social 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
Textbooks

BS334  Marketing 3A
Prerequisite, BS232 Marketing 2 and students usually should have completed either BS215 Economic Techniques for Business or BS241 Fundamentals of Operations Research.
Marketing 3A is a mandatory unit in the economics/marketing stream and an elective unit in the accounting and data processing streams.
Objectives
The unit is designed as an extension of the knowledge and skills gained from Marketing 1 and Marketing 2 with particular emphasis on developing and analysing information required for marketing decisions.
On completion of the unit the successful student will have developed basic skills in — planning a marketing information system for a small firm — research design (qualitative and quantitative) — design, administration and processing of questionnaires — sampling techniques These skills are a valuable asset for all people in business and especially so for those in specialist marketing positions such as market analysis, product management and advertising.
Framework
The unit is divided into four sections:
Marketing information systems
Market research (both desk and field research), value and cost of information, problem discovery and decision analysis, research proposals and integrated marketing information systems.
Research design
Concepts of measurement and sources of error. Observation, surveys and experimentation.
Group discussions and depth interviews.
Test marketing.
 BS335  Marketing 3B  
Prerequisite, BS232 Marketing 2  
Marketing 3B is designed to prepare students for careers in which they play a role in the implementation of marketing programs.

Framework  
Advertising  
| the communications mix  
| advertising models  
| corporate versus product advertising  
| developing advertising strategies, consumer and industrial markets  
| the role of market research in advertising  
| how to write a creative brief  
| agency and media selection  
| measuring advertising effectiveness  
Management of the sales force  
| the retail sales function  
| the industrial sales function  
| the sales manager, his or her job and career  
| selection of sales people  
| sales training programs  
| compensation plans  
| supervision of sales people  
| sales analysis and evaluation  
| evaluation of sales force performance  
Product management and marketing organisation  
| product development  
| product elimination  
| product policy, portfolio development, analysis and models  
| basic organisational structures  
| organisation of the marketing department  
| product managers  
| market managers  
| account managers  
| the impact of marketing on the organisational structure  
International Marketing  
| Australia's overseas markets  
| the marketing of Australian agricultural products  
| the marketing of Australian ores and mineral products  
| the marketing of Australian manufactured products  

References  

 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 is used to help solve many of the case problems presented throughout the course.

Emphasis is on problem recognition and formulation and full interpretation of solutions.

Topics covered include: the use of computer packages; Markov analysis applied to capital equipment purchase, accounting control and market research models; queuing 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 are an integral part of the course and 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  
Prerequisite, BS241 Fundamentals of Operations Research or equivalent.
This unit develops some of the analytical techniques appropriate to solving business problems that are not readily quantifiable by conventional mathematical methods.

Teaching will be mainly by practical work, students being required to complete a number of small cases, using computer simulation facilities.

The choice of cases will be fairly wide and appropriate to an individual's specific interests. Applications will be drawn from the following areas:

- Financial evaluation of alternative investments and their associated risk; inventory modelling; marketing evaluations; computer operations systems evaluation; corporate modelling; economic modelling.

Preliminary reading

 BS345  Quantitative Cases  
Prerequisite, BS241 Fundamentals of Operations Research, or equivalent.
Assessment is based entirely on the evaluation of case studies, management reports and/or verbal presentations.

This unit
- extends students' familiarity with some important quantitative techniques necessary for problem-solving in business, industry and government;
- uses wherever applicable, quantitative techniques already studied in other units in order to assist in problem-solving, and puts these techniques into a broader perspective;
- imparts the all-important processes of problem recognition, solution and report preparation.

Attainment of these main objections is by the detailed consideration, at both a group and individual level, of case studies.

Amongst the quantitative techniques considered are linear programming and extensions, Markov chains, queuing theory and simulation. The use of appropriate computer packages plays an integral role in the course.

References  
A detailed list of texts, journal articles and other references is issued at the appropriate time during the course.
BS404  Advanced Financial Accounting
Prerequisites, BS201 Corporate Accounting and BS300 Accounting Theory
This unit is most relevant to students planning to enter (or already in) the employment fields of chartered accounting or financial accounting in industry.

The objectives of advanced financial accounting are:
- to study in depth some of the more advanced issues and problems from areas introduced in corporate accounting;
- to make students aware of a selection of contemporary financial accounting issues and to study these issues from both theoretical and practical viewpoints;
- to apply the conceptual framework studied in accounting theory in evaluation of the abovementioned contemporary financial accounting issues.

Course content
The role of financial reporting
Accounting information and share prices
Broadening the role of financial reporting
- providing traditional users of accounting information with new reports - forecasts
- providing new user(s) of accounting information with new forms of reporting - employee reporting and corporate social responsibility reporting

Advanced techniques and issues
- advanced consolidation issues
- joint ventures
- extractive industries
- foreign transactions

The syllabus is flexible to allow new financial accounting issues which gain momentum to replace topics of less relevance.

References
Various current Exposure Drafts and Standards issued by the Australian Accounting Research Foundation

BS405  Advanced Auditing
Students enrolled in this unit will be expected to have passed BS304 Auditing.

This unit presumes familiarity with the subject matter of BS304 Auditing. It should be most useful for those students planning to enter the profession.

The objective of the unit is to provide students with an understanding of the principles of the audit of EDP systems, and the application of statistical sampling in the audit context.

The topics to be studied include: a review of the basic principles of auditing; introduction to business data systems; review of internal controls in the EDP context; testing and evaluation of internal controls by the use of Test Decks and Integrated Test Facility; the use of the computer to gather audit evidence, by means of process reprogramming, parallel simulation, and the application of a Generalised Audit Package; the audit of bureaux, micro, mini and maxi computers, OLRT systems and advanced audit techniques including the use of transaction tagging, real time notification, audit logs, monitoring and program analysis techniques.

References
Chambers, A.D. Computer Auditing, Sydney, CCH Australia Ltd., 1981

BS406  Advanced Taxation
Students enrolled in this unit will be expected to have passed BS306 Taxation

This unit is a final year unit designed for students who require additional experience of taxation issues. The objective of the unit is to acquaint students with the areas of taxation of practical utility by concentrating on the taxation implications of various taxable entities, in particular, companies, unincorporated entities, trusts, superannuation funds and primary producers. Students will be expected to develop a research-oriented problem-solving approach to the unit which includes the following specific topics:
- issues of assessable income and allowable deductions
- unincorporated entities
- S177 A and tax avoidance
- trusts, beneficiaries and children's income
- superannuation funds
- primary producers
- future trends and current developments in taxation

References
CCH Australia Australian Federal Tax Reporter. Vols 1-6 CCH (Aust) Ltd
CCH Australia Australian Tax Cases CCH (Aust) Ltd
Richardson, R.J. The Taxation of Corporations and their Shareholders, 4th edn, CCH (Aust) Ltd, 1983

BS422  Commercial Programming C
Prerequisite, BS129 System Software A

This unit provides an introduction to relevant aspects of computer hardware and an introduction to programming in assembly language. These topics are included:

Introduction to assembly language
What is assembly language, why is it used? Introduction to INTEL 8088 assembler.

Assembler programming
Structured programming in assembly language.
Debugging techniques.
Substantial programming assignments will be undertaken, using assembler language.

Ergonomics and human factors engineering
An introduction to the design of software that is easy to use and understand from the user's viewpoint.
Discussion of the relevance of ergonomically-designed equipment and what to look for in choosing equipment such as VDU's, etc.

Terminal control
An introduction to the techniques of controlling terminals, such as setting up data entry forms, under program control.

Computer graphics
An introduction of scientific and business computer-generated graphics.
Graphics packages
Emerging standards for graphics software and equipment interfaces.
Graduate Diploma subjects

**BS457  Introduction to Financial Management**

Prerequisites, nil

A first year unit in the graduate diploma in business administration. The general objective is to educate candidates to become informed and intelligent users of accounting information. The course is particularly concerned with how accounting information can help the firm achieve all its goals. One role of accounting is in the measurement of performance, and it is in this area that the strengths and limitations of accounting information is discussed.

No prior knowledge of accounting is assumed

Applicants who have previously studied accounting at a tertiary level or are working as accountants are advised to enrol for one of the subjects from the graduate diploma in accounting. Applicants who have studied accounting at sub-tertiary level or who finished their courses some time ago are enrolled in this subject.

Topics include:

- the objectives of business organisations and a comparison with the objectives of an accounting system;
- accounting reports for performance evaluation and the assumptions that are implicit in their compilation;
- costs for decision-making and specific techniques such as cost/volume/profit analysis and discounted cash flow analysis;
- divisional performance evaluation and transfer pricing;
- budgeting and profit analysis

**References**

Caplan, E.H. Management Accounting and Behavioural Science Reading, Mass., Addison-Wesley series in Accounting, 1971


Ma, R., and Mathews, R. The Accounting Framework. 1st edn, Melb., Cheshire, 1979

**BS461  Economics**

No prior knowledge of economics is assumed. Applicants who have majored in economics at a tertiary level are advised to enrol for another post-diploma subject. Applicants who have studied economics at secondary level or who finished their course some time ago are enrolled in this subject.

Consideration is given to the factors that determine the general level of economic activity and those economic concepts and methods of analysis that bear directly on the management of a firm.

The topics to be covered are drawn from: markets, resource allocation and efficiency, demand, production and costs, pricing and profit, industry economics including public policy aspects, aggregate demand and supply analysis, money and economic activity, employment and unemployment, inflation, monetary, fiscal, balance of payments, and price-silicone policies.

**References**

Davies, J. and Hughes, S. Managerial Economics. Plymouth, McDonald and Evans, 1979


A detailed reading guide will be issued at the start of the semester.

**BS463  Current Issues in Economics**

Prerequisite, approved tertiary studies in economics

In this unit, important contemporary issues in economics are examined and analysed, with particular emphasis on economic policy implications.

Particular topics covered are determined by the contemporary situation but usually are selected from the following areas: fluctuations in economic activity (unemployment and inflation); policies designed to offset undesirable fluctuations in economic activity; industrial relations; industry policies (inter-sector relationships, protection, structural change); balance of payments problems and policies (including exchange rate policies); current social economic issues.

**References**

Because of the contemporary nature of this course, details of references are provided at the first class. Students are expected to consult newspapers, current journals, and selected government reports.

**BS464  Australian Industrial Relations**

This unit provides a study of the Australian industrial relations system with some comparative reference to the systems of other countries. Topics to be studied include:

- nature and meaning of industrial relations and an industrial relations system;
- nature, sources and manifestations of industrial conflict. Pattern of strike activity in Australia;
- parties: trade unions, employer associations and industrial tribunals; rule-making processes: arbitration, collective bargaining, worker participation schemes.

**References**


BS552 Financial Structures and Policy
Prerequisite, a pass or preclusion from BS457
Introduction to Financial Management

The general objective is to develop an understanding of financial theory so that the student can evaluate the firm’s investment, financing and dividend decisions in keeping with an objective of maximising shareholder wealth; together with providing students with the means of applying analytical techniques to solve a wide variety of problems involving financial decisions.

In particular the topic coverage includes performance evaluation, working capital management, capital structure and leverage, fixed asset acquisition, dividend policy, valuation of the firm and business combinations.

Textbook

References

BS571 Quantitative Methods in Finance

The objective in this unit is to develop in students the ability to recognise the potential for the use of computing facilities, as well as the ability to apply a range of quantitative techniques, to the solution of problems in financial management.

Emphasis is on the development of practical approaches to problem solving. No new theoretical material is introduced; the approach is to draw on existing problems and concepts raised earlier in the course and consider the extent to which quantitative and other computer-based techniques may be used in problem solution.

Course outline
Throughout each of the areas below consideration is given to the nature of the procedures, its common applications, and means of evaluation and selection of appropriate packages.

Aids for financial calculation
An examination of methods of performing common calculations in finance, e.g. IRR, N.P.V., trend analysis;
consideration is given to desk-top calculators, computers and packages.

Optimising procedures
Linear, integer and dynamic programming and their application to investment analysis including project selection, portfolio management and financing decisions;
consideration of means of achieving multiple objectives and goal programming including applications where goals are non-financial (e.g. social).

Spread-sheet financial modelling
Use of packages such as MAPS, FLARES II, FORESIGHT etc. as financial planning tools.

Risk and uncertainty
Extension of the above to cope with conditions of uncertainty including: sensitivity analysis;
use of spread sheet packages such as IFPS which utilise monte-carlo procedures to analyse risk conditions.

Nature and role of simulation in planning under conditions of uncertainty.

BS572 Systems Analysis and Design

A one semester subject in the Graduate Diploma Management Systems.

The subject is intended to develop a formal awareness of the process of analysing and developing systems.

The tools, techniques and methodologies for both analysing and designing an information system are covered to assist students in:
- further understanding the system development process
- acquiring the technical skills necessary to develop EDP-based information systems
- maintain and develop the people skills necessary to successfully implement systems
- evaluate the effectiveness of computerised information systems.

Whilst following a structure loosely based on the Systems Life Cycle to show how computer systems are developed, the human factor, so vital to successful systems is emphasised throughout.

Course Structure
Communication skills for systems development including fact gathering, presentation both verbal and written, systems documentation; input, output and file design; evaluation of hardware and software alternatives; systems control.

References
Kroenke, D. Database Processing, 2nd edn Chicago SPA, 1983

References
In addition to packages and the related manuals, journals and articles and texts are used as reference material. While the unit is not planned to be developed around specific texts, reference is made to the following:
Deam, R.J., Leather, J. and Bennett, J.W. Firm: Computer Model for Financial Planning, Lond., Institute of Chartered Accountants in England and Wales, 1975
Weingartner, H.M. Mathematical Programming and the Analysis of Capital Budgeting Problems. Chicago, Markham, 1967
BS581 Administration of Organisational Systems

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 first year unit in the graduate diploma courses in business administration, and management systems.

This unit constitutes an examination of organisational problems in the implementation of corporate strategy with particular emphasis on the relationship between strategy, structure, process and people.

The learning experience depends largely on the involvement and experience of the students, who bring knowledge and skill to the task.

The 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 problems in order to permit impartial analysis of organisational issues.

Experience is also gained in co-operative group preparation of material and presentation to the class.

Theory is applied to real situations through assignments requiring the Investigation of an organisation to which the student has access.

The value of theory as a means of expanding the range of a manager's decisions and actions is the basis of this course.

Framework

The main topics include:

- the organisation as a system.
- analysis of organisational environments.
- analysis of organisational goals and values.
- influence of technology.
- structural types and options.
- components of the psychosocial system.
- managerial roles and management style.
- design of rewards, restraints and controls.
- managing in the total system.

Textbooks

Jelinek, M., Litterer, J.D., Miles, R.E. Organisations by Design: Theory and Practice. BPI, Phano, Texas, 1981


References


Faculty of Business

BS582 Administration of Human Resources

Prerequisite: BS581 Administration of Organisational Systems

A unit in the graduate diploma course in business administration

Structure

The contribution of the behavioural sciences in solving the 'people' problems of management are studied so that the student will be better able to interpret psycho-social aspects of organisations, and be equipped for the successful management of people;

the student is introduced to current ideas of organisation theorists concerning communication, decision-making behaviour and organisation development;

the student is able to use these concepts to manage people;

the development of skills in communication, assertiveness and self-knowledge are subsidiary aims.

After the course, the candidates will have developed increased awareness of human organisational problems and of the impact their personal behaviour has on others.

Class sessions may draw upon lecture-discussions, group experiential exercises, case-studies, tests, student presentations and films.

These are complemented by extensive private reading and practical assignments out of class.

Topics include interpersonal communications, motivation, perception, leadership, teamwork, intra- and intergroup processes, conflict management, organisation development. Seminars during the semester are an integral part of the course.

Textbooks

Kelly, J., Organisational Behaviour, 3rd edn, Homewood, Ill., Irwin, 1980

BS583 Marketing Administration

Prerequisite: nil

An elective unit in the graduate diploma courses in accounting and management systems. Marketing Administration 1 deals with the fundamentals of business planning with particular emphasis on the market-place. The unit has been designed to provide candidates with an opportunity to relate their special skills to business situations.

Objectives

To give students a broad understanding of the marketing environment;

an awareness of the total business function in particular with respect to planning and decision making;

To achieve the above objectives, emphasis is on case-study analysis and other practical assignments.

Structure

Marketing Administration 1 is an introduction 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 is 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

BS584  Marketing Administration 2
Prerequisite, BS583 Marketing Administration 1

An elective unit in the graduate diploma courses in accounting and management systems. This unit builds upon the knowledge students have gained from Marketing Administration 1 especially in respect to the marketing planning process and the elements of the marketing mix. The objective in this unit is to:
- Introduce the student to the fundamentals of marketing research;
- Identify the value of additional information and how this information can be used;
- Introduce the student to end-use analysis and the various approaches to forecasting.

Instruction
Class sessions consist 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

BS585  Secretarial Practice and Procedure
This unit is intended to equip potential company secretaries for their future careers.

Topics covered include:
- Meetings and conferences, duties of chairman, organisation, standing orders, terms and expressions, etc.
- Board meetings: preparation, agenda and minutes, quorum, voting rights, powers of members’ motions;
- Documentation, including annual return and registers. Various ways of raising finance, Winding-up procedures;
- The Board and the Stock Market. Functions and procedures, listing requirements and terminology, voluntary and statutory controls, etc.

Textbooks
Chappenden, W.J. Joske’s Law and Procedure at Meetings in Australia. 7th edn., Law Book Co., 1981

BS586  Personnel and General Administration

A unit in the graduate diploma course in business — accounting.

Four sessions are spent on industrial law. The remaining sessions cover the topics of personnel practices, the personnel function and some related aspects of general administration. These sessions consider the nature of good personnel practice and the scope of the personnel function. The role of the personnel department in organisations, both now, historically and in the future. The relationship between the functions of personnel management and the personnel function of management. The alternatives available for the proper conduct of the personnel function in small companies without a personnel manager.

Particular attention is paid to: job satisfaction and morale; manpower planning; employee benefits and services; recruitment, selection and induction; training; performance appraisal; salary and wage administration; management development; organisation development and human resource development and the ways these various aspects can be related into a comprehensive integrated system of personnel management.

Textbooks

References
Pigors, P. and Myers, C.A. Personnel Administration: A Point of View and a Method. 7th edn., Tokyo, McGraw-Hill, 1973

BS587  Business Policy

Prerequisites. Because of the nature of this unit, business policy is given, preferably in the final semester of the course. Candidates must have completed all of group A units and preferably two of the group B units before commencing this one.

Course
To integrate the philosophies discussed in all other units. Students are 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
Introduction. Business policy as a field of study;
the managing director’s job. As organisation leader, personal leader, architect of corporate purpose;
determining corporate strategy. The concept of corporate strategy. The organisation and its environment. The company and its strategies. The company and its societal responsibilities;

References
Texts include:
Steiner, G. Strategic Planning: What Every Manager Must Know. N.Y., The Free Press, 1979
BS588 Administrative Policy
Prerequisite, nil
This unit is taken in the course for the graduate diplomas in accounting and management systems.

The course provides students with an understanding of the management problems involved in developing strategic policies for organisations in both the public and private sector.

The student is given a practical understanding of how the strategic planning process works, how corporate objectives are developed and how these are translated into strategic plans.

Emphasis is shared between theoretical considerations, the practical problem, of case studies and discussions of prepared readings to help students learn how to employ strategy in selecting appropriate administrative policies and in securing their effective implementations.

Students are expected to participate actively during the semester and are required to present individual and group presentations.

References
Steiner, A. Strategic Planning. N.Y., The Free Press, 1979

BS589 Management, Organisation and People
This unit is taken in the course for the graduate diplomas in accounting and management systems.

The course provides a macro-view of organisations as open systems examining the interfaces and interactions of environment, tasks, technology, structure and people. It then focuses on the psycho-social subsystem, studying individual, interpersonal, group and intergroup processes within the organisational context. The role of the manager in each of these contexts is a recurring and integrating theme. In particular, wherever possible learning is applied to the accounting and financial environments immediately relevant to students. They have the opportunity to contribute by sharing their current and past work experience as a source of material to enrich class activities. Experiential learning methods as well as lecture-discussion and case methods are employed.

Considerable supplementary reading is required outside class time.

Assessment is progressive and may include essays, class presentations and/or tests.

Topics are chosen from: the nature of the organisation; the organisation as an open system; interactions between subsystems and their implications for manager; organisation climate and effectiveness; organisation change and development; inter-group competition and co-operation; managing conflict; group dynamics and team building; group decision-making; synergy vs. grouchiness; interpersonal processes and communication; the individual; leadership; motivation, behaviour change and modification; perception; learning; value; personality and individual differences; models of man — behavioural science views.

Students are continually encouraged to analyse newly-acquired knowledge to facilitate transfer to their own work situation.

References

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 quantitative techniques via practical applications. The use of package programs on computer terminals forms an important tool, which is exploited throughout the course.

The topics included are: linear programming, forecasting, inventory management, basic statistics, spreadsheet analysis and an introduction to hypothesis testing and sampling.

Textbooks
None specified. During the course, references and other material useful to students are indicated when appropriate.

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 is shared between theoretical consideration and practical problems. Throughout the course students are expected to participate actively through the use of case studies and the presentation of group and individual assignments.

Course framework
Consumer behaviour — consumption and expenditure patterns, the buying process; market segmentation. Productservice 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.

References
De Bono, E. Marketing Opportunities. Lond., Penguin, 1980

BS596 Marketing Management 2
Prerequisites, BS583 Marketing Management 1, BS461 Economics
A second year subject in the Graduate Diploma in Business Administration.

This unit builds upon the knowledge that students have gained from Marketing Management 1, especially in respect to the marketing concept, the marketing planning process and the elements of the marketing mix.

The aim of this unit is to:
- introduce the student to the fundamentals of marketing research;
- identify the value of additional information and how this information can be used;
- examine alternative approaches to new product introduction;
- introduce end-use analysis and the various approaches to forecasting;
- examine the alternative approaches to forecasting and marketing activities;
- involve the student in practical issues through the use of case studies, assignments and group presentations.
Method of instruction

Particular emphasis is placed upon the use of case studies to complement the lecture material. Students are expected to participate actively throughout the semester, and are required to present both individual as well as group assignments.

Course framework

The main topics include:
- The role of marketing within the objectives and constraints of corporate strategy;
- Forecasting — costs and benefits, demand determinants, predicting trends, simulation models;
- Marketing research — costs and benefits, marketing research strategy, evaluation of results;
- Test marketing — purpose of test marketing, the practical problems, applicability of Bayes theorem;
- Organising for marketing — implications of the environment, relationships with total organisation, basic organisational types

References


BS651 Current Issues in Accounting

Current Issues in Accounting is the only compulsory unit in the graduate diploma in accounting. The unit represents an update on a selection of contemporary issues facing the accounting profession. Generally, issues are considered by evaluating exposure drafts and recently promulgated standards, and debating suggested reforms and theories. Because of the nature of the unit, issues considered vary from year to year but the following list indicates topics recently covered:

Accounting methodology
- Regulation in accounting
- Accounting for foreign transactions
- Aspects of inflation accounting
- Predicting corporate failure
- Cash, funds flow statements
- Leasing and the accountant
- Accounting for leases
- Financial forecast reporting
- Joint ventures
- Off balance-sheet financing
- Aspects of public sector accounting

References

A selection of articles, accounting body pronouncements etc. as detailed each session by the lecturer.

Assessment

By a combination of individual and group assignments.

BS652 Profit Planning and Control

Prerequisite: nil

A unit in group A of the graduate diploma in 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 operations; controllership functions and responsibilities — control of assets, liabilities, income and expenses; control techniques.

References

Lewis, R.F. Planning and Control for Profit. 2nd edn, London, Heinemann, 1974

BS654 Contemporary Auditing

Prerequisite: BS304 Auditing or an equivalent unit

The objective in this unit is to evaluate in a series of seminars some of the important contemporary issues facing the profession. Some of these issues might include: behavioural aspects in auditing, recent developments in the law of negligence, the development of audit standards, forecasts in published accounts — the role of the auditor, government regulation, the role and responsibilities of the profession and audit committees.

References

Detailed reading guides will be issued during the semester.

BS655 Corporate Taxation

This unit involves a study of those aspects of taxation law relevant to corporations and their shareholders. The course studies income and deductions for the ongoing company; tax consequences of liquidations, mergers and reorganisations; sales tax; proposals for reform of corporate taxation; superannuation and employee benefits.

References

Australian Income Tax Assessment Act 1936 as amended
Australian Federal Tax Reporter, North Ryde, N.S.W., CCH Aust. Ltd., 1982
BS656 Taxation Planning

This unit, the objectives of tax planning are studied together with selected techniques to achieve these objectives. An analysis is also undertaken of the effects of marital breakdown on tax planning and the effects of tax planning on government revenue and community wealth distribution.

Topics include: a study of trusts, alienation of income, service entities, superannuation funds, contesting an income tax assessment, preventing the avoidance of income tax.

References

Australian Income Tax Assessment Act 1936 as amended
(Commonwealth)
Australian Federal Tax Reporter, North Ryde, N.S.W., CCH Aust. Ltd., 1982
BS657 Cases and Materials on Taxation. 2nd edn, Syd., Butterworths, 1983
Contesting an Income Tax Assessment, 3rd edn, North Ryde, N.S.W., CCH Aust. Ltd., 1981
Marks, B. Alienation of Income. 2nd edn, North Ryde, N.S.W., CCH Aust. Ltd., 1982
BS657 Introductory Computer Accounting

Students having prior EDP experience will be precluded from this unit.

This unit introduces postgraduate accounting students to the concepts, benefits and control requirements of computer based accounting information systems and familiarizes students with the use of a computer to satisfy accounting information needs. This one semester course will cover, in varying degrees of detail, the following broad areas:

- Computer features
- Computer equipment
- Computer data structures
- Computer uses, costs and benefits
- Computer programming in Basic
- Computer accounting packages and systems

References

References shown below are a representative sample of some of the texts available.


Cushing, Barry E. Accounting Information Systems and Business Organizations. Massachusetts, Addison-Wesley, 3rd edn, 1982


Van Lint, W., Miller, A. and Belcher, B. Introduction to Computer Based Accounting Syd., Prentice-Hall, 1982


BS658 Quantitative Approaches to Financial Policy

BS652 Profit Planning and Control normally should have been completed prior to attempting this unit.

The aim of this unit is to enable students to appreciate, and gain practice in the application of, a range of computer based analysis methods as components of a decision support system.

Throughout the unit, extensive use will be made of computer packages and particular emphasis will be given to current developments in computing that relate to areas of management accounting.

Topic coverage includes:

- Decision support systems, micro-computers and current software developments, financial modelling using languages (e.g., FORESIGHT) and spreadsheets (e.g., LOTUS 1-2-3), graphics, public data bases, approaches to risk analysis, optimization and simulation methods, evaluation and selection of software.

References

Current journal articles provide the major reference material

Detailed references are issued by lecturers.

BS659 Investment Analysis

BS651 Current Issues in Accounting usually should have been completed prior to attempting this unit.

The course comprises four parts; accounting information and investment analysis, investment alternatives, capital markets, portfolio theory and practice.

Course content includes a review of types of, and markets for, securities; a 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 developed and portfolio performance evaluated, together with consideration of current Australian practice.

Preliminary reading


References


Markowitz, H.M. Portfolio Selection. New Haven, Yale UP., 1971


Textbook


BS662 Financial Institutions and Markets

Objectives

To provide students with:

(i) an understanding of the structure, functioning and development of Australian financial institutions and markets and;

(ii) an appreciation of the nature and workings of the Australian monetary system and its management.

Course outline

Liquidity and Money
- nature, role and evolution of money
- definitions of money
- supply of money and liquidity
- endogeneity of the money supply and liquidity

Financial markets and institutions
- nature and role of financial intermediation
- flow of funds analysis
- growth and description of Australian financial intermediaries

Criteria for the evaluation of finance markets
- efficiency criteria

Recent developments
- Martin and Campbell recommendations
- market examples

The Effects of Liquidity and money on economic activity
- simple theory of income determination
- demand for money and the determination of interest rates
- Keynesian and monetarist transmission mechanisms

Textbooks


Davis, J. and Leves, M. Monetary Policy in Australia. Melb., Cheshire, 1980

References


Inquiry into the Australian Financial System (Campbell Committee). Reports as available.


A detailed reading guide is issued for each topic.
Objective
To introduce students to the structure and workings of international financial centres and markets and to provide a study of issues relating to international monetary theory and international financial management.

Course outline
The following list should be taken as a guide only.
- Elementary macroeconomic model
- Aggregate demand and supply
- Monetary influences on economic activity
- The demand for and supply of money
- Transmission of liquidity changes to economic activity
- The international financial system
  - Description of events since 1945
  - Recent reform of the system
- Review of international financial centres and markets
  - Origins and development
  - Outlook for international money markets
- Exchange rates
  - Foreign exchange dealings and controls
  - Theories of exchange rate determination
- International trade finance
- Borrowing from overseas
  - Sources of overseas borrowings
  - Foreign currency exposure
- International managerial finance
  - Corporations management of assets and capital structures
- Sovereign lending

Textbooks

References
Inquiry into the Australian Financial System. (Campbell Committee).
Reports as available.
A detailed reading guide is issued for each topic.
Candidates usually take this unit in the last semester of the course of management information systems; the development of management information systems; technical considerations; social considerations.

BS676 Operations Management

Course objectives
After completing this unit, students will be able to:
- plan and control the use of data processing resources;
- select, justify and choose appropriate methods of acquiring data entry equipment, computer equipment and personnel;
- manage, within the operations environment, the introduction of new projects;
- appreciate the operations management role;

No formal prerequisites are specified. However, it is assumed that candidates have a prior knowledge of administrative theory and practice and of computer systems.

Course structure
The final selection of topics is made from the following depending on the students' interests and prior knowledge: the role of operations manager; resource scheduling; computer centre control; data entry; equipment selection; planning principles; behavioural issues.

BS677 Management Systems

Course objectives
This unit covers the theory of management information systems and their application for decision-making in organisations. The student should be able to:
- identify the decision requirements for the management of an organisation;
- analyse an information gathering and processing system intended to facilitate decision-making and long-range planning;
- measure the effectiveness of an information system;
- evaluate the social implications and technical feasibility of an information system.

Candidates usually take this unit in the last semester of the course.

Course structure
Introduction to management information systems; the development of management information systems; technical considerations; social considerations.

BS678 Systems Development Project

The objective of this project is to:
- provide the student with supervised and structured practical experience in the development of computer-based management systems;
- allow the student to demonstrate a creative faculty in the area of systems design;
- provide an integration of the student's understanding of data processing by encouraging the drawing together of various concepts and techniques developed during the course;
- provide the student with an opportunity to develop the ability to communicate through the presentation of written and oral project reports.

Candidates usually will have gained above average results in all first year units required for the course, prior to commencing this project.

Course structure
Each student undertakes an individual project which is based on an actual commercial system, usually in the student's own work environment. The student initially submits a written proposal giving preliminary details of the project. If the proposal is approved in principle a supervisor is appointed who contacts the organisation concerned to ensure its support for the project and to determine that it is both meaningful and feasible.

The types of project likely to be approved vary substantially in content. They can be drawn from any area in the course which would enable the student to apply knowledge gained under the guidance of a supervisor.

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BS679  Computer Security and Control
Prerequisite. BS304 Auditing and BS121 Introduction to Data Processing or suitable equivalents
The increasing dependence of all types of organisations on computer-based systems has brought about a need for systems reliability. This unit is intended to assist users of computer systems to ensure that their results are obtained efficiently, with minimum risk and that any potential risk may be identified.
Topics covered include:
- data processing principles and methodology;
- file storage — concepts, methods and controls;
- processing controls for batch and on-line systems;
- controls associated with centralised, decentralised, distributed and network systems;
- risk identification analysis and control;
- auditing of the systems development;
- disaster planning and recovery;
- the roles of the internal and external auditor.
The teaching method is by lectures, seminars and practical case work. Group and individual assignments complement the in-class sessions.

References
Extensive journal references including manufacturers’ publications.
Parker, D. Crime by Computer. N.Y., C. Scribners and Sons, 1976
Edwards, J.D. Accounting and Management Controls for Computer Systems, Syd., CCH, 1980

BS682  Managing Conflict and Change in Organisations
A second-year subject in the graduate diploma course in organisation behaviour.
This subject introduces students to the current theory and practice associated with managing change and conflict in organisations. It looks at the techniques of organisational development (OD) and the role of the change agent in a largely experiential way. Following this it examines the applicability of this body of OD knowledge to the role of the practising manager in a day-to-day setting. The similarities and differences between these roles, manager and change agent, are identified with the object of developing a new synergy, a set of identified approaches for bringing about change and managing conflict in organisations.

Industrial conflict is an important topic integrated with group dynamics theory.

Textbooks

BS683  Management and Leadership in Organisations
Four hours per week for one semester
A second year subject in the graduate diploma course in organisation behaviour.
This subject integrates and applies material from the previous subjects in the course and introduces material from the managerial sub-system model.

Key topics are:
- the manager’s role; techniques of managerial behavioural research, including a minor project; leadership theory; development of leadership skills; managerial behaviour and group dynamics; decision-making and problem solving; organisational climate and effective management; future and changing roles of management.

Textbook

Computer Manuals to be specified.

BS681  The Organisation
A first-year subject in the graduate diploma course in organisation behaviour.
The subject is concerned with:
- a comparison of ways of describing and analysing organisations;
- the identification of organisational problems and the consideration of solutions;
- the exploration of the variables in a systems approach to organisational effectiveness.

References

BS684  Legal Aspects of Finance
Prerequisites, no prerequisite studies in law are required. Students who have not studied law previously are expected to be familiar with the basic legal institutions and reasoning processes and with basic principles in contract and company law, prior to embarking upon a study of this unit. Materials are provided and texts referred to for this purpose.

Objective
This unit is intended to promote an in-depth awareness of those areas of law which have an impact upon the corporate finance function. Where appropriate, attention is given to the need for law reform.

Course outline
Legal nature of finance
Consumer credit transactions; corporate financing; negotiable instruments; factoring and leasing; stamp duty and security practices are canvassed where relevant.

Legal aspects of financial markets
The legal nature of the stock exchange and the legal basis of its controls on trading and fund-raising; the nature and operation of the short-term money market and the Sydney Futures Exchange; statutory controls over misfeasance in finance markets, including an examination of wider jurisdiction and administrative/ regulatory issues consequent upon the formation of the National Companies and Securities Commission.
Taxation and finance
An analysis of the present basis for taxing financial transactions and financial corporations;
a review of proposed taxation reforms regarding the taxation of financial transactions and corporations.

References
Taxation Review Committee: Full Report, 31/1/75 AGPS, Canberra, 1975
Taxation Aspects of the Campbell Committee, CCH Aust Ltd, Sydney, 1982

Detailed references to journal articles will be given in classes.

AT693 Psychology and Interpersonal Skills
This subject is designed for students taking the graduate diploma course in organisation behaviour.
The intention is:
to introduce psychological concepts and techniques relevant to personal and inter-personal behaviour;
to help participants understand their own perceptions, values and attitudes, and to gain insight into how these may influence behaviour;
to increase options for behaviour (mainly communications) through learning appropriate skills. Methods used are largely co-operative and practical rather than didactic and theoretical. Active group participation is therefore necessary.
Assessment is on a pass/fail basis appropriate to the learning methods used. Students are required to keep a day-to-day 'journal' which will include application of skills etc.
Syndicates will present a seminar on agreed topics: each student will then submit a paper on their individual section of the presentation. There is no written examination.

References
Reading and other resources are given where appropriate.

Faculty of Business

BS752 Corporate Financial Management 1

Objectives
To develop a framework of corporate strategy including:
an understanding of how corporate strategy is formulated and the role of the corporate finance function in strategy development;
an understanding of the effects of corporate strategy on the firm's investment and financing decisions.

To examine the investment and financing decisions of the firm as they relate to the overall corporate strategy. Emphasis is on the trade-off between risk and return that is present in these decisions.

References
Myers, S. Modern Developments in Financial Management. N.Y., Praeger, 1976

BS753 Corporate Financial Management 2

Prerequisite: students enrolled in this unit are expected to have passed BS752 Corporate Financial Management 1.

Objectives
This unit is designed to develop an understanding of the way in which financial information is used to evaluate a company and the way this is used to evaluate and determine the firm's corporate financing and investment strategy.

Course outline
— evaluation of the firm's financial position:
  — External evaluation
  — Internal evaluation
— evaluation of the firm's financial position:— financial statement analysis — an overview plus review of public financial statements of the firm;
cross-sectional analysis of accounting numbers;
some problems in evaluation, viz. variations in accounting methods, effects of inflation, impact of exchange rate fluctuations, leasing.
  — Analysis of Public Financial Statements
  — Analysis of Internal Financial Controls
— prediction of financial distress and corporate failure:
— analysis of take-overs and mergers;
determination and evaluation of the firm's financing and investment strategies, e.g. financial mobility, leasing, project financing, divestments.

References
Sterling, R.R. ed. Research Methodology in Accounting. Lawrence, Kansas Scholars Book Co., 1972
BS754  Investment Management

Prerequisites, no formal prerequisites are specified. Candidates usually would have completed the first year of the course.

Objectives

To acquaint the student with the various securities and funds available for corporate investment;

to introduce the use of financial and other information in the evaluation of alternative investment media;

to consider the selection of an appropriate investment portfolio and the management of that portfolio.

References

Calder, S., Lindsay, P. and Koch, D. Futures Stock. Melbourne, Horvitz Grahame, 1980
Elton, E.J. and Gruber, M.J. Portfolio Theory, 25 Years After. Amsterdam, New Holland, 1975


BS755  Research Project

Prerequisites, usually students would have completed the first four units of the course before commencing the research project.

Objective

To enable students to apply the concepts and techniques studied during the course to a substantial practical problem in corporate finance.

Specifically, students are required to show they have the ability to define a corporate finance problem clearly, select and apply appropriate methodology to solve it and present a clear and concise written report on the work undertaken.

Course program

This unit is conducted over two semesters. While the work is carried out by students it is done to a set program under the supervision of staff.

Seminars are run at the beginning of the semester. They cover the following topics:

- the objectives of the research project;
- the selection of an appropriate project;
- the selection of suitable methodology for different types of projects;
- organisation and standard of report expected.

Written proposals for projects are submitted by March 31. These must include sufficient details for staff to assess the usefulness and feasibility of a project.

Proposals are then approved and supervisors appointed as soon as possible after submission, but in any case not later than April 30.

Students are required to report on at least a monthly basis to supervisors and to submit drafts of all work undertaken prior to the presentation of the final written report which must be presented for assessment by October 31.

References

No specific references are required for a unit of this nature. General references on report writing will be used, such as Anderson, J. et al. Thesis and Assignment Writing. Sydney, Wiley, 1970

References

Weston, J. and Brigham, E. Managerial Finance. 6th edn, Homestead, Ill., Dryden Press, 1978

BS754  Investment Management

Prerequisites, no formal prerequisites are specified. Candidates usually would have completed the first year of the course.

Objectives

To acquaint the student with the various securities and funds available for corporate investment;

to introduce the use of financial and other information in the evaluation of alternative investment media;

to consider the selection of an appropriate investment portfolio and the management of that portfolio.

References

Calder, S., Lindsay, P. and Koch, D. Futures Stock. Melbourne, Horvitz Grahame, 1980
Elton, E.J. and Gruber, M.J. Portfolio Theory, 25 Years After. Amsterdam, New Holland, 1975

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Faculty of Engineering

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D.J. Riddiford, AMT(Chem.Eng.)/(MTI)
A.L.V. Sonnenberg, B.Sc.(Melb.), TTC(TTC)

Principal Tutor
H. Knoll, Dip.Prod.E.(RMIT), CEng, M.I.ProdE, MSAE, TTC(Haw.)
Courses offered

The Faculty of Engineering includes the departments of Civil Engineering, Electrical and Electronic Engineering, Manufacturing Engineering, and Mechanical Engineering. Professional courses offered by the Faculty within these departments are as follows:

**Department of Civil Engineering**

Degree of Master of Engineering
*Degree of Bachelor of Engineering (Civil)
Graduate Diploma in Engineering Construction
*Diploma of Building Surveying

**Department of Electrical and Electronic Engineering**

Degree of Master of Engineering
*Degree of Bachelor of Engineering (Electrical and Electronic)
Graduate Diploma in Digital Electronics
Graduate Diploma in Telecommunication Systems Management

**Department of Manufacturing Engineering**

Degree of Master of Engineering
*Degree of Bachelor of Engineering (Manufacturing)
Graduate Diploma in Biochemical Engineering
Graduate Diploma in Chemical Engineering
Graduate Diploma in Industrial Management
Graduate Diploma in Manufacturing Technology

**Department of Mechanical Engineering**

Degree of Master of Engineering
*Degree of Bachelor of Engineering (Mechanical)
Graduate Diploma in Air-conditioning
Graduate Diploma in Maintenance Engineering
For details of these courses see sections for the above departments
*Cooperative/sandwich courses with periods of industrial experience.

**Feeder courses**

The Faculty of Engineering has an arrangement with the Tasmanian College of Advanced Education which enables students to undertake part of a Swinburne engineering degree course at Launceston. The equivalent of the first two years of the courses in Manufacturing and Mechanical Engineering and the first year of the Civil and the Electrical and Electronic courses are currently available at Launceston.

Students who complete these stages successfully are able to transfer to Swinburne with full credit. There is provision for students who commence their engineering studies at Launceston to undertake the two six-month industrial experience components of their course in Tasmania.

**Review of degree courses**

During 1984 the degree courses in civil, electrical and electronic, manufacturing and mechanical engineering were reviewed. As an outcome of these reviews by course advisory committees and academic committees, some minor changes have been made to each course. These changes result from a re-arrangement of subject material rather than major changes to content.

The course structure and subject details of each course, referred to as the 1985 syllabus, are given in other sections of the Handbook.
Cooperative Education in the Faculty of Engineering

General

A feature of undergraduate courses offered in the Faculty of Engineering is their cooperative education format. These courses include components of paid industrial experience which form an integral part of the education program.

Cooperative program

Undergraduate courses offered as cooperative education programs are the degree courses in civil, electrical and electronic, manufacturing and mechanical engineering and the diploma course in building surveying. Students are required to complete twelve months (two semesters) of approved industrial experience before becoming eligible for the award of an engineering degree. Six months (one semester) of approved industrial experience is required for the award of a building surveying diploma.

Benefits

Students who undertake a cooperative education course derive many benefits from their involvement in the program. Some of these are:

- academic performance improves following industrial experience,
- students earn while they learn (recognised rates are paid during periods of industrial experience),
- students work with professionals on real industrial problems,
- students are able to sample particular areas of the chosen branch of their profession before graduation,
- industrial experience gained during the course is an advantage when graduates are seeking their first jobs.

Placement of students

The Faculty of Engineering is committed to the task of finding industrial experience jobs for students in cooperative courses. Students may take initiatives to secure their own job placements but before contacting a prospective employer a student must contact the placement officer of his/her department to determine whether the faculty has made an approach to the employer concerned.

Where all reasonable effort to find a job has been made by both faculty and students, but no placement has been found, the student may apply to his/her head of department to reschedule the industrial experience components of the course.

Students without permanent residence status should be aware that while the faculty will assist them in finding an industrial placement, it is frequently impossible to find local employment for students in this category. These students are advised to seek placement in their home country and the faculty will provide information on academic institutions who are able to provide supervision.

Supervision

While in industrial experience students are supervised by their employers and a member of the faculty’s academic staff who acts as each student's industrial tutor.

Cooperative employers of Swinburne engineering students

The following are, or have been recently, associated with courses in civil, electrical and electronic, manufacturing, and mechanical engineering.

APM Ltd
AVH Electrical Industries Pty Ltd
Advance Industries Ltd
Aeronautical Research Laboratories
Ajax Pumps
Alcoa of Australia Ltd
Alex Folley Pty Ltd
A.W. Allen Ltd
Anthony Bearings Pty Ltd
Arcan Engineering Pty Ltd
Austral Standard Cables Pty Ltd
Australian General Electric (Appliances) Ltd
Australian Glass Manufacturers Co
Australian Iron & Steel Pty Ltd
Australian Portland Cement Ltd
Autonomous Energy Systems
Bellco Controls Pty Ltd
B.X. Plastics (Aust) Pty Ltd
Brownbuilt Ltd
CFM Aluminium Fabricators
CIG Ltd
CSIR
Carlton & United Breweries Ltd
City of Box Hill
Brighton
Camberwell
Doncaster & Templestowe
Hawthorn
Heidelberg
Knox
Malvern
Nunawading
Ringwood
St Kilda
Waverley
Clark Rubber
C.J. Coles
Comfort Piling and Engineering Edn Berhad
Commonwealth Aircraft Corporation
Companion Pty Ltd
Consolidated Electronic Industries Pty Ltd
Containers Ltd
Country Roads Board
Cyclone KM Products Pty Ltd
Dalsonware Pty Ltd
Dandenong Valley Authority
W.A. Deutscher Pty Ltd
Department of Construction
Department of Defence
Department of Industry and Commerce
Department of Transport
Department of Works
Dorf Industries Pty Ltd
Dunlop Australia Ltd
Duranol Plastics
East Coast Earthmoving
E.Z. Industries Ltd
Ensign Dry Cleaners (Vic) Pty Ltd
Email Ltd
Englehard Industries Pty Ltd
L.M. Ericsson Pty Ltd
FES Industries
PE. Frye Pty Ltd
GBS Hard Metal Co
J. Gadsden Pty Ltd
Gardner & Naylor Pty Ltd
General Motors-Holden Pty Ltd
Government Aircraft Factory
Gutteridge Hawkins & Davey Pty Ltd
Holeproof Ltd
Housing Commission of Victoria
ICI Australia Ltd
lngersoll Rand (Aust) Ltd
Insulwool Products
International Harvester Co of Aust Pty Ltd
Irwell Pty Ltd
James Miller Holdings Ltd
John Connell & Assoc.
K & G Johnston Pty Ltd
Robert Jones Engineering Pty Ltd
Kempthorne Lighting Co
G. Kennon & Co Pty Ltd
Keogh Wood and Partners Pty Ltd
Kinnaird Hill DeKuhan & Young
Kraft Foods Ltd
Krew Trading Co
L & L Printed Art
David Linacre Pty Ltd
Malaysia International Consultants
McPhersons Ltd
— Machine Tool Division
— Engineering Research Department
McConnell Dowell Constructors Ltd
Mastersteel Pty Ltd
Melbourne and Metropolitan Board of Works
Melbourne and Metropolitan Tramways Board
Mica & Insulating Supplies Co Pty Ltd
Mobil Oil Aust Ltd
Moran Upholstery
Motorola Communications
Myton Radd Ltd
Neta Industries
Nissan Motor Co (Aust) Pty Ltd
Noel M. Heather and Co Pty Ltd
Nylex Corporation Ltd
Ogden Industries Pty Ltd
P.B.R. Industrial Co Pty Ltd
Phillip Morris Ltd
K.G. Pizzeys Pty Ltd
Plastip Industries
Port of Melbourne Authority
Premwire Metal Industries Pty Ltd
Public Works Department
Raywood Electronics
Reed Paper Products Ltd
Reinforced Plastics Pty Ltd
Repco Ltd and its subsidiaries
— Repco Engine Parts Pty Ltd
— Patons Brake Replacements Pty Ltd
— Repco Bearings Co Ltd
— Comcork Manufacturing Co
— Repco Lorimier
Rewa Plastics Pty Ltd
Reynolds Tanning Co Pty Ltd
Reynolds Ltd
Rheem Aust Ltd
Robert Bosch (Aust) Pty Ltd
Robert H. Grant Pty Ltd
Roca Industries Ltd
John Scroggie Pty Ltd
Scientific Electronics Pty Ltd
Scott & Furphy Engineers Pty Ltd
Selectronic Components
Shell Company of Australia Ltd
Shire of Eltham
Healesville
Siddons Industries Ltd
Silentbloc (Aust) Pty Ltd
Sperry New Holland
State Electricity Commission of Victoria
State Rivers and Water Supply Commission
Strand Electric (Aust) Pty Ltd
Sutton Tools Pty Ltd
Telecom Australia (Victoria Division)
The Stanley Works Pty Ltd
W C Stevens (Vic) Pty Ltd
Unbrako (Aust) Pty Ltd
VDO Instruments (Aust) Pty Ltd
Varian Techtron Pty Ltd
Vickers Ruwold Pty Ltd
Victorian Railways

Vulcan Australia Ltd
Willoot Breeden (Aust) Pty Ltd
Wilson Transformers
W.D. & H.O. Wills (Aust) Ltd
Zenford Pty Ltd
Engineering degree courses

Swinburne Institute of Technology

Elective Studies

Year 1: half year only

Postgraduate Courses

Year 1

Graduate Bachelor of Engineering

Mature Entry

Electrical Engineering

Mechanical Engineering

Civil Engineering

Electrical/Electronic Engineering

Industrial Engineering

Chemical Engineering

Software Engineering

Graduate Diploma

Master of Engineering

Graduate Diploma (by research and thesis)

Other Tertiary Qualifications

Key

Academic Semesters

Industrial Experience Semesters

Semester 1, Semester 2, Semester 3

Semester 4, Semester 5, Semester 6

Semester 7, Semester 8, Semester 9

Semester 10, Semester 11, Semester 12
Advice to prospective students

First year engineering degree

Secondary students considering a professional engineering course in civil, electrical and electronic, manufacturing or mechanical engineering, should bear in mind the need to undertake studies in mathematics and the physical sciences which will allow them to proceed to a year 12 course of study as prescribed in the entrance requirements.

A feature of Swinburne’s engineering degree courses is the common first year program which enables a student commencing a course to defer making a final decision on the branch of engineering to be undertaken until the end of first year.

The subjects comprising first year are intended to form a firm foundation on which studies in later years are built. Considerable emphasis is placed on the development of fundamental scientific principles and an introduction to engineering technology and technique.

Another feature of all degree courses is their four-and-a-half (nine semester) cooperative education format. The program consists of seven semesters of academic tuition in the institute plus two semesters of industrial experience. The course structure for engineering degree courses is shown in the sections pertaining to the various departments of the engineering faculty.

Second and later years — engineering degree

Students who have completed, or partly completed, an engineering course at another tertiary institution may apply for entry to an engineering degree course at Swinburne. Applications in this category are essentially considered on the basis of the course studied by the applicant and the results obtained. Enquiries should be directed to the head of the engineering department concerned.

The policy of the Engineering Faculty Board regarding admission with advanced standing is stated in the section entitled ‘Admission with advanced standing’.

Diploma of Building Surveying

Secondary students should note that there are no prerequisite subjects for entry to the diploma course in building surveying. However, a background in mathematics and the physical sciences is important for students planning to enter this course. Recommended year 12 subjects are physics or chemistry and a branch of mathematics.

Students who have completed a Certificate of Technology course in an appropriate area will be admitted with some exemptions, as appropriate.
Application procedure

In addition to the information given below applicants should refer to the section entitled, ‘Application procedure’, in the general section of the handbook.

Full-time

With the exception of applicants seeking mature-age entry, applications for entry to full-time first-year courses must be made through the Victorian Universities Admissions Committee, 40 Park Street, South Melbourne, 3025. The closing date for applications is approximately the end of October in the year of application.

Part-time

All engineering courses can be completed on a part-time basis. Application for admission to part-time study in engineering courses must be made directly to Swinburne and not to VUAC. Application forms are available from the Information Office, telephone 819 8444.

The closing date is usually the middle of January in the year of application.

Mature-age entry

Special provision is made for mature-age entry to engineering courses. The scheme is designed for applicants with less than the full entrance requirements but who have the ability to cope with their proposed course of study. This provision is not intended for students who have recently failed the year 12 examinations.

Applicants in this category are generally people in, or beyond, their early twenties who have had some years of work experience.

A mature-age applicant may be required to undertake a special entry test early in February and present for an interview. Mature-age applications should be made directly to Swinburne. Application forms are available from the Information Office, telephone 819 8444.

The closing date for applications is usually the middle of January in the year of application.

Defermnet

Applicants offered a place in first year for 1985 may apply for deferment until 1986. Applications for deferment should be made in writing and directed to the Registrar. Deferment will be virtually automatic for those who apply as soon as the offer of a place is made. Later applicants may be asked to give reasons for their request for deferment.

Applicants who are granted a deferment will be notified in writing by the Faculty Secretary.

Admission to second and later years

Applicants seeking a place in second or later years of an engineering course as either full-time or part-time students must apply directly to Swinburne. Application forms are available from the Information Office, telephone 819 8444.

The closing date for applications is usually the middle of January in the year of application.

Admission to graduate diploma courses

Graduate diploma courses in a range of specialist areas of importance to engineers are available as part-time evening classes. The usual entry requirements are completion of a degree or diploma in a field of engineering or applied science.

Applicants for these courses must apply directly to Swinburne. Application forms are available from the Information Office, telephone 819 8444.

The closing date for applications is usually the middle of January in the year of application.

Admission with advanced standing

A student who has successfully completed, or partly completed, an acceptable post-secondary course may be admitted with advanced standing to an engineering course at Swinburne. The policy of the Engineering Faculty Board with regard to admission with advanced standing is set out in the following regulations:

1 General

1.1 The Faculty Board believes that in general students who have completed satisfactorily, part of an engineering course at another tertiary institution in Victoria, or another comparable course, should receive credits for an equivalent part of the course for which they are enrolled at Swinburne.

1.2 In the consideration of applications for credit the following principles will be applied by the Board:

(a) A student should be brought on to a standard course as soon as possible after entry into the institute.

(b) Students should not undertake subjects in advance of the semester in which they will enter the standard course.

(c) Students who have passed a particular level of a similar course at a different institution may be admitted to the standard course at the next successive year's level, either with or without small amounts of additional course work being required.

(d) Consideration should be given to the intention of a series or group of subjects rather than the details of the content matter of each subject within such series or group.

(e) A credit may be granted on the basis of relevant industrial experience.

1.3 For all graduate diploma courses offered by the Faculty of Engineering, a student must complete at least sixty per cent of the prescribed total course time for that particular course at Swinburne.

2 Application

2.1 In applying this policy the Board will follow these guidelines:

(a) Except in extraordinary circumstances credits are only approved at the beginning of a course of study.

(b) Credits are to apply only to a specified course of study at the institute.

(c) A credit shall be valid for a particular course and syllabus and only for the duration of such course or syllabus.

(d) In order to qualify for an award in the Faculty of Engineering a student must complete as a minimum, an equivalent full-time year in the Faculty.

2.2 In order to request credit, students entering a course will be required to do as follows:

(a) Register their intention to seek admission with advanced standing at the time of first enrolment.

(b) Lodge supporting documentation with their department within six months of registering their intention.
Course requirements

Class time-tables
The syllabus for each of the engineering courses may be found in the separate sections pertaining to the various departments of the engineering faculty.

Provisional time-tables for all years of engineering courses will be displayed at enrolment. Students should note that these time-tables are provisional only and may be changed depending on staff and facilities available. Where it is necessary to change a time-table, details will be posted on the faculty or departmental notice-board, as appropriate.

Many subjects are offered as part-time evening classes. Enquiries regarding subjects available on a part-time basis should be directed to the head of the relevant department.

Practical work
Practical work forms a significant part of most subjects offered by the engineering faculty.

Students are expected to attend all practical work sessions (for example, laboratory work, drawing office and field work, excursions and site visits) and to complete all the practical work assignments set by the lecturers responsible for a particular subject. Assignments not submitted by the due dates may fail to count as practical work completed.

Students should approach their lecturers to find out the details of practical work requirements in each subject.

Electives
Engineering degree courses (1985 syllabus) include a number of elective areas of study. Students should note that the range of electives offered in any one year depends on the number of students wishing to undertake a particular elective and on the staff and facilities available.

All degree courses include provision for two general elective subjects in a non-scientific/technical area to be taken in later years. General electives of forty-five hours each are chosen from nominated Liberal Studies subjects or other approved subjects from the Faculties of Art, Arts or Business.

A list of approved subjects will be published at the start of each year. The subjects available in 1984 were:

AT792 Applied Psychology
AT793 Literature and Media
AT794 Sociology
AT795 Law in Society
AT796 Technology and Society
AT797 Archaeology
AT798 Philosophy
BS501 Accounting and Finance
BS502 Legal Studies
BS503 Managerial Economics (not available for Mechanical Engineering students)
BS504 Contemporary Macroeconomics

Students must have the approval of the head of their department before enrolling for the subject in question. Students must ensure that the subject chosen will fit into their time-table without difficulty.

The two general elective subjects are compulsory for all degree students.

Examinations and assessment
Various methods are used to measure student performance in subjects offered by the engineering faculty. These methods include the use of formal examinations; tests held during, or at the end of, each semester; project work; assignments; laboratory exercises, etc. A statement setting out the assessment and workload requirements for each subject is issued to students early in each semester. To assist students in determining their complete workload in any one semester, each engineering department maintains a record of the overall work program for students in each year group of a full-time course. The work program is displayed in the engineering department concerned.

Students are automatically entered as candidates for all subjects in which they enrol. Students should therefore carefully check their statement of enrolment which is posted to them approximately four weeks after the commencement of each semester.

Students enrolled in subjects spread over both semesters, for example most subjects in common first year engineering degree, should note that mid-year progress reports are displayed on faculty and departmental notice-boards by the end of the first week of second semester. These reports are not formally published results but are an indication of student progress at mid-year.

Where a subject is completed in first semester, the assessment result is published as soon as possible after the end of semester.

For 1985 syllabus degree courses with the exception of final year, the duration of each academic semester will be eighteen weeks which includes, subject to approved variations:

(a) fifteen weeks of teaching;
(b) a non-teaching week in the sixteenth week for revision or reflection; and
(c) formal tests/examinations in the seventeenth and eighteenth weeks.

The specific weeks devoted to these activities in 1985 are given in the Swinburne calendar in the front of this handbook.

For each subject the total time for formal tests or examinations per semester will be no longer than 1115th of the formal contact time per semester.

(Students should also refer to the section entitled ‘Regulations concerning assessment’ in the general section of this handbook.)
Faculty passing scheme

The revised regulations on passing by years (Faculty passing scheme) are set out below. These regulations apply to courses of study undertaken from first semester 1984.

1 General

The Faculty of Engineering operates a faculty passing scheme which applies to:

(a) full-time undergraduate and graduate diploma students
(b) part-time undergraduate and graduate diploma students whose weekly workload is ten or more contact hours

A part-time student is one enrolled for subjects which require a total class, tutorial and/or laboratory contact time of less than 75% of the full-time course load.

Students who have a full-time workload but who are not pursuing the course prescribed in the handbook for the particular year, must have this course approved by the head of department concerned before becoming eligible for consideration under the faculty passing scheme.

2 Part-time students

(a) Part-time students who qualify and enter for a faculty pass for a group of subjects will receive a faculty pass result for that group and will not be required to undertake further study for subjects in the group. Results for individual subjects, however, will be unchanged. Thus, a part-time student who fails a subject but achieves a faculty pass for the group which includes that subject will have a fail recorded for the subject but will satisfy the course requirements for the subject.

(b) Part-time students may be admitted by Faculty Board to full-time study at such time as they become capable of entering a full-time year (or semester where applicable) without any carry over of subjects from earlier years (or semesters where applicable).

3 Full-time students

The faculty passing scheme operates for full-time students as follows:

(a) A student in any year will normally be assessed on the whole of the year's work at the end of the second semester. A student will:

(i) pass the year by passing in all subjects (a pass outright); or
(ii) be passed by Faculty Board on the year as a whole (that is, be granted a 'Faculty Pass' on the year); or
(iii) not pass but be permitted by Faculty Board to repeat the year's work as a full-time student; or
(iv) not pass and be suspended from the full-time course (see paragraph 3(b)).

(b) Students who achieve only limited success as full-time students, and elect (and are permitted by Faculty Board) to enter part-time study to in order to rehabilitate themselves, will be permitted to retain credit for any subjects passed as full-time students and may be readmitted by Faculty Board to full-time study at such time as they become capable of entering a full-time year (or semester where applicable) without any carry over of subjects from earlier years (or semesters where applicable).

(c) The achievement of a faculty pass will not alter results in individual subjects but will obviate the necessity to repeat subjects not passed in the group considered.

Note: The authority of Faculty Boards as set down in paragraphs 2(b) and 3(b) has been delegated to the head of the awarding department.

4 Special programs of study

Applicants with 'advanced standing' who are admitted to full-time studies may be enrolled in special programs of study as interim measures until they can be enrolled in the normal groups of subjects. The rules of faculty passing will apply. Such special programs require approval by the head of the awarding department.

5 Formula for faculty passing

(a) The following assessment categories are used by departments in preparing subject results for submission to the Board:
HD, D, C, P, P*, N*, N.

(b) The assessment categories of P* and N* are used in determining a student's Faculty Result, but do not form part of a student's published record of academic achievement. A result of P* is formally published as P; a result of N* is formally published as N.

P* = Marginal pass in the subject.
N* = Fail. In the opinion of the subject panel the student, having submitted required assessable work, is recommended for consideration for a Faculty Pass.

(c) A Faculty Result of Pass is awarded to eligible students (see paragraph 1) who pass all subjects in the year of study.

(d) An automatic Faculty Pass is awarded to a full-time student who meets both of the following criteria.

(i) Achieves a positive aggregate rating on the formula
\[ A = \sum n_i z_i - 3 \sum n_i \]
where A is aggregate rating,
n_i is the number of hours/week in the i'th subject,
z_i is the rating in the i'th subject.

A student's rating in each subject is determined from the following table:

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>7</td>
</tr>
<tr>
<td>P</td>
<td>6</td>
</tr>
<tr>
<td>P*</td>
<td>5</td>
</tr>
<tr>
<td>N*</td>
<td>3</td>
</tr>
<tr>
<td>N</td>
<td>1</td>
</tr>
</tbody>
</table>

(ii) Gains recommended results of N* in not more than two subjects for the subjects where the total number of hours is not more than 6 hours/week per semester.

It should be noted that results in Industrial Experience subjects are excluded when a student's aggregate rating is calculated.

(e) An automatic Faculty Pass is awarded to a part-time student who meets both of the following criteria:

(i) Achieves a positive aggregate rating on the formula
\[ A = \sum n_i z_i - 5 \sum n_i \]
where A is aggregate rating,
n_i is the number of hours/week in the i'th subject,
z_i is the rating in the i'th subject.

(ii) Gains recommended result of N* in not more than one subject provided the number of hours in the subject is not more than 3 hours/week per semester.
6 Result categories and percentage scores
The relationship between result categories and normalised percentage scores is:

<table>
<thead>
<tr>
<th>Result category</th>
<th>Range of scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>85% – 100%</td>
</tr>
<tr>
<td>D</td>
<td>75% – 84%</td>
</tr>
<tr>
<td>C</td>
<td>65% – 74%</td>
</tr>
<tr>
<td>P</td>
<td>50% – 64%</td>
</tr>
<tr>
<td>N</td>
<td>0% – 49%</td>
</tr>
</tbody>
</table>

It should be noted that the above table is used in determining result categories for all students enrolled in a subject irrespective of whether the students are eligible for a Faculty Result or not.

7 Supplementary assessment
At the discretion of the Board, a scheme of restricted supplementary assessment operates for students who have achieved poor results (below N*) in one or two subjects. In any such cases consideration of a student’s faculty result is deferred until the results of the supplementary assessment are available.

8 Faculty results
Students who have a workload which qualifies them for consideration under the faculty passing scheme are eligible to enter for a Faculty Result. Eligible students are responsible for checking that their statement of enrolment makes provision for a Faculty Result. Codes currently in operation are:

**Civil Engineering**
- FX982 First-year degree – full-time
- FX992 First-year degree – part-time
- FC984 Second-year degree
- FC986 Third-year degree
- FC988 Fourth-year degree
- FC989 Fifth-year degree
- FC992 Part-time degree – later years

**Manufacturing Engineering**
- FX982 First-year degree – full-time
- FX992 First-year degree – part-time
- FP984 Second-year degree
- FP986 Third-year degree
- FP988 Fourth-year degree
- FP989 Fifth-year degree
- FP992 Part-time degree – later years
- FP382 Associate diploma first year
- FP386 Associate diploma third year
- FP392 Associate diploma part-time

**Mechanical Engineering**
- FX982 First-year degree – full-time
- FX992 First-year degree – part-time
- FM984 Second-year degree
- FM986 Third-year degree
- FM988 Fourth-year degree
- FM989 Fifth-year degree
- FM992 Part-time degree – later years

**Electrical and Electronic Engineering**
- FX982 First-year degree – full-time
- FX992 First-year degree – part-time
- FE984 Second-year degree
- FE986 Third-year degree
- FE988 Fourth-year degree
- FE989 Fifth-year degree
- FE992 Part-time degree – later years
- FE472 Telecommunication Systems Management
- Graduate diploma
Guidelines for part-time study

With changes in the courses of study leading to degree qualifications, some part-time students may be unsure of the subjects they are required to pass in order to qualify for an award.

The following guidelines which the Engineering Faculty Board has established should be used to determine the subject requirements for students undertaking courses (including conversion programs) on a part-time basis:

(a) In general, students who have not at some time discontinued their course without permission, will follow the course of study in operation at the time of their initial enrolment at the institute and as specified in the engineering section of the handbook for that year.

(b) Despite the above, students who are undertaking a course of study which has been unduly prolonged, or who would benefit from transfer to a later course of study may be transferred by the Engineering Faculty Board on the advice of the head of the student's department.

(c) Students who discontinue study without permission and who later wish to renew their enrolment at the institute in that same course will be treated as new students but will receive such credit for the subjects previously passed as is determined by the Engineering Faculty Board on the advice of the head of the student's department.

(d) Where subjects have been discontinued since students' initial enrolment, students will be required to undertake the presently operating equivalent subjects. Information regarding superseded subject equivalents is available from the head of the student's department.

(e) As students will realise, there is often benefit in transferring from the course of study in operation at the time of enrolment to a later course of study. With the permission of the head of the student's department, students may transfer from the course of study for which they are enrolled to a later course of study but should recognise that such a transfer may involve the undertaking of some additional subjects.

Suspension from courses

Full-time

A full-time student who has not achieved a pass in all subjects (a pass outright), or has not been passed by the Faculty Board on the year as a whole (a 'Faculty Pass'), may be permitted to repeat the year's work as a full-time student only once. A second repeat (that is, a third attempt) is not permitted.

A student may be permitted to repeat a full year's work as a full-time student only once during his or her course. That is, a repeat of any full-time year is not permitted if a student has repeated a full-time year earlier in his or her course.

Part-time

A part-time student who in any academic semester has not passed in all subjects in which he/she was enrolled, or who was eligible for a Faculty Pass and did not achieve it, may be permitted to repeat any failed subject only once.

Notes

1. A student who transfers from full-time to part-time study, or vice-versa, is considered under the regulations applying to his or her new enrolment category.
2. Normally a second repeat in any subject (that is, a third attempt) is not permitted.
3. Decisions relating to exclusion from further study will in most cases, be made by the Engineering Courses Committee sitting as an exclusions sub-committee.

The procedure for considering engineering students recommended for exclusion is as follows:

1. Based on compliance with the faculty regulations on suspension from courses, the head of department submits a case for the possible exclusion of a student to the Engineering Courses Committee.
2. If the Engineering Courses Committee accepts that a case exists, the student is advised that his/her status in the course concerned is to be considered at a subsequent meeting of the Committee; and that he/she may attend to present information relevant to the case.
3. The committee may co-opt representatives when hearing a case for exclusion.

Enrolment

Although the Swinburne calendar is divided into two teaching semesters, engineering students need enrol only once for the subjects they are undertaking in any one year. Where it is necessary to change the list of subjects entered for at enrolment a student must complete an Amendment to Enrolment form available from student records, the engineering faculty office, or engineering department offices. Students should note that they must obtain the approval of the head of their awarding department before amending their enrolment.

Applications offered a place in an engineering course will be expected to attend for enrolment early in February. Successful applicants will be notified of enrolment times when they are offered a place.

Continuing students in engineering courses are required to present for enrolment during the times set aside for re-enrolling students in February. Students need to check institute notice boards for details which are made available towards the end of second semester.

Re-enrolling students should note that revised degree programs are being introduced in 1985. Enquiries regarding courses to be followed should be directed to the head of department.

For further information regarding enrolment see the section entitled 'Enrolment regulations' in the general section of this handbook.

Leave of absence

Students who have enrolled in an undergraduate course on a full-time basis and who wish to take leave of absence with a view to re-enrolling at the end of a specified period should apply on an Amendment to Enrolment form.

Leave of absence is granted by the Dean of Faculty (or his nominee). Students who have been granted leave of absence will be notified in writing by the Faculty Secretary. Enrolment for all subjects for the duration of the leave will be cancelled automatically.

Full-time students should note that leave of absence is normally not granted after the completion of first semester.

Applications submitted after first semester are considered on their merits and student progress reports are taken into account.
Approval and publication of results

1 General
(a) The Engineering Faculty Board policy is that all engineering students are informed of their progress as soon as possible after any prescribed subject has been completed.
(b) These regulations are normally applied by the Engineering Courses Committee acting as a sub-committee of the Engineering Faculty Board.
(c) In special circumstances individual student subject results may be deferred on medical grounds or other reasons of hardship. Deferral of faculty results for supplementary assessment is covered under faculty passing regulations. The period of deferral is determined in the light of particular circumstances.

2 Programs of study over two semesters
(a) Results for subjects completed in first semester are approved for publication as soon as possible after the end of semester.
(b) Where a subject continues over two semesters a mid-year progress report is released by the awarding department no later than the end of the first week of second semester.
(c) Results for subjects completed in second semester are approved for publication as soon as possible after the end of semester. Where appropriate, a faculty result is published at the same time.

3 Programs of study over one semester
(a) Results for subjects completed in first semester, including industrial experience, are approved for publication as soon as possible after the end of semester.
(b) Where a student is enrolled for first semester only, and a faculty result is required, the faculty result is approved for publication as soon as possible after the end of semester.
(c) Where a student is enrolled in course work in one semester and industrial experience in the other semester, a faculty result is normally approved for publication after the end of second semester. If the student’s first semester results are unsatisfactory, the faculty result may be approved for publication as soon as possible after the end of first semester.

Awarding of degrees with distinction
Each year the Engineering Faculty Board selects students to be nominated for a degree with distinction. The Board expects results at about the Higher Distinction level in major areas of study, with particular attention being given to performance in the last two academic semesters of the course.

In addition to considering the result categories received by students in the final two academic semesters, a subjective assessment of students in relation to their contemporaries and to absolute standards is made.

Prizes, scholarships and awards
A complete list of the sources of financial support and the various awards available to students is given in the general section of this handbook. Brief information on awards most likely to be of interest to engineering students is given below. Further details may be obtained from the careers information library of the Student Health and Welfare Unit.

W.P. Brown medal
This is awarded by the Institution of Engineers, Australia, to the best all-round student in the final year of an engineering course. The award is a medal and a premium of $100.

F.W. Green memorial prize
Books to the value of $50 are awarded to the most outstanding final year engineering student graduating each year.

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

Harold E. R. Steele prize
This is awarded to the best student in the course leading to the degree of Bachelor of Engineering with major studies in electrical and electronic engineering.

Society of Chemical Industry of Victoria prize
A certificate and a prize of $25 is awarded to the student nominated by the Department of Manufacturing Engineering as the best student in the final year of chemical engineering.

Oscar Weigel exhibitions in engineering
Applicants for these awards must be qualified to enter the second or a later year of an engineering degree course or be accepted as a candidate for the degree of Master. Value — up to $400 per year and tenable for a period not exceeding five years.

Unilever prize
This includes provision for an award of $25 to be made to a mechanical engineering student.

Postgraduate awards
The Commonwealth Department of Education provides awards for full-time research leading to the degree of Master. The closing date for applications is 31 October in any year. Some industrial organisations also make available awards for full-time research leading to the degree of Master. Further information may be obtained from the head of each engineering department.

Short courses
In addition to the accredited courses leading to diploma and degree qualifications the engineering faculty also offers a wide range of short courses. These are usually of two to three days' duration and are designed to enable various industrial personnel to update their skills and knowledge in areas of specific interest. Typical courses offered recently include:

- acoustics, antennas, digital techniques, human factors engineering, metrology, machining technology, microprocessors, residential raft slab design, network analysis, construction planning.

Further enquiries should be directed to heads of engineering departments.
Professional recognition of courses

Institution of Engineers, Australia

The courses for degree of Bachelor of Engineering in civil, electrical and electronic, manufacturing, and mechanical engineering have all received recognition from the Institution of Engineers, Australia, as satisfying academic requirements for corporate membership.

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

Other professional bodies

The course for the Bachelor of Engineering (Manufacturing) is recognised by the Institution of Radio and Electronics Engineers (Australia) as sufficient academic qualification for membership.

Department of Civil Engineering

The department offers a range of tertiary courses in civil engineering, including a cooperative degree, a graduate diploma and the degree of Master by research. The department also conducts a cooperative diploma in building surveying.

The undergraduate degree course leads to a professional qualification in civil engineering which is recognised by the Institution of Engineers, Australia. The graduate diploma enables graduate engineers to undertake further specialised studies in construction technology. The degree of Master provides specialist research training in a selected topic in civil engineering, usually of importance to, and funded by industry. Continuing education courses for professional engineers are provided from time to time in selected subjects by way of short courses. The building surveying diploma is a professional course which meets the academic requirements for membership of the Australian Institute of Building Surveyors.

The department operates a mentor scheme to facilitate contact between staff and students and to provide guidance to individual students as they progress through the course. Mentors are all experienced staff members.

The department also undertakes applied research and consulting 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 Industrial Liaison Officer.

Courses offered

Degree of Bachelor of Engineering (Civil)
Diploma of Building Surveying
Graduate Diploma in Civil Engineering Construction
Degree of Master of Engineering

Career potential

Civil engineering offers a creative career for men and women in many differing areas of service to the community.

Graduates work as planners, designers, administrators, research engineers and consultants in a wide range of specialist fields, including:

- structural and bridge engineering
- foundation engineering, geology, soil and rock mechanics
- water engineering
- transportation engineering
- construction engineering
- municipal engineering
- environmental engineering and urban planning

Their work is interesting, rewarding and challenging and offers opportunities for both indoor and outdoor work, in Australia and overseas.

Civil engineers qualify professionally by completing a tertiary course recognised by the Institution of Engineers, Australia, followed by four years of suitable professional experience.

Swinburne civil engineering graduates find employment with consulting firms, private industry, public authorities, and state government departments and municipalities.
Other careers
Although most graduates enter the civil engineering profession, intending students should realize that a civil engineering course also provides an excellent basis for a successful career in many other areas of industry and management.

Women in engineering
Civil engineering provides women with a wide choice of interesting careers. Women graduates have proved to be extremely talented and have made significant contributions to the field, both in Australia and overseas. In recent years, an increasing number of women have successfully undertaken these courses at Swinburne.

Degree of Bachelor of Engineering (Civil)
This course of study is undertaken by a cooperative education program extending over four-and-a-half years and including two semesters spent working with professional civil engineers in industry.

The course is a general one which gives a good grounding in civil engineering. Some specialization occurs in the final semester of the course when students choose electives from a range of specialist topics available.

Part-time study
The course can be completed by part-time study. Students may select their own program of day or evening classes, from the required subjects of the course, with the approval of the head of department.

Availability of evening classes naturally depends on enrolment figures.

Structure of degree course
The degree course consists of seven academic semesters at Swinburne and two semesters in industry. The total length of the course is four-and-a-half years.

In the third and fourth years, students spend one semester of each year at Swinburne and the remainder working in industry. For cooperative employment arranged by Swinburne students receive a salary approximately two-thirds of that of a graduate engineer. Students benefit greatly from this first-hand industrial experience and consistent liaison is maintained between mentor, employer and student.

The fifth year, which consists of only one nineteen week semester, is spent at Swinburne.

Course structure (1985 syllabus)

<table>
<thead>
<tr>
<th>First year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM197</td>
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</tr>
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<td>SP197</td>
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<td>SC197</td>
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<td>AT197</td>
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<td>MP106</td>
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<td>Graphics</td>
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<td>CE113</td>
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<td>EE187</td>
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<th>Hours</th>
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<td>CE261</td>
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</tr>
<tr>
<td>SM292</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>390</td>
</tr>
</tbody>
</table>

|            | Sem 1 | Sem 2 |
|            | 45    | 45    |
|            | 60    | 60    |
|            | 45    | 45    |
|            | 30    | 60    |
|            | 60    | 45    |
|            | 390   | 360   |
### Degree conversion program — 1985 syllabus

Candidates of approved standard who already hold a Diploma of Engineering may be admitted into the degree course to undertake a special program of subjects known as the degree conversion program.

Such candidates should have a performance record in their original diploma course that shows their ability to complete an engineering course at degree level.

The course to be followed is individually assessed for each applicant and usually consists of selected subjects from the third and fourth years of the 1985 degree followed by a complete fifth year. Applicants with suitable industrial experience in engineering will not be required to undertake further cooperative industrial experience.

### Diploma of Building Surveying

This is a new course which commenced in 1981. It is intended to prepare students for the profession of building surveying and to meet the educational requirements for membership of the Australian Institute of Building Surveyors. In recent years the AIIBS has sought the development of more advanced courses in building surveying to enable future members of the profession to cope with anticipated changes in building technology and materials. The course has been designed to meet these needs.

Although the course is co-ordinated through the civil engineering department, it is interdisciplinary in nature, with a teaching input from a number of departments, including the Building Division of Swinburne College of TAFE.

### Career potential

At present, about eight of every ten graduates in building surveying enter the municipal sphere and the others are absorbed in the building industry.

The building surveyor in a municipality is the Council's technical officer in matters pertaining to buildings. Duties include the giving of advice to councils on various parliamentary acts and regulations, council bylaws and regulations relevant to building, together with their administration as required by law and by council. The building surveying department is responsible for checking of plans and computations submitted for council approval and for the carrying out of inspections of buildings during construction, alteration and demolition.

Career prospects are very good, since there is a continuing demand for building surveyors in the municipal field, with more restricted opportunities in the private sector.

### Regulations pertaining to the course

Regulations relating to the course are as for other engineering undergraduate courses and are set out at the beginning of this book.

### Structure of the course

The diploma of building surveying is structured on a cooperative basis, and consists of six academic semesters at Swinburne and one semester in industry. The total length of the full-time course is three-and-a-half years.

First and second years are spent full-time at Swinburne. In third year, students spend the second semester working in industry. This cooperative employment is arranged by Swinburne and students are paid by the employer. Students benefit greatly from this first-hand experience and a consistent liaison is maintained between the mentor, the employer, and the student.

The fourth year, which consists of only one semester, is spent at Swinburne.

### Part-time study

The course can be completed by part-time study. Students should consult with staff to plan a part-time program of day and/or evening classes from the required subjects of the course.

### Availability of evening classes

Availability of evening classes naturally depends on enrolment figures.

---

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours semester</th>
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<tbody>
<tr>
<td>CE391</td>
<td>Industrial Experience</td>
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<td>CE311</td>
<td>Structural Mechanics</td>
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<td>CE312</td>
<td>Water Engineering</td>
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<td>CE334</td>
<td>Surveying</td>
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<td>Structural Design</td>
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<td>SK390</td>
<td>Computer Programming</td>
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<td>SM392</td>
<td>Engineering/Mathematics</td>
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<table>
<thead>
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<td>CE421</td>
<td>Planning</td>
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<td>CE451</td>
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<tr>
<td>CE481</td>
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<td>SM492</td>
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<thead>
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<td>CE535</td>
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<td>CE561</td>
<td>Transport Engineering</td>
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<tr>
<td>CE571</td>
<td>Construction</td>
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<tr>
<td>CE581</td>
<td>Geomechanics</td>
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<tr>
<td>CE592</td>
<td>Municipal Engineering</td>
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<td></td>
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*Part-time students may undertake these subjects over two semesters as syllabus content is identical to the corresponding full-time subjects.*

## Table of Subjects

<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Hours</th>
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<td>Investigation Project</td>
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<tr>
<td>CE556</td>
<td>Civil Design</td>
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**Faculty of Engineering**
Eligibility to apply for entry

Year 12
Satisfactory completion of a Year 12 course of study accredited by the Victorian Institute of Secondary Education (VISE). Group 1 subjects recommended are Physics or Chemistry and a branch of mathematics.

Group 2 subjects: In addition to the recommended group 1 subjects, group 2 subjects may be considered.

Tertiary Orientation Program
TOP courses are considered on the basis of a course of study equivalent to a VISE year 12 course. Recommended subjects are those equivalent to the year 12 subjects listed above.

Persons who do not hold the qualifications stated above, or their equivalent, may be required to sit for a special entry test to determine eligibility. This test is normally held early in February.

An interview may be required for the persons who do not hold the qualifications stated above.

Persons who complete satisfactorily, a science/engineering TOP course at Swinburne College of TAFE which includes subject equivalent to the recommended VISE group 1 subjects are given guaranteed entry.

Course structure (1981 syllabus)

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<th>Course</th>
<th>Hours</th>
<th>Semester</th>
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<td>Sem 2</td>
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Second year

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Third year

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<td>AT396</td>
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Fourth year

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</tr>
<tr>
<td></td>
<td>360</td>
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Graduate Diploma in Civil Engineering Construction

This course is designed to provide practising engineers and architects with a knowledge of the latest developments in construction engineering and with the capacity to control these techniques from the financial and technical viewpoints.

The total course duration is 480 hours, usually undertaken as a two-year part-time course and requiring attendance for two nights of the week. It runs over four semesters, each of fifteen teaching weeks.

Practising construction engineers assist institute staff in teaching selected parts of the course.

Master of Engineering

Graduates who hold a Bachelor’s degree and who have shown a high standard of academic achievement in that course may be admitted to candidature for the degree of Master of Engineering.

The higher degree programs currently available require the presentation of a major thesis based on original research, investigation or development work, carried out either within Swinburne or externally, providing that adequate facilities and supervision can be arranged. External work can be carried out in an approved industrial, governmental, educational or research organisation.

Copies of the Statute for the degree of Master and application forms are available from the Registrar’s office.
Department of Electrical and Electronic Engineering

Electrical and electronic engineering is concerned with any form of plant, system or device operated by electrical or electronic means, and includes specialities, such as electronics, communications, control, electrical power and machines.

The department offers courses leading to professional qualifications in electrical and electronic engineering. In addition, continuing education courses in selected subjects for professional engineers are provided from time to time.

Modern laboratory facilities are available for undergraduate teaching, staff research and consulting. Separate laboratories are devoted to electric circuits, electronics, advanced electronics, communications, control systems and computing, electrical machines, power systems, and student design projects. A constant-temperature room is provided for the maintenance of electrical standards, and a high quality screened room is available for the conduct of measurements and experimentation in an interference-free environment. A high-voltage laboratory for insulation testing up to 100kV is also available.

A mentor scheme is operated by the department to facilitate contact between staff and students and to provide guidance to individual students, as they progress through the course. Mentors are all experienced staff members.

The department undertakes applied research and consulting and staff members are available for consultation individually or as members of a team on group projects. Enquiries should be directed to the head of department or to the Industrial Liaison Officer.

Courses offered

Degree of Bachelor of Engineering (Electrical and Electronic)
Degree of Master of Engineering
Graduate Diploma in Digital Electronics
Graduate Diploma in Telecommunication Systems
Management

Career potential

Graduates from Swinburne are qualified for appointment to professional engineering positions in Commonwealth and State Government departments and instrumentalities, in private industry, or the armed services.

The types of engineering employment available include the investigation, design, manufacture, testing, development, installation, maintenance or sales of all types of electrical and electronic plant and equipment.

The various fields of electrical and electronic engineering activity include those of electric power supply and utilisation, electrical machines and appliances, electric traction, illumination engineering, communication systems, automatic control systems, electronic equipment, analogue and digital computer development and applications, and medical electronics.

The degree course qualification merits full exemption from the entrance examinations of the Institution of Engineers, Australia and the Institute of Radio and Electronic Engineers.
### Fifth year

#### Electrical stream

**Semester 1**

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<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>EE576</td>
<td>Electrical Power and Machines</td>
<td>90</td>
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<tr>
<td>EE599</td>
<td>Control Systems</td>
<td>30</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24 weeks</strong></td>
</tr>
</tbody>
</table>

**Plus two electives from**

- EE590: Computer Systems Engineering
- EE591: High Voltage Systems
- EE592: Communication Systems
- EE593: Electrical Machine Drives
- EE594: Electronic Systems
- EE596: Operations Research in Electrical Engineering
- EE599: Control Systems

**Semester 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE601</td>
<td>Industrial Experience</td>
<td></td>
</tr>
</tbody>
</table>

**Total Hours** 2725

Selection of electives requires approval by the head of department.

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**Degree conversion program 1985 syllabus**

Candidates of approved standard who already hold a Diploma of Engineering may be admitted into the degree course to undertake a special program of subjects known as the degree conversion program.

Such candidates should have a performance record in their original diploma course that shows their ability to complete an engineering course at degree level.

For holders of the Swinburne 1972 Diploma of Engineering (Electrical) or Diploma of Engineering (Electronic) or equivalent, the conversion program for the Degree of Bachelor of Engineering (Electrical and Electronic), 1985 syllabus is:

**Electronics stream**

- SP294: Engineering Physics
- SM394: Engineering Mathematics
- EE475: Electrical Power and Machines
- EE477: Electronics and Communications
- SP494: Engineering Mathematics
- EE401: Industrial Experience
- EE572: Design and Project
- EE577: Electronic Engineering
- EE578: Communication Systems
- EE599: Control Systems

**Plus two from**

- EE590: Computer Systems Engineering
- EE591: High Voltage Systems
- EE592: Communication Systems
- EE593: Electrical Machine Drives
- EE594: Electronic Systems
- EE596: Operations Research in Electrical Engineering
- EE599: Control Systems

**Electrical stream**

- SP294: Engineering Physics
- SM394: Engineering Mathematics
- EE475: Electrical Power and Machines
- EE477: Electronics and Communications
- SM494: Engineering Mathematics
- EE401: Industrial Experience
- EE572: Design and Project
- EE577: Electronic Engineering
- EE578: Communication Systems
- EE579: Control Systems
- EE599: Control Systems

**Plus two from**

- EE590: Computer Systems Engineering
- EE591: High Voltage Systems
- EE592: Communication Systems
- EE593: Electrical Machine Drives
- EE594: Electronic Systems
- EE596: Operations Research in Electrical Engineering
- EE599: Control Systems

**Notes**

1. Usually, the above program is completed in two years of part-time evening study at an average of between eleven and twelve hours per week. The subjects are also available during the day, and students may take some day and some evening classes.

2. Exemption from EE401 Industrial Experience is granted where applicants have suitable engineering experience in industry. Formal application is required for this exemption.

3. Programs for diplomas from other institutes are considered individually.

For persons who have completed courses which are not equivalent to the Swinburne 1972 Diploma of Engineering (Electrical or Electronic), special programs of study leading to the award of degree can be arranged.
Graduate Diploma in Digital Electronics

This part-time course is designed to provide practising engineers and scientists with the skills to assess modern digital equipment and to use it effectively in applications in their areas of speciality. The course provides a review of basic digital electronic devices and techniques as well as a detailed coverage of modern digital system design.

In keeping with the aim of the course, which is to meet needs of practising engineers and scientists, the course is application-oriented with significant emphasis on laboratory work and design experience. Each participant in the course undertakes an individual design project which may be integrated with normal work commitments under certain conditions.

To gain admission to the course, applicants usually should have a degree or diploma in electrical engineering or an allied field.

Course structure

First year
Semester 1
- EE405 Semiconductor Electronics 60
- EE406 Digital Logic 60

Semester 2
- EE407 Switching Circuit Analysis and Synthesis 60
- EE408 Input/Output Techniques 60

Second year
Semester 1
- EE505 Integrated Circuit Components 60
- EF506 Digital System Techniques 60

Semester 2
- EE507 Digital System Applications 60
- EF508 Design and Project 60

480

Graduate Diploma in Telecommunication Systems Management

This full-time course is intended to educate students in the fundamental technologies associated with the management of telecommunication systems, where management is taken to include planning, organising and controlling.

The course provides a broad familiarisation with telecommunications and computing technologies, and how they may be used to satisfy user requirements. It also covers the organisation of the system structure, and of component systems, as they affect physical and human resources, and the control of technical standards to meet the system user requirements.

The course is designed for non-technical graduates who are, or intend to be, employed in a management role in telecommunications networks. It is particularly directed towards the needs of the Australian Army, and other organisations, where graduates who are not professional engineers occupy managerial positions in telecommunications activities.

The course is also suitable for non-technical graduates who wish to gain an understanding of the new telecommunication technologies as applied to libraries, instructional television networks, or distance teaching.

To gain admission to the course, applicants must have a degree, diploma or equivalent qualification, and some experience in telecommunications activities is preferred.

The course is scheduled over one year of full-time day attendance, but evening classes may be offered if there is sufficient demand.

Course structure

Semester 1
- SM631 Mathematics 60
- EE631 Electrical Power & Electronics 90
- EE632 Administrative Practice 60
- EE633 Telecommunication Principles 90
- SK631 Computer Programming 30

330

Semester 2
- EE731 Electronics 60
- EE733 System Planning and Control 90
- EE734 Telecommunication Systems 90
- EE735 Elective Subject 60

300

Degree of Master of Engineering

Graduates who hold a Bachelor's degree and who have shown a high standard of academic achievement in that course may be admitted to candidacy for the degree of Master of Engineering.

The higher degree programs currently available require the presentation of a major thesis based on original research, investigation or development work, carried out either within Swinburne or externally, providing that adequate facilities and supervision can be arranged. External work may be carried out in an approved industrial, governmental, educational or research organisation.

Copies of the Statute for the degree of Master and application forms are available from the Registrar's office.
Department of Manufacturing Engineering

The department offers courses leading to professional qualifications in manufacturing and production engineering. Graduate diploma courses are conducted in chemical engineering, biochemical engineering, industrial management, and manufacturing technology.

The undergraduate courses in manufacturing engineering are cooperative programs which enable a student to gain some industrial experience during the course. For degree studies, the industrial experience totals twelve months.

In addition to the complete courses of study above, the department is responsible for teaching Engineering Drawing and Engineering Materials in all engineering undergraduate courses conducted by other departments. Continuing education courses are provided from time to time in selected areas.

Modern well-equipped laboratories are provided for teaching, research and testing. The metrology laboratory is registered with the National Association for Testing Authorities and the department is a member of Computer Aided Manufacturing - International Inc.

A mentor scheme is operated by the department to engender contact between staff and students and to provide guidance for individual students.

Courses offered

Degree of Bachelor of Engineering (Manufacturing)
Graduate Diploma in Chemical Engineering
Graduate Diploma in Biochemical Engineering
Graduate Diploma in Industrial Management
Graduate Diploma in Manufacturing Technology
Degree of Master of Engineering

Career potential

Manufacturing/Production/Chemical engineering

Manufacturing engineers are engaged in a wide variety of industries and organisations including manufacture of aircraft, automobiles, appliances, chemicals, food, plastics, ceramics, textiles and clothing. They are also involved in goods distribution and retailing organisations.

Their activities are wide-ranging: factory management; operations and production planning; quality control; design of tooling, products and processes; materials handling; research and development.

The undergraduate programs leading to the award of the Degree of Bachelor of Engineering (Manufacturing) are designed to prepare the student for a professional career in any field of manufacturing.

Developments in Australian industry, particularly towards increased productivity and the use of more sophisticated manufacturing techniques and control systems, including the use of computer-based systems, indicates that for many years the demand for manufacturing engineers will exceed the number available.

Degree of Bachelor of Engineering (Manufacturing)

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 course is designed to develop student abilities in the fundamental engineering sciences and technologies. It provides management training in a broad range of disciplines related to the planning and operation of manufacturing enterprises.

The course is recognised by the Institution of Engineers, Australia. Completion of the course gives full exemption from entrance examinations.

In the second and subsequent years of the course students specialise in either

Production Engineering and Design
or
Chemical Engineering and Design

The special study subjects are denoted (P) and (C) respectively in the details of the course structure.

Course structure (1985 syllabus)

<table>
<thead>
<tr>
<th>First year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM197</td>
<td></td>
</tr>
<tr>
<td>SP197</td>
<td></td>
</tr>
<tr>
<td>SC197</td>
<td></td>
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<tr>
<td>MP183</td>
<td></td>
</tr>
<tr>
<td>AT197</td>
<td></td>
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<tr>
<td>MP106</td>
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</tr>
<tr>
<td>CE113</td>
<td></td>
</tr>
<tr>
<td>EE187</td>
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</tr>
<tr>
<td>ME126</td>
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<td>EF197</td>
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<table>
<thead>
<tr>
<th>Second year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM296</td>
<td></td>
</tr>
<tr>
<td>SA296</td>
<td></td>
</tr>
<tr>
<td>ME219</td>
<td></td>
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<tr>
<td>AT296</td>
<td></td>
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<tr>
<td>SK296</td>
<td></td>
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<tr>
<td>FE284</td>
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<tr>
<td>MP281</td>
<td></td>
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<td>MP231</td>
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<tr>
<td>MP211</td>
<td></td>
</tr>
<tr>
<td>MP251</td>
<td></td>
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<tr>
<td>MP213</td>
<td></td>
</tr>
<tr>
<td>MP253</td>
<td></td>
</tr>
</tbody>
</table>

*plus 15 hours in selected non-teaching periods.
### Third year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Semester 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP300</td>
<td>24 weeks</td>
<td>SM396</td>
<td>Engineering/Mathematics 60</td>
</tr>
<tr>
<td>MP381</td>
<td>Systems Engineering 30</td>
<td>MP301</td>
<td>Instrumentation and Control 30</td>
</tr>
<tr>
<td>MP321</td>
<td>Engineering Administration 60</td>
<td>and</td>
<td></td>
</tr>
<tr>
<td>ME319</td>
<td>Applied Mechanics 45</td>
<td>MP311</td>
<td>Manufacturing Technology (P) 90</td>
</tr>
<tr>
<td>MP351</td>
<td>Design for Manufacture (P) 60</td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>ME329</td>
<td>Fluid Mechanics 45</td>
<td>MP313</td>
<td>Manufacturing Technology (C) 90</td>
</tr>
</tbody>
</table>
| MP353 | Design for Manufacture (C) 60 | --- | 375

---

### Fourth year

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Elective</td>
<td>45</td>
<td>MP400</td>
</tr>
<tr>
<td>SK496</td>
<td>Computer Applications 30</td>
<td>*Approved subjects chosen from Art, Arts or Business. See section entitled 'Engineering subject details' for information on general elective subjects</td>
</tr>
<tr>
<td>SM496</td>
<td>Engineering/Mathematics 30</td>
<td></td>
</tr>
<tr>
<td>MP431</td>
<td>Industrial Engineering 45</td>
<td></td>
</tr>
<tr>
<td>MP421</td>
<td>Industrial Management 45</td>
<td></td>
</tr>
<tr>
<td>MP441</td>
<td>Manufacturing Systems 30</td>
<td>and</td>
</tr>
<tr>
<td>MP411</td>
<td>Manufacturing Technology (P) 90</td>
<td></td>
</tr>
<tr>
<td>MP451</td>
<td>Design for Manufacture (P) 60</td>
<td>or</td>
</tr>
<tr>
<td>MP413</td>
<td>Manufacturing Technology (C) 90</td>
<td></td>
</tr>
</tbody>
</table>
| MP453 | Design for Manufacture (C) 60 | --- | 375

---

### Fifth year

<table>
<thead>
<tr>
<th>Semester 1 only</th>
<th>Hours</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Elective</td>
<td>45</td>
<td>MP500</td>
</tr>
<tr>
<td>MP531</td>
<td>Industrial Engineering 45</td>
<td></td>
</tr>
<tr>
<td>MP521</td>
<td>Industrial Management 45</td>
<td></td>
</tr>
<tr>
<td>MP502</td>
<td>Manufacturing Project 190</td>
<td>and</td>
</tr>
<tr>
<td>MP511</td>
<td>Manufacturing Technology (P) 75</td>
<td></td>
</tr>
<tr>
<td>MP551</td>
<td>Design for Manufacture (P) 75</td>
<td>or</td>
</tr>
<tr>
<td>MP513</td>
<td>Manufacturing Technology (C) 75</td>
<td></td>
</tr>
</tbody>
</table>
| MP553 | Design for Manufacture 75 | --- | 475

---

*Includes a one week project at the end of semester.
Value 30 hours.

### Degree conversion program 1985 syllabus

Candidates of approved standard who already hold a Diploma of Engineering may be admitted into the degree course to undertake a special program of subjects known as the degree conversion program.

Such candidates should have a performance record in their original diploma course that shows their ability to complete an engineering course at degree level.

Holders of diplomas in engineering who wish to undertake a degree program should consult the head of department for details of the course to be undertaken and exemptions that may be granted.

Usually a conversion program may be completed in two years of part-time evening study at an average of eleven or twelve hours per week. The subjects are available during the day and students may take some day and some evening classes.
Graduate Diploma in Chemical Engineering

This is a part-time course intended to provide a basic knowledge of chemical engineering for graduates in either applied science or engineering. It is designed for those working or intending to work in the chemical industry.

The course is planned to be completed in two and-a-half years (five semesters) of study which includes evening classes and one afternoon class per week throughout the academic year of thirty weeks.

Course structure

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP731</td>
<td>Physical and Chemical Equilibria</td>
<td>90</td>
</tr>
<tr>
<td>or ME729</td>
<td>Fluid Mechanics</td>
<td>90</td>
</tr>
<tr>
<td>plus MP711</td>
<td>Mass Transfer</td>
<td>60</td>
</tr>
<tr>
<td>MP712</td>
<td>Unit Operations II</td>
<td>90</td>
</tr>
<tr>
<td>MP721</td>
<td>Chemical Engineering Design I</td>
<td>90</td>
</tr>
<tr>
<td>MP722</td>
<td>Stagewise Processes</td>
<td>90</td>
</tr>
<tr>
<td>MP723</td>
<td>Heat Transfer</td>
<td>60</td>
</tr>
<tr>
<td>and either</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP751</td>
<td>Design Applications</td>
<td>90</td>
</tr>
<tr>
<td>or MP724</td>
<td>Chemical Engineering Design 2</td>
<td>75</td>
</tr>
</tbody>
</table>

Note:
1. MP731 and ME729 are alternative courses required to be studied by students qualified in engineering and chemistry respectively.
2. The student may elect to study either MP724 or MP751.

Graduate Diploma in Biochemical Engineering

A — for Chemical Engineers

This is a part-time 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.

The course can be completed in two years by attendance at three three-hour evening sessions per week throughout the academic year of thirty weeks.

Course structure

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>First year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC571</td>
<td>Biology</td>
<td>90</td>
</tr>
<tr>
<td>SC582</td>
<td>Engineering/Biochemistry</td>
<td>90</td>
</tr>
<tr>
<td>EA411</td>
<td>Non-Newtonian Heat, Mass and Momentum Transfer</td>
<td>90</td>
</tr>
<tr>
<td>Second year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC572</td>
<td>Microbiology</td>
<td>90</td>
</tr>
<tr>
<td>SC583</td>
<td>Physical Biochemistry</td>
<td>90</td>
</tr>
<tr>
<td>EA491</td>
<td>Biochemical Engineering</td>
<td>90</td>
</tr>
</tbody>
</table>

B — for Biochemists

Biochemists or others who have covered appropriate parts of the above syllabus may attend the corresponding courses offered in chemical engineering as follows.

Course structure

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME729</td>
<td>Fluid Mechanics</td>
<td>90</td>
</tr>
<tr>
<td>MP711</td>
<td>Mass Transfer</td>
<td>90</td>
</tr>
<tr>
<td>MP721</td>
<td>Chemical Engineering Design I</td>
<td>90</td>
</tr>
<tr>
<td>MP723</td>
<td>Heat Transfer</td>
<td>90</td>
</tr>
<tr>
<td>MP761</td>
<td>Powder Technology</td>
<td>90</td>
</tr>
<tr>
<td>EA411</td>
<td>Non-Newtonian Heat, Mass and Momentum Transfer</td>
<td>90</td>
</tr>
<tr>
<td>EA491</td>
<td>Biochemical Engineering</td>
<td>90</td>
</tr>
</tbody>
</table>

Note:
1. ME729, MP711, MP721, MP723, MP761, EA411, and EA491 are offered as follows.

2. The student may elect to study either MP724 or MP751.
Graduate Diploma in Industrial Management

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 students in their original courses.

It comprises four compulsory subjects and three optional subjects. Students may be granted credit for any two of the subjects offered, on the basis of prior study. Where a student has grounds for credit in EP421, 423 or 424 but has already received maximum credit, permission may be given to substitute another optional subject in lieu of the compulsory one.

Admission is determined by a selection committee and applicants are advised to complete the prescribed application form and attach details and evidence of qualifications and work experience.

This course is of approximately three years' duration, part-time.

Preliminary reading

An introductory subject — EP422 — is offered.

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.)

Compulsory subjects

<table>
<thead>
<tr>
<th>Subject</th>
<th>Subject hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP421</td>
<td>90</td>
</tr>
<tr>
<td>EP423</td>
<td>90</td>
</tr>
<tr>
<td>EP424</td>
<td>75</td>
</tr>
<tr>
<td>EP426*</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>270</td>
</tr>
</tbody>
</table>

*Management practice is taken in the final year of the course.

Optional subjects (three to be taken)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Subject hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP425</td>
<td>60</td>
</tr>
<tr>
<td>EP431</td>
<td>60</td>
</tr>
<tr>
<td>EP432</td>
<td>60</td>
</tr>
<tr>
<td>EP433</td>
<td>60</td>
</tr>
<tr>
<td>EP434</td>
<td>60</td>
</tr>
<tr>
<td>EP435</td>
<td>60</td>
</tr>
<tr>
<td>EP436</td>
<td>60</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.

Faculty of Engineering

Graduate Diploma in Manufacturing Technology

This course is designed to increase the effectiveness of engineers, scientists and technologists who hold positions in industry or public service and find themselves ill-equipped to function efficiently in a changing manufacturing environment.

The course provides a sound understanding of current manufacturing technology, up-to-date techniques of acquiring information, an understanding of the latest scientific methods and training and practice in engineering communication.

Candidates for admission should be twenty-four years of age, hold a diploma or degree in engineering or science and two years' industrial experience. Applicants without the formal requirement but who have had considerable relevant experience in manufacturing will be considered.

Course structure

Compulsory subjects

<table>
<thead>
<tr>
<th>Subject</th>
<th>Subject hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP611</td>
<td>90</td>
</tr>
<tr>
<td>MP612</td>
<td>90</td>
</tr>
<tr>
<td>MP613</td>
<td>75</td>
</tr>
<tr>
<td>MP614</td>
<td>30</td>
</tr>
<tr>
<td>MP615</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>405</td>
</tr>
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</table>

Elective subjects (one only)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Subject hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP431</td>
<td>60</td>
</tr>
<tr>
<td>EP432</td>
<td>60</td>
</tr>
<tr>
<td>SK527</td>
<td>60</td>
</tr>
</tbody>
</table>

Other elective subjects may be approved at the discretion of the Head of Department.

Degree of Master of Engineering

Graduates who hold a Bachelor's degree and who have shown a high standard of academic achievement in that course may be admitted to candidacy for the degree of Master of Engineering.

The higher degree programs currently available require the presentation of a major thesis based on original research, investigation or development work, carried out either within Swinburne or externally, providing that adequate facilities and supervision can be arranged. External work can be carried out in an approved industrial, governmental, educational or research organisation.

Copies of the Statute for the degree of Master and application forms are available from the Registrar's office.
Department of Mechanical Engineering

The degree course provides a thorough education in engineering science principles and applications. With these principles the course combines a broad span of studies, such as economics, psychology, human engineering, administration, and communication techniques, important to a professional engineer. Students work in modern buildings where the facilities available include laboratories, design rooms, seminar rooms, library study areas, engineering workshop and digital, analogue and hybrid computers. There is a strong emphasis on the teaching approach and use of tutorial laboratory work. The 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.

To qualify for the degree, each student must complete two periods of approved industrial experience supervised by both Swinburne engineering staff and engineers in industry. This is arranged in the third and fourth years of study.

The cooperative industrial experience in the course amounts to forty-eight weeks. The experience gained is of considerable value in providing opportunities to learn from practising engineers and in helping to consolidate the more formal theoretical work undertaken at Swinburne. The mechanical engineering department gratefully acknowledges the assistance of engineers in many companies and government departments whose support has greatly enhanced the value of these periods of industrial experience.

Courses offered

Degree of Bachelor of Engineering (Mechanical)
Degree of Master of Engineering
Graduate Diploma in Air-conditioning
Graduate Diploma in Maintenance Engineering

Career potential

Mechanical engineering may be defined as a profession in which a knowledge of mathematical and natural sciences gained by study, experience and practice is applied, with judgment and regard for the conservation of natural order, to develop ways to use the material and energy resources available, for the benefit of mankind.

Although, in Australia, it is a relatively new area of employment for women, those entering the field of mechanical engineering have found it offers excellent career opportunities.

Degree of Bachelor of Engineering (Mechanical)

The degree course program combines a thorough education in the application of engineering science principles with a broad span of studies important to a professional engineer. Streaming in later years of the course is offered through a system of technical elective subjects which allow students to select a particular emphasis for their four-and-a-half year cooperative education program.

Degree course revision

Students entering the first year of the mechanical engineering course in 1985 will be enrolled in the common first year of the cooperative course which was first introduced in 1980, and now replaces the Bachelor of Engineering (Mechanical) 1980 syllabus.

Courses are arranged to allow flexibility so that any student may transfer from full-time to part-time studies or vice versa, at particular points of a course, without loss of credit for subjects passed.

Course structure (1985 syllabus)

<table>
<thead>
<tr>
<th>First year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM197 Engineering Mathematics</td>
<td>60 Sem 1</td>
</tr>
<tr>
<td>SI97 Physics</td>
<td>45</td>
</tr>
<tr>
<td>SC197 Chemistry</td>
<td>45</td>
</tr>
<tr>
<td>MP183 Materials and Processes</td>
<td>—</td>
</tr>
<tr>
<td>AT197 Communication Skills</td>
<td>30</td>
</tr>
<tr>
<td>MP106 Engineering Drawing and Graphics</td>
<td>45</td>
</tr>
<tr>
<td>CE113 Static Systems</td>
<td>30</td>
</tr>
<tr>
<td>EE187 Electronics, Circuits and Computing</td>
<td>75</td>
</tr>
<tr>
<td>ME126 Energy Systems</td>
<td>30</td>
</tr>
<tr>
<td>ET197 Introduction to Engineering*</td>
<td>15</td>
</tr>
</tbody>
</table>

*plus 15 hours in selected non-teaching periods.

<table>
<thead>
<tr>
<th>Second year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semesters 3 and 4</td>
<td></td>
</tr>
<tr>
<td>SM298 Engineering Mathematics</td>
<td>90</td>
</tr>
<tr>
<td>SK298 Computer Programming</td>
<td>30</td>
</tr>
<tr>
<td>ME261 Engineering Practices</td>
<td>90</td>
</tr>
<tr>
<td>ME212 Applied Mechanics</td>
<td>105</td>
</tr>
<tr>
<td>(Strength of Materials</td>
<td>45</td>
</tr>
<tr>
<td>(Dynamics of Machines</td>
<td>60</td>
</tr>
<tr>
<td>MP284 Engineering Materials</td>
<td>45</td>
</tr>
<tr>
<td>ME222 Energy Systems</td>
<td>105</td>
</tr>
<tr>
<td>(Thermodynamics</td>
<td>60</td>
</tr>
<tr>
<td>ME242 Ergonomics</td>
<td>45</td>
</tr>
<tr>
<td>BS294 Managerial Economics</td>
<td>60</td>
</tr>
<tr>
<td>ME271 Design for Industry</td>
<td>90</td>
</tr>
<tr>
<td>Non-engineering Elective</td>
<td>45</td>
</tr>
<tr>
<td>ME232 Electronics and Measurement Systems</td>
<td>60</td>
</tr>
</tbody>
</table>

750
Faculty of Engineering

conditioning

those who have a
ee in engineering or ap-
advanced studies based
advantages.

The course consists
en by evening attendance

Graduate Diploma in Maintenance Engineering

This part-time course is designed for those who have a
qualification such as a diploma or degree in engineering and
who wish to take advanced studies based on maintenance
engineering and its interaction with industry in general. The
course consists of four subjects taken by evening attendance
usually spread over two years. The subjects are:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME672 Maintenance Management</td>
<td>120</td>
</tr>
<tr>
<td>ME673 Maintenance Engineering</td>
<td>90</td>
</tr>
<tr>
<td>ME772 Diagnostic Processes</td>
<td>120</td>
</tr>
<tr>
<td>ME773 Engineering Science</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>420</td>
</tr>
</tbody>
</table>

People who have experience in the maintenance field but not
the prerequisite qualifications may be enrolled if they have an
adequate background and are able to cope with the course.
Assessment is continuous throughout the course.

Master of Engineering

Graduates who hold a Bachelor’s degree and who have shown
a high standard of academic achievement in that course may
be admitted to candidature for the degree of Master of
Engineering.

The higher degree programs currently available require the
presentation of a major thesis based on original research,
investigation or development work, carried out either within
Swinburne or externally, providing that adequate facilities and
supervision can be arranged. External work can be carried out
in an approved industrial, governmental, educational or
research organisation.

Copies of the Statute for the degree of Master and application
forms are available from the Registrar’s office.

*Approved subjects chosen from Arts or Business see section entitled
‘Engineering subject details’ for information on general electives.
Engineering subject details

This section contains a brief description of the various subjects in all engineering degree courses, the diploma course in building surveying, and all graduate diploma courses.

It should be noted that details of subjects taught by engineering departments to students in other courses (e.g., environmental health diploma which is offered by the Applied Science Faculty) are given in the handbook of the Faculty offering the course.

Subjects in this section are grouped in numerical order within the following codes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Department or Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>Liberal Studies (Arts Faculty)</td>
</tr>
<tr>
<td>BS</td>
<td>Business Faculty</td>
</tr>
<tr>
<td>CE</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>EA</td>
<td>Manufacturing Engineering</td>
</tr>
<tr>
<td>EE</td>
<td>Electrical and Electronic Engineering</td>
</tr>
<tr>
<td>EF</td>
<td>Engineering Faculty</td>
</tr>
<tr>
<td>EP</td>
<td>Manufacturing Engineering</td>
</tr>
<tr>
<td>ME</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>MP</td>
<td>Manufacturing Engineering</td>
</tr>
<tr>
<td>SA</td>
<td>Applied Science Faculty</td>
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<tr>
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Students should note the following definition with regard to reading material prescribed for engineering subjects:

**Preliminary reading**
Introductory material which students are expected to read before classes commence.

**Textbooks**
Material essential to the subject.

**References**
Material that will be referred to throughout the duration of the subject.

Unless otherwise specified, students are advised not to purchase textbooks or references until classes commence.

AT195 Communications 1

Two hours per week for two semesters
Assessment is continuous

A first-year subject in the diploma course in building surveying which introduces students to techniques for developing basic skills in oral and written communication. The emphasis is on the following areas:

1. **Personal and interpersonal communication skills**; decision-making and problem-solving in groups; skills in thinking critically and creatively.
2. **Written and diagrammatic communication**; researching, compiling and writing reports.
3. **Practical skills** including use of telephone, conducting interviews, business letters, giving instructions and public speaking.

**References**

AT197 Communication Skills

Two hours per week for first semester and one hour per week for second semester
Assessment is continuous

A first-year subject in all degree courses in engineering, which is designed to develop students’ skills in communicating through the spoken and written word. Class activities are designed to encourage students to apply these skills both individually and within a group context. Creative thinking, decision-making and problem-solving as they relate to engineering also form an integral part of the communication process.

**References**

AT293 Liberal Studies

Three hours per week for one semester
Assessment is continuous

A second-year subject in the degree course in manufacturing engineering.

The aim of this subject is to introduce students to the various concepts, including employment in a modern industrial society. As a result of this introduction, students become aware of the necessity for an interdisciplinary approach to industrial affairs.

Areas to be covered in this course are: industry; personal and interpersonal communication skills applied to the work situation and applied to community relations. Influence of physical setting in communication.

Behaviour of work groups; use of learning theories in acquiring new behaviours and modifying existing behaviours. Physiological factors in our sense of well-being — stress, anxiety, drugs and food.

Minority groups in industry; groups which are affected by technological change, the unemployed, migrant women.

Industrial democracy; decision-making, worker participation, industrial conflict and the ways to resolve conflict, and trade unions.

Basic requirements are active participation in a seminar-type class setting and thorough knowledge of the textbook.

**Textbook**

AT296 Behavioural Studies

Four hours per week for one semester

A second-year subject in the diploma course in building surveying. This subject is designed to integrate with administration subjects.

Apart from study of the introductory psychology text, the classes are focused on experiential learning. To this end active participation in classes is required. These class seminars are focused on self-awareness as a basis to communication skills, assertiveness, use of learning theories in modifying behaviour and stress management. In stress management, areas such as relaxation, nutrition and psychological stress reduction are covered.

**Textbook**

AT396 Communications 2

Two hours per week for one semester
Assessment is continuous

A third-year subject in the diploma course in building surveying which develops further skills in specific areas of communication relevant to building surveyors.

The emphasis is on such things as: relating to the public, and to the media; work relations — working with committees, conduct and minutes of meetings, peer group relations; technical and descriptive reports, reports to councils, work diaries; job applications and interviews.

**References**
Consult with the lecturer in charge
AT792 Applied Psychology
A general elective subject in all degree courses in engineering which focuses on the understanding of the psychological skills required to understand one's own experience and the experience and behaviour of others. The course is designed to help students in both their professional careers and their private lives.

The course includes models for understanding human behaviour, stress management, and aspects of communication.

Reading guides are provided.

AT793 Literature and Media
A general elective subject in all degree courses in engineering where the objective is in developing an awareness in reading and viewing modern day literature, films and television.

This subject includes the following topics: "The book of the film" — a modern day phenomenon. Differentiating between fact and fiction in documentaries and case studies. Media and authority — the influence of public attitudes through mass media. Relationship between advertising images and social change. Media images of countries, people and professions. Presentation of programs in one idiom originally designed for another. Humour — and what constitutes national humour.

References
Consult with the lecturer in charge.

AT794 Sociology
A general elective subject in all degree courses in engineering which is a general introduction to sociology aimed at providing the student with the tools to examine society in cross-section and over a period of time. It is a study of social structure and social action. This analysis of Australian society along with relevant comparisons made with other societies provides the student with a useful set of concepts and the appropriate terminology.

References
Consult with the lecturer in charge.

AT795 Law in Society
A general elective subject in all degree courses in engineering which explores the relationship between the law and the society it purports to serve. Part of this relationship involves the nexus between changes in social attitudes and behaviour and the implementation and enforcement of the law. As a preliminary to the understanding of our society it is necessary to view the development of western society from a theoretical perspective and then to place this perspective in an historical framework.

Reading guides are provided.

AT796 Technology and Society
A general elective subject in all degree courses in engineering, exploring the social impacts of mainstream and 'alternative' technologies on society. The social emphasis stems from the need to increase social awareness in industrial planning. The course includes among other topics: industrial revolutions, human values in current technological practices, renewable sources of energy and 'socially useful' alternative products.

References
Schumacher, E.F., Good Work. Lond., Jonathan Cape, 1979
Dickson, D., Alternative Technology. Lond., Fontana, 1974

AT797 Archaeology
A general elective subject in all degree courses in engineering. It has two major objectives, to introduce students to the techniques and theories of archaeology in a stimulating and practical manner; and to give students sufficient field work experience to be accredited as a full Team Member with the Victorian Archaeological Survey.

The topics include among others: site recordings, photography, mapping, stratigraphy and laboratory analysis.

References
Coutts, P.J.F., Frank, R.K., Hughes, P.J., "Aboriginal Engineers of the Western District", Victoria, 1978, VAS

AT798 Philosophy
A general elective subject in all degree courses in engineering. It is designed to develop skills in philosophical analysis and reasoning and encourage the application of these skills to contemporary issues relating to science and technology. Topics include metaphysics, doubt and certainty, scientific methods, ethics and aesthetics.

References
Consult with the lecturer in charge.

BS196 Introductory Law
A first-year subject in the diploma course in building surveying, intended to enable students to understand the origins of law and the use of law in their personal, civic and business affairs.


BS294 Managerial Economics
One hour per week for two semesters

A second-year subject in the degree course in mechanical engineering aimed at introducing the basic concepts and principles of economics as used in business decision-making.

Among the concepts to be examined are markets and resource allocation, demand analysis and forecasting, cost and output relationships, firms' objectives and pricing strategies, investment analysis, industry economics, the structure of Australian industry and the role of industry assistance.

Textbooks
Davies, J., and Hughes S Managerial Economics. Plym., McDonald and Evans, 1977

References
Heyne, P. The Economic Way of Thinking, 4th edn, Chic., SRA, 1983
BS299  Financial Management
Three hours per week for one semester
A second-year subject in the diploma course in building surveying designed to develop in students an understanding of finance relevant to the profession of building surveying. Basic accounting theory and practice as relevant to building works. Cost accounting and cost control methods for building projects. Business finance: the role and scope of the finance function, tools and techniques for planning and decision-making. Feasibility studies: analysis of the financial practicability of proposed development projects.

BS399  Administration 1
Three hours per week for one semester
A third-year subject in the diploma course in building surveying, which introduces students to organisation and management theory and to develop their understanding of management problems in organisations and ways of dealing with them. Management and its environments. Current management thought and its origin; scientific management, traditional organisational principles. Bureaucracy, human relations management, systems theory. Contingency theory and problems of management: planning, strategy, organisational design, mechanistic and organic systems of management.

References

BS400  Administration 2
Four hours per week for one semester
A final-year subject in the diploma course in building surveying, which further develops students' understanding of administration and management principles. Decision-making and planning. Organisational communication. Control systems. Organisational behaviour: motivation, behaviour modification, group dynamics, management style, organisational climate, managing planned change. Staffing and manpower planning. The effective and efficient organisation.

References

BS498  Decision Analysis and Financial Management
Two hours per week for one semester
An elective subject in the fourth year of the degree course in mechanical engineering, which involves consideration of approaches available for effective management of the economic resources of an organisation. Topic coverage will include understanding financial data, prediction of cash flow forecasting methods, resources allocation in a competitive environment, capital expenditure evaluation techniques and decision-making under varying conditions of business risk. Throughout the unit emphasis is on problem definition, alternate solution approaches and interpretation and presentation of results.

BS501  Accounting and Finance
Three hours per week for one semester
A general elective subject in all degree courses in engineering which is designed to teach students to develop and integrate concepts and principles of accounting where they assist management decision making and policy formulation within the business. No prior knowledge of accounting is assumed.
Objectives of this course are to give students a broad knowledge to communicate with executive business staff, understand the concepts behind any management decisions; understand the link between accounting and decision process.
The topics studied are drawn from the following
(a) The nature of financial statements
(b) The analysis of financial statements
(c) Working capital management
(d) Cost data and short-run decision analysis
(e) Long-run investment decisions
(f) Introduction to taxation for business
A series of five films and small case studies is presented during the semester.

References
A reading list is made available during the semester.

BS502  Legal Studies
Three hours per week for one semester
A general elective subject in all degree courses in engineering, designed to introduce students to the study of law. Firstly, to give students a general insight into an alternative discipline or field of learning, and secondly to provide students with an appreciation of particular areas of law relevant to the future practice of their profession.
In pursuit of the first objective, topics such as the nature of law, its historical origins, the institutional setting in which it is administered and the reasoning processes employed by its practitioners, are studied. An appreciation of such matters should enable engineers to bridge the communication gap which often exists between the legal and scientific communities.
In pursuit of the second, attention is paid to one or more of the following matters relevant to practice
(a) Contracts for the provision of engineering services by practices and employees
(b) Agreements involving resort to arbitration as an alternative to the courts
(c) Property law concepts relevant to the practice of engineering, including the so-called ‘intellectual property’ concepts applicable to patents, copyright, trademarks and industrial design
(d) The consequences in civil law (the tort of negligence) for the careless provision of engineering services or advice
(e) The comparative advantages and disadvantages of companies, partnerships, trusts and joint ventures as vehicles or entities for the practice of engineering
Materials are provided to students and detailed references referred to during tuition in this unit.
BS503 Managerial Economics
Three hours per week for one semester

A general elective subject in all degree courses in engineering except mechanical engineering. No prior knowledge of economics is assumed.

Consideration is given to those economic concepts and methods of analysis that bear directly on the management of a firm. The topics covered are drawn from: markets and resource allocation; demand; production and costs; prices and profits; investment decisions; industry economics; the structure of Australian industry and the role of industry assistance.

Textbooks
Davies, J. and Hughes, S. Managerial Economics. Pym, MacDonald and Evans, 1979

References

BS504 Contemporary Macroeconomics
Three hours per week for one semester

A general elective subject in all degree courses in engineering. It is intended to complement the unit BS503 Managerial Economics. No prior knowledge of economics is assumed.

Examination is made of those factors which determine the aggregate level of economic activity. Employment, inflation and money markets are important areas for consideration in the unit. A general framework for macroeconomic analysis is established and other topics to be treated in this unit include analysis of the components of aggregate demand, the role of money and interest rates in influencing employment and inflation, and an introduction to the significance of overseas trade.

All topics are oriented to current economic experience and the relevance of monetary and fiscal policy.

Textbooks

CE112 Applied Mechanics
Four hours per week for two semesters

A first-year subject in the diploma course in building surveying designed to develop in students an understanding of the basic principles of mechanics and their application to the behaviour of loaded members and simple systems.

Basic concepts: loads, reactions, equilibrium, internal forces, determinacy, superposition.
Stress and strain: general load-deflection and stress-strain behaviour including elastic, plastic, strain hardening, brittle, non-linear and visco-elastic behaviour. Linear elastic parameters, Plastic theories of materials: relevant mechanical properties (density, stress-strain behaviour, effects of temperature) of common building materials including metals, timber, rock, concrete, ceramics and plastics. Common tests to measure properties.

Benign deflection of structural members; statically determinate tension members, beams, long and short columns, shafts, simple connections.

CE113 Statics and Dynamics
Two hours per week for three semesters

A first-year subject in all degree courses in engineering, designed to develop in students an understanding of the basic principles of statics and to extend these concepts to the behaviour of loaded members, simple systems and structures.

Basic concepts: forces and their actions, reactions and equilibrium, pin-jointed trusses and frames, shearing-force and bending moments.
Stress and strain: types of stress, general relationships, linear-elastic parameters.

The principles of construction of single- and double-storey residential buildings: basic structural systems, introduction to building trades, properties of materials used in domestic building (timber, plain and reinforced concrete, masonry).

Methods of fixing: mechanical fasteners, adhesives, timber joints. Domestic construction: details of foundations, footings, floors, walls, claddings and linings, roof plumbing, joinery, fireplaces and chimneys, services, fitting, glazing, painting and decorating, builders’ hardware.

Regulations and codes governing residential construction. Drawings practice: sketches and finished drawings for a variety of construction components and structures.

Written and verbal reports on selected topics relevant to the syllabus.

CE211 Structural Mechanics
Three hours per week for two semesters

A subject in the second year of the degree course in civil engineering which develops in students an understanding of the principles of mechanics as applied to structures. After completing the subject students should be competent to analyze statically determinate planar structures and statically indeterminate beams.

Stress and Strain
Biaxial loading, principal stresses, Mohr’s circle for stress and strain, relationships between stress and strain, 3 Venant’s principle and stress concentrations.

Performance of loaded members
Torsion: elastic and inelastic stresses and deflections for circular and thin-walled closed-tube sections. Bending: internal actions, flexural stresses, shear centre, skew bending, composite sections, inelastic bending, beam deflections (OE, moment area, virtual work). Columns: short columns, long columns ( Euler and sear equations).

Statically determine: structures: stability, determinacy, compound structures, trusses, simple frames, influence lines for beams.

Statically indeterminate: structures: compound bars, continuous beams (force and slope-deflection methods).
CE231  Hydraulics  
Three hours per week for two semesters

A subject in the second year of the degree course in civil engineering which develops in students an understanding of the principles of fluid mechanics. At the end of the course students should be able to analyse a wide range of simple water engineering problems.


CE241  Surveying  
Two hours of theory per week for two semesters and three hours of practical work for twenty weeks

A subject in the second year of the degree course in civil engineering which enables students to use basic surveying and computation methods and instrumentation in engineering practice.

Introduction: principles and types of surveys, error classification and sources, detail surveys, plotting procedures and plan layout. Distance measurement: chaining equipment, procedures and reductions. Principles and use of electronic distance measurement. Levelling: construction, use and adjustment of level types, booking and reduction of levels. Contour properties, plotting and use of contour plans. Theodolites: construction, use and adjustments of theodolites, traversing, angle reading methods, setting out of works. Computations: computation techniques and electronic calculator use. Computations related to traverse reductions, missing parts determination, subdivision of land, road intersections and areas of various figures, circular curves, setting out, using deflection angles and tangent offsets. Practical work: exercises related to all aspects of theory, in particular levelling and theodolite use.

CE242  Land Surveying  
Five hours per week for one semester

A second-year subject in the diploma course in building surveying, designed to enable students to understand basic surveying techniques and legal aspects of surveys as related to building surveying practice.


CE251  Structural Design  
Four hours per week for two semesters

A subject in the second year of the degree course in civil engineering which introduces students to the concepts and methods of engineering design and shows how structural principles are applied to the design of structural elements and simple civil engineering structures.

Basic studies: the design process, considerations affecting design, design codes.

Structural loads: types of loads, loading codes. Reinforced concrete: elastic and ultimate strength theories for rectangular beams, one-way slabs, tee beams, columns, footings.

Steel: properties, fabrication, erection, codes, structural elements and assemblies, ties, beams, columns, connections.

Timber: properties, codes, design of members and connections.

Design studies: applications of theory and design codes to the design of structural members, connections and simple assemblies.

CE252  Structural Design 1  
Four hours per week for two semesters

A second-year subject in the diploma course in building surveying, which develops in students an appreciation of the action of structural components and of complete structures and to introduce students to methods of analysis available to designers.


Behaviour of structures: the modes of structural action of the major types of structures, emphasising the relationship between deflections and internal forces and stresses for tension and compression structures, trusses, beams and frames, space structures and combined forms.

Introduction to structural analysis: introduction to the important methods of analysing redundant structures and connections and calculating structural deflections.

Structural design: the design process, design methods, stability of structures, checking of structural designs.

Timber: design of structural members, assemblies and connections.
CE272  Building Structures 2
Six hours per week for one semester
A second-year subject in the diploma course in building surveying, designed to give students an understanding of the general principles and details of buildings with load-bearing walls up to three storeys and single-storey, wide span structures with framed or load-bearing walls. Structural systems, basis of design, structural materials used for buildings up to three storeys. Foundations, footings. Fire protection. Framed buildings: materials, columns, trusses, portal frames, space frames. Walls: masonry, load-bearing, non load-bearing, joints, cladding. Windows and doors. Roof structures, coverings, parapets, plumbing. Floors on ground and suspended. Formwork for concrete. Stairs. Finishes. Drawing office work: drawings of details and structures relevant to the above topics. Written reports on selected topics requiring collection of data and library research will form part of the assessment.

CE273  Practical Inspection
Three hours per week for one semester
A second-year subject in the diploma course in building surveying, which develops in students an understanding of the aims of site inspection and a knowledge of inspection methods. Aims and objectives of site inspection. The organisation of the building site and areas of responsibility of various inspection authorities. Methods of inspection of foundations and structures. Prevention of unsound practices and the processes of acceptance and rejection. Inspection of remedial work. Students will visit sites and submit inspection reports.

CE281  Geoscience
Three hours per week for two semesters
A subject in the second year of the degree course in civil engineering which aims to develop an understanding of the fundamental principles of geology and soil mechanics and to apply these to simple applications in engineering. Geology: Significance of geology in civil engineering; principles of mineralogy, petrology and palaeontology; structural geology, including deformed rocks; geomorphology, including ground water; outline of Victorian stratigraphy; elementary applications of the above topics to civil engineering; practical work in mineral and rock identification, geological mapping and determination of sequence of geological events; excursions. Soil mechanics: General soil type, classification, compaction, soil stresses and chemistry. Soil hydraulics including permeability and flow nets; shear strength of sands and clays, Mohr's circle, direct shear and triaxial shear testing; earth pressure including active, passive and at rest, rigid and flexible walls.

CE282  Geomechanics 1
Two hours per week for two semesters
A second-year subject in the diploma course in building surveying, designed to provide a building surveyor with the necessary knowledge of geomechanics to enable him to perform his duties of inspection and approval of foundations and other earth works, properly. Types of soil and rock. Stress in soils: geostatic, load induced, hydrostatic. Strength of soils: behaviour of clay, sand and mixed soils. Field and laboratory tests. Soil water: permeability, effect of moisture content on strength. Foundations: introduction to bearing capacity, settlement and foundation design. Approval of foundations.

CE292  Statutory Control 1
Two hours per week for two semesters
A second-year subject in the diploma course in building surveying, designed to provide students with an understanding of the administrative procedures and principles which apply to a building surveyor's duties. Administration and law: local government structure and operation, the role and functions of the building surveyor, powers of entry, appeals, prosecutions, various standards and regulations. Regulatory control and inspectorial procedures for a range of building types.

CE311  Structural Mechanics
Three hours per week for one semester
A subject in the third year of the degree course in civil engineering which aims to develop students' skills in the elastic analysis of statically indeterminate structures. Statically indeterminate structures: elastic analysis of forces and deflections (virtual work, strain energy, moment distribution); approximate analysis. Matrix analysis of structures: introduction to force and displacement methods. Elastic stability: fundamentals; stability of members (columns, lateral buckling of beams, beam-columns); framed structures.

CE322  Urban Planning 1
Four hours per week for one semester
A third-year subject in the diploma course in building surveying, which introduces students to problems involved in planning development in urban and rural environments. The planning process: the purpose of planning, historical development or urban settlements, sociological effects of the built environment. Administration of planning schemes. Residential planning standards. Basic surveys of planning, the use of remote sensing in urban planning. Introduction to data bases for planning purposes.

CE331  Water Engineering
Three hours per week for one semester
A subject in the third year of the degree course in civil engineering which teaches students the theory relating to water engineering systems. On completion, students should be able to analyse or design the components of these systems. Pump theory: use, selection and performance. Channel flow: steady non-uniform phenomena. Pipe systems: pressure conduits, equivalent pipes, reticulation networks. Hydrology: Hardy-cross analysis, water hammer. Irrigation: principles.
CE351 Structural Design
Six hours per week for one semester
Three hours per week for two semesters for part-time students (CE353)
A subject in the third year of the degree course in civil engineering which extends students' knowledge of the principles of structural design in concrete and steel and gives them practice in the application of these principles.

Design theory (45 hours)
Design principles: planning and choice of structural type; stability, rigidity, economic considerations.
Concrete: material properties; mix design; design in reinforced concrete.
Steel: properties; failures modes; elastic design of elements and assemblies; connections.
Fabrication and economics of fabrication methods.

Design practice (45 hours)
Exercises in structural steel and reinforced concrete design.
Computer programs are used to assist the design process where appropriate.

CE352 Structural Design 2
Five hours per week for one semester
A third-year subject in the diploma course in building surveying, designed to familiarise the student with the processes of design and checking of structural computations, with particular emphasis on codes of practice for metal structures.
The design of metal structures and the principles underlying the main clauses in the codes of practice for metal structures.
Steel structures code, high strength structural bolting code, cold formed steel structures code, aluminium structures code, other codes.
Checking of computations for metal structures.

CE361 Transport Engineering
Four hours per week for one semester
A subject in the third year of the degree course in civil engineering which gives students a more in-depth understanding of the highway and traffic elements making up the road system. Upon completion of the subject students are able to quantify many of these elements, e.g. highway and intersection capacities, vehicular headway distributions, and will have a greater knowledge concerning the various means of regulating, controlling and guiding traffic.

Administration of Australian roads and highways
Highway and intersection capacity: uninterrupted flow, levels of service, applications, interrupted flow, i.e., intersections.
Traffic studies: speed studies, volume studies, parking studies, urban and rural parking, traffic accidents, causes and means of prevention, accident records; before-and-after studies, statistical tests and significance.
Traffic signals: types and control, Miller's formula, co-ordination and computerised control.
Traffic aids and roadside furniture: traffic signs, pavement markings, guide posts, guard fencing, etc.
Introduction to vehicular headway studies: statistics, random flow, vehicular headways, exponential spacing law, applications.
Road-making materials; roadstone and bitumen testing, rheology and weathering of bituminous binders, design of bituminous admixtures using the Marshall method.
Flexible pavements: structure of roads, design of rigid and flexible pavements, stage construction; construction of gravel and FGR pavements.

CE372 Building Structures 3
Six hours per week for one semester
A third-year subject in the diploma course in building surveying, designed to give students an appreciation of the general principles, structural details, and associated services for multi-storey framed buildings:
Structural details, methods of construction, materials and finishes
Foundation types, Basements, Fire protection. Formwork
Drawing practice: finished drawings and sketches of a variety of structures and details from the above topics.
Written reports on selected topics requiring collection of data and library research will form part of the assessment.

CE393 Statutory Control 2
Four hours per week for one semester
A third-year subject in the diploma course in building surveying, designed to impart to students an appreciation of those administrative procedures and principles which particularly apply to the office of building surveyor.
Relevant acts, regulations and codes and related documentation will be emphasised.
Planning schemes
Relationship and application of various enactments and regulations to the municipal authority and building surveyor.
Building regulations, contents and interpretation.

CE402 Professional Projects
Three hours per week for one semester
A final-year subject in the diploma course in building surveying, designed to consolidate and integrate the various strands of the course and to develop students' self-education and communication skills further.
Preparation of a written report on material submitted for a building permit or alternatively preparation and assembly of documents to be submitted for a building permit.
Preparation of a written report on an approved project topic relevant to the course. Students are required to deliver a summary of their reports to their peers, academic staff and guests as a part of their assessment.

CE411 Structural Mechanics
Four hours per week for one semester
A subject in the fourth year of the degree course in civil engineering which develops further students' understanding of the principles of mechanics and their applications to structural analysis.
Plastic analysis: yield criteria (Tresca, von Mises); plastic theorems, collapse requirements; applications to framed structures, flat plates (yield line and strip methods).
Matrix analysis: direct stiffness method; plastic collapse of frames; introduction to analysis of continua (finite element).
Influence lines: influence lines for indeterminate beams and frames
Elastic stress analysis: fundamental elastic equations (equilibrium, strain-displacement, compatibility, rheological) for two- and three-dimensional elements; applications in flexure and torsion for solid, hollow and open sections, plate bending equations.
CE421 Planning
Two hours per week for one semester

A subject in the fourth year of the degree course in civil engineering which introduces students to the role of the engineer in urban and regional planning.

Town planning: purpose and function of planning; history of planning; neighbourhood planning; regional planning; physical and socio-economic surveys in both urban and regional planning; structure of planning in Victoria.

Transport planning: introduction to transport planning; public transport systems; transportation systems management.

CE431 Water Engineering
Three hours per week for one semester

A subject in the fourth year of the degree course in civil engineering which introduces students to water engineering practice. On completion of the course, students should be able to apply water engineering principles to the design of distribution and disposal systems, and should have an understanding of water quality criteria and treatment methods.

Town water supplies: quantity and pressure requirements, supply mains, balancing storage, reticulation.

Storm-water drainage: urban drainage systems, retarding basins, culvert hydraulics.

Irrigation: methods, soil-water relationships, quantities.

Water quality: physical, chemical and bacteriological parameters

Potable water treatment: methods, theory of sedimentation and filtration.

Waste-water treatment and disposal: methods and their application, loading rates.

CE441 Urban Planning 2
Two hours per week for one semester

A final-year subject in the diploma course in building surveying, which further develops students' understanding of the planning process.

Planning law: Acts and legislation governing town planning

Planning appeals: preparations for an appeal and participation in the appeals system.

Urban landscaping concepts relating to permit applications

Possible developments of the approval of permits (BADAC and Bains Reports).

CE451 Structural Design
Six hours per week for one semester

A subject in the fourth year of the degree course in civil engineering which extends students' knowledge of the principles of structural design in steel and timber and gives students practice in the application of these principles.

Design theory (45 hours)

Steel: plastic design of elements and assemblies, connections, fatigue, brittle fracture, non-destructive testing.

Timber: properties, design methods, connection.

Concrete: prestressed concrete design, plastic design for concrete structures.

Design practice (45 hours)

Exercises in concrete, steel and timber structural design, which include the use of computer programs where appropriate.

CE452 Structural Design 3
Four hours per week for one semester

A final-year subject in the diploma course in building surveying, designed to familiarise students with the relevant codes of practice for concrete and timber structures and to highlight important design requirements by considering selected case histories of structural failures.

Discussion of the major regulations and their underlying principles for codes and regulations for the following:

- Concrete structures: prestressed concrete; structural brickwork.
- Structural failures: brief case histories chosen to illustrate design criteria.

Practical work: checking of selected structural designs.

CE472 Building Structures 4
Four hours per week for one semester

A final-year subject in the diploma course in building surveying, designed to extend students' knowledge of building and associated processes.

Special types of structures: principles of structural action, methods of construction for shells, folded plate structures, tension structures, high-rise post-tensioned structures, etc.

Pre-cast and pre-fabricated structures

Demolition: regulations, methods, equipment, shoring, design for demolition, problems with prestressed buildings.

Excavation practice: methods, equipment, rock excavation, trenching.

Cranes and lifting appliances.

Hydrology, surface and subsurface drainage: elements of hydrology, applications to roof and sewerage drainage. Groundwater.

Practical work: drawings and sketches of relevant structural details, site visits, collection of technical information.

CE481 Geomechanics
Four hours per week for one semester

A subject in the fourth year of the degree course in civil engineering which enables students to investigate and design simple foundations considering both soil shear strength and settlement characteristics and which gives students an awareness of the various soil factors which control the stability of a given soil slope.

Settlement: soil stresses, consolidation, settlement

Foundations: bearing capacity, shallow foundations (single, group, combined, rafts), deep foundations, settlement considerations.

Site investigation: planning, sampling methods, in situ tests.

Slopes: cohesionless soils, cohesive soils, total and effective stress analysis, stability chart, residual strength.

CE482 Geomechanics 2
Three hours per week for one semester

A final-year subject in the diploma course in building surveying, designed to extend students' knowledge further, in the area of geomechanics.

Compaction: compaction process, compaction plant, control of filled sites.

Foundation: bearing capacity, settlement, footing design with particular emphasis on residential and light industrial foundations.

Excavations and underpinning.

Site investigations: methods, reports and their interpretation

Approval of foundations. Regulations. Responsibilities of various parties.

Faculty of Engineering
CE492 Building Law and Contracts

Four hours per week for one semester

A final-year subject in the diploma course in building surveying, which provides building surveyors with a suitable legal background for the proper discharge of their duties.


Contracts: types and conditions of contracts and tenders

Specifications

CE505 Investigation Project

115 hours over 19 weeks

A subject in the fifth year of the degree course in civil engineering which gives students training in carrying out a technical investigation.

Projects are chosen by students, after consultation with staff, from a list developed by staff. Projects are usually associated with departmental research interests. Projects are designed to teach students how to prepare and execute projects and to provide a basis for further study.

Each project requires a literature survey, and a theoretical and/or experimental investigation. Results, conclusions and recommendations are presented in a written report, and an oral report may also be required.

CE511 Structural Mechanics

Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering which extends the analytical abilities of students in some important areas of modern structural mechanics.

Selected topics in structural mechanics such as:

- Matrix analysis of continua
- Finite element methods
- Stress analysis
- Elasticity
- Column buckling
- Plate-bending problems
- Structural dynamics
- Vibrations for beams and framed structures

Emphasis will be given to the formulation of these problems for computer solution.

CE531 Water Engineering

Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering which extends students’ knowledge of the field of nonsteady, non-uniform flow. On completion, students should be able to apply the principles to practical problems.

A selection of topics from the following:

- Flood estimation, flood routing techniques, flood retarding basin design, reservoir yield analysis methods, ground-water flow, pressure surges in pipe systems, river engineering, ocean engineering

Emphasis is on the use of computers in analysis of problems

CE532 Environmental Engineering

Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering. The subject develops an appreciation of environmental issues and the role of the civil engineer in pollution control and provides the student with advanced skills in relation to water quality, pollution and treatment.

Environmental issues: global ecology, conservation versus development, resources and recycling.

Pollution control: environmental impact assessment, discharge licensing, solid waste management, air and noise pollution.

Water quality, pollution and treatment: water quality standards, surface water pollution and modelling, swimming pool water quality and treatment, wastewater reclamation.

CE552 Structural Design

Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering which develops further the design skills of students who have a particular interest in structural design.

Students undertake a selection of more advanced structural design projects, chosen to emphasise interpretation of current design codes and current design practices.

CE555 Civil Design

135 hours over 19 weeks

A subject in the fifth year of the degree course in civil engineering, which is designed to develop further, students’ design skills.

Students undertake a range of design assignments, both structural and non-structural, chosen to develop students’ abilities to apply theoretical knowledge developed in earlier years of the course to practical design situations, and to enhance their understanding of codes and regulations and of design procedures. Assignments which require creative solutions are included.

Students may be required to provide answers in the form of reports, written reports, design computations, drawings or models, as appropriate.

CE561 Transport Engineering

Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering which extends students specialist knowledge of the operating characteristics of traffic streams, provides a more in-depth treatment of urban road and freeway design, and examines in more detail the broad field of transportation engineering.

Road and freeway design: principles of urban road and freeway design, design of surface street systems for freeway traffic.

Transportation engineering: transportation networks, introduction to transport technology, introduction to transport economics, transport legislation.

Vehicular gap and delay theory: statistics, gap and delay theory, absorption of vehicles into passing traffic streams.

Theory of traffic flow: traffic flow models, hydrodynamic and car-following models, applications.

Queueing theory: application to simple case of random arrivals and exponential service distributions.

CE571 Construction

Three hours per week for one semester

A elective subject in the fifth year of the degree course in civil engineering which introduces students to engineering practice in a range of construction projects and gives students a concept of cost of projects.

Introduction: plant, materials, labour.

Safety: equipment, temporary works, safety of labour.

Civil engineering works: fundamental principles, construction methods, cost.

Building works: fundamental principles, construction methods, cost.

Industrial complex construction: multidiscipline construction.

Marine structures and offshore works: fundamental principles, construction methods, cost.

CE581 Geomechanics

Three hours per week for one semester

An elective subject in the fifth year of the degree course in civil engineering which extends students’ knowledge of geology and soil mechanics; introduces them to rock mechanics, and gives students some appreciation of the high level of experience and “art” required to practise in the area of geomechanics.

Earth pressure problems, braced excavations, tie-back walls and soil anchors, introduction to soil dynamics; introduction to rock mechanics; selected topics in soil engineering; further aspects of engineering geology.
CE592 Municipal Engineering
Three hours per week for one semester
An elective subject in the fifth year of the degree course in civil engineering which develops in students an understanding of the structure, function and operation of local government, and the ability to apply basic engineering principles to the types of work typically carried out by municipal engineers.
Municipal (22½ hours)
Local government: structure, functions and operation, finance, liaison with other authorities, introduction to powers, duties, and legal liabilities of municipal engineers.
Municipal engineering: design, drainage, and lighting of residential streets, municipal traffic management schemes — including case studies, municipal parking.
Planning (22½ hours)
Statutory planning in municipal engineering, preparation, approval and enforcement of planning schemes, permits and appeals; interim development orders; study of the hierarchy of roads in existing and new urban developments; community facilities; use of remotely-sensed imagery in urban planning.

CE595 Professional Practices
Six hours per week for one semester
A subject in the fifth year of the degree course in civil engineering which is designed to acquaint students with a variety of engineering practices and to make them more aware of the role of engineers in society.
The engineer and society
Professional ethics; the role of the engineer in society; the effect of man on the environment.
Engineering contracts and contract management
Initiation of projects; contract law; forms of contracts; contract documents (form of tender, bonds, conditions of contract, specification schedule of quantities); tendering procedures; estimating; CPM; cash flow; cost control; construction documentation; claims; variation orders; partial and final certificates; arbitration.
Statutory approvals
Procedure for obtaining planning and building permits.
Industrial relations
Company structures; trade unions; negotiations; arbitration and conciliation of labour disputes, man management; motivation; leadership; delegation of authority.
Economics
Cost-benefit analysis; discounted cash-flow; present worth criteria; buying or hire of plant.
Communications
Engineering technical reports; oral presentation of technical reports; letter writing; conduct of meetings.

CE670 Construction Technology
Four hours per week for two semesters
A subject in the graduate diploma course in civil engineering construction which considers technological resources available in the execution of a construction project.
Planning of construction programs, resource allocation, plant and equipment, soil investigation and data interpretation, construction materials, trade skills, regulations.

CE690 Civil Engineering Project Control
Four hours per week for one semester
A subject in the graduate diploma course in civil engineering construction which introduces the techniques for establishing and maintaining technical control of a civil engineering project.
General conditions of contract; forms of contract; drawings, specifications and quantities; estimating, scheduling and programming; quality control; documentation of work progress and costs; progress payment procedures; industrial safety.

CE691 Civil Engineering Management
Four hours per week for one semester
A subject in the graduate diploma course in civil engineering construction designed to develop an awareness of efficient site management techniques.
Responsibilities of a project manager; responsibility of site engineer; construction site organisation; site office procedures; contractor/principal relations; arbitration; company structures; man management; negotiations; arbitration and conciliation.

CE692 Communications
Four hours per week for one semester
A subject in the graduate diploma course in civil engineering construction. The theory and practice of communications. Students take part in a program designed to increase their personal capacities to understand and communicate well at different levels of oral and written communication, particularly as project managers in the construction industry. To this end various techniques are used and evaluated by the group. The course also includes a brief study of the historical role of the engineer in the development of human communications, placing the profession in its social context. The purpose of the course is to enable the engineer to evaluate professional problems more competently and to communicate ideas more effectively.

CE770 Construction Engineering
Four hours per week for two semesters
A subject in the graduate diploma course in civil engineering construction reviewing construction techniques for civil engineering projects.
Construction techniques for highways, bridges, railways, airports, tunnels, pipelines, foundations, buildings, dams, water supply structures, sewerage.

CE771 Construction Project Control
Four hours per week for one semester
A subject in the graduate diploma course in civil engineering construction which introduces students to a critical study of all aspects of a construction project.
Case studies of construction projects by report, discussion, seminars and lectures.

CE790 Financial Project Control
Four hours per week for one semester
A subject in the graduate diploma course in civil engineering construction which introduces financial concepts that are important in evaluating projects, in financing projects; in financial control and in determining the profitability of projects.
Cost control; financial control; determination of profitability; evaluation of projects; evaluation of sources of finance; evaluation of tenders; productivity monitoring.
EA411 Non-Newtonian Heat, Mass and Momentum Transfer

Three hours per week for two semesters (including practical work)
Assessment by examination

A subject in the graduate diploma course in biochemical engineering 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, viscosity, heat transfer and mixing. The final aspect of the subject, the application of this work to some practical situations such as heat sterilisation.

References

EA491 Biochemical Engineering

Three hours per week (including practical work) for two semesters
Assessment by examination

A subject in the graduate diploma course in 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. Nitrification-denitrification and river modelling.

References
McCall and Eddy, Inc. Wastewater Engineering: Collection, Treatment, Disposal, N.Y., McGraw-Hill, 1972

EE187 Electronics, Circuits and Computing

Five hours per week for first semester and three hours per week for second semester

A first-year subject in all degree courses in engineering
Computer programming: operating system familiarisation
Text editor familiarisation.
Programming philosophy. Elementary programming in BASIC.

References

EE255 Electrical Design and Computing

Four hours per week for first semester and three hours per week for second semester

A second-year subject in the degree course in electrical and electronic engineering.
Introduction to design: governing equations and design constraints, digital design, (design specification, contracts, etc.)
Conducting, insulating, magnetic materials, properties and uses.
Limitations to specific loading — current density, electric field intensity, magnetic flux density, losses and thermal limitations.
Thermal aspects of design — heat generation and dissipation, natural cooling — conduction — radiation — convection — net heat transfer — forced cooling — quantity of coolant required — thermal circuits — transient heating — general heating equations — cyclic heating — rapid heating — heat sink design.
Types and functions of inductors — transformers — electromechanical devices — fundamental equations for coil design — winding area — space factor — temperature rise. Magnetic circuit design, fringing and leakage estimation — tractive effect. Core and coil design of transformers.
Field plotting techniques: two dimensional fields — curvilinear squares, examples of field problems including estimation of leakage and fringing.
Bode Plots.
Analysis and design of linear small signal amplifiers: small signals, small signal models for FET and BJT (h-parameters, and hybrid π), midband analysis of GE and GS amps, plus low frequency and high frequency response. Bias circuit analysis and design. Two stage amplifiers.
Computer aided design: available design aids, interactive design, structuring and documenting programs, user friendliness. DC power supply design: single phase rectifiers, capacitor filters, zero regulators, IC regulators, qualitative coverage of multiphase rectifiers, inductor filters, feedback regulators and switching regulators.
Algorithmic processes: editors, compilers, task builders and interpreters.
Advanced BASIC programming and elements of FORTRAN language; functions and subroutines; use of library routines. Applications in electrical design.

References
Comer, D.J. Modern Electronic Circuit Design. Reading, Mass., Addison-Wesley, 1976
Electrical Engineering Design Data, Swinburne Press, 1983

EE282 Communication Principles

Four hours per week for one semester

A second-year subject in the degree course in electrical and electronic engineering.
Communication systems: guided and unguided transmission systems, measures of channel performance, modulation techniques and spectrum management.
Analogue modulation techniques: AM, SSB, FM, PM, stereo broadcasts. Noise and fidelity.
Digital modulation techniques: PAM, PWM, PCM, Delta M. Multiplexing. Noise and error rates. FSK and PSK.
Information theory: selection of efficient codes for data transmission.

References
**EE283  Electrical Circuits and Fields**

Four hours per week for two semesters

A second-year subject in the degree course in electrical and electronic engineering.

Circuit elements, linear and non-linear.
Steady state circuit analysis: mesh and nodal analysis.
Circuit theorems.


**References**


**EE284  Electronic Circuits and Devices**

Two hours per week for two semesters

A second-year subject in the degree course in manufacturing engineering.


Overview of transducers: interpretation of output data. Classroom demonstrations and practical work.

**Reference**


**EE286  Electrical Machines and Measurements**

Four hours per week for two semesters

A second-year subject in the degree course in electrical and electronic engineering.


Transformers: uses, types, and modes of construction. Ideal transformer equations for voltage, current ratio, current balance, current ratios.

**References**

Bell, D.A. Electronic Instrumentation and Measurements. Reston, 1983

**EE287  Electronics**

Four hours per week for two semesters

A second-year subject in the degree course in electrical and electronic engineering.


**References**


**EE305  Electronics in Horticulture**

Three hours per week for ten weeks

A subject conducted for students from Runnymede Horticultural College.

EE385 Electrical Power and Machines

Three hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.

Introduction to power systems.
Transmission line parameters; line hardware and insulations; cables; symmetrical and unsymmetrical lines; parallel lines; line representation; circle diagram; power system representation; single line diagrams; per unit methods; voltage regulation.
Three-phase transformers; transformer connections; harmonics; phenomena; synchronous machines; steady state analysis; cylindrical rotor and salient pole characteristics; two axis theory; transient and subtransient reactances; equivalent circuits; capability diagram; interconnected machines; induction machines; equivalent circuit; performance characteristics; effect of rotor resistance; starting and speed control.

References

EE387 Electronics and Communications

Five hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.

Analogue electronics including operational amplifiers, D/A, A/D conversion, data acquisition, active filters.
Digital electronics including LSI devices, microcomputers and digital signal processing.
Communications electronics with an emphasis on the electronics of quantisation of signals, compression and expansion of signals, PCM and DM systems, mixers and modulators.

References
Smol, G. Telecommunication Systems. Units 5 and 6, Milton Keynes, The Open University, 1976

EE389 Linear Control Systems

Four hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.

Introduction to feedback control systems. Analysis of simple systems using time domain and frequency response methods. Examples of electro-mechanical and hydraulic control systems.

References

EE357 Electrical Design

Three hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.

Computer-aided design: DC, transient and frequency analysis of networks by computer, device modelling, sensitivity analysis, optimisation techniques.
Quality control: control charts, sampling inspection schemes.
Reliability: probabilistic reliability theory, designing for reliability.
Human engineering: anthropometry, man-machine compatibility and interaction.
Project work involving design, testing, and presentation of results in class seminars and written reports. Technical report writing.

References
Grant, E.L. and Leavenworth, R.S. Statistical Quality Control, 4th edn, N.Y., McGraw-Hill, 1972
Selected Australian, British, DEF and MIL Standards

EE383 Electromagnetic Fields

Two hours per week for one semester

A third-year subject in the degree course in electrical and electronic engineering.

Static and quasi-static electric and magnetic fields: fields in materials; boundary conditions in dielectric, magnetic and conductive materials; solution of boundary value problems by image methods, conformal transformation, finite difference; multiple conductor systems, partial and total capacitance, self and mutual inductance, per phase inductance in polyphase systems.
Electromagnetic wave propagation: Maxwell equations, Helmholtz equations and solutions for perfect dielectric and ideal conductor; TEM plane waves, wave impedance, phase and group velocity, Poynting theorem and Poynting vector; plane wave penetration in good conductors; reflection and refraction of plane waves at boundaries between dielectrics and conductors; by-passing transmission lines, characteristic impedance, phase and group velocity, reflections at mismatched terminations and discontinuities in lines, impedance matching; TEM waves between parallel perfect conducting planes, introduction to wave guides.

References
EE405  Semi-conductor Electronics

Four hours per week for one semester

A subject in the graduate diploma course in digital electronics


References

EE406  Digital Logic

Four hours per week for one semester

A subject in the graduate diploma course in digital electronics

Logic gate functions: introduction in the basic logic gate function, and the synthesis of simple logic circuits. Boolean algebra; use of Boolean algebra in logic function description and analysis; inverting and non-inverting logic; relationship with truth tables. Binary arithmetic: binary numbers, addition, subtraction; positive and negative numbers; binary and binary-coded decimal; other binary codes.

Combinational logic: analysis and synthesis of combinational logic functions; Karnaugh maps and minimisation; comparators, decoders, encoders, multiplexers, half and full adders. Sequential logic: RS flip-flops; gated and clocked RS, D, and JK flip-flops; applications to shift registers, counters; theory of unlocked and clocked sequential circuits.

Introduction to microcomputer microprocessors.

References
Rowe, J. An Introduction to Digital Electronics. 3rd edn., Syd., Electronics Australia, 1978

EE407  Switching Circuit Analysis and Synthesis

Four hours per week for one semester

A subject in the graduate diploma course in digital electronics

Transistors and diodes as switches. Circuit models for diodes, bipolar transistors, and FETs in switching circuits; static analysis of switching circuits; clipping and clamping. Bistable, monostable and astable circuits; analysis and design of bistable, monostable and astable circuits; simple triggering methods; saturating and non-saturating circuits; hysteresis and Schmidt trigger. Switching speed: the factors limiting switching speed; methods of improving speed; saturating and non-saturating circuits. Basic logic gate characteristics: simple diode and transistor logic gate circuits; loading, fan out, logic levels and level shifting, noise margin, propagation delay; threshold logic circuits.

Reference

EE408  Input/Output Techniques

Four hours per week for one semester

A subject in the graduate diploma course in digital electronics

Digital to analogue and analogue to digital conversion: digital to analogue converters; switched resistor networks, tolerances, accuracy, linearity, speed; multiplying D/A converters; analogue to digital conversion techniques; successive approximation, parallel, and counter ramp converters; analogue multiplexing and demultiplexing. Input transducers: electrical characteristics of common analogue transducers; capacitive, electromagnetic, optical, piezoelectric thermocouple and resistive transducers; transducers with digital output; electromechanical switches, keyboards. Power output devices: power switching devices and circuits; AC and DC switching; isolation between small and signal and power circuits; inductive loads. Visual readout: optical readout devices; seven-segment and dot matrix alphanumeric displays; CRT displays.

Data storage systems: introduction to active device memory; magnetic core and magnetic surface memory; magnetic bubble memory.

References

EE455  Electrical Design

Three hours per week for one semester

A fourth-year subject in the degree course in electrical and electronic engineering.


Project work involving class seminars and written reports

EE475  Electrical Power and Machines

Five hours per week for one semester

A fourth-year subject in the degree course in electrical and electronic engineering.

Network equations: matrix methods; load flow studies, symmetrical faults; symmetrical components and un symmetrical faults. Single phase motors and other small machines; characteristics and performance; AC commutator machines; advanced topics for DC machines; Parallel operation of machines. Solid state control: rectification and inversion; commutation; harmonics; triggering circuits.

Reference
EE477  Electronics and Communications

Five hours per week for one semester

A four-year subject in the degree course in electrical and electronic engineering.

Analogue electronics: wideband amplifiers, single stage and multiple stage amplifiers, power amplifiers; tuned amplifiers; introduction to power electronics.

Digital electronics: introduction to sequential state machines; microprocessor; input/output hardware and software, memories, addressing; line drivers and receivers.

Communications: coding theory: linear and cyclic codes, error detection and correction, practical coding and decoding algorithms

High frequency lines: review of line equations, quarter wave lines. Microwave communication: devices, waveguides, measurements

Time domain and frequency response techniques. Using root loci, Bode plots, Nyquist diagrams.

Mathematics: matrix algebra, vector algebra.

Frequency response analysis and design. Introduction to non-linear systems. Design of sequential-state machines: representation analysis and design. Introduction to non-linear systems. Linearisation methods: State space methods and the phase plane. Introduction to discrete data sequences and sampling.

References

Connel, F.R. Antennas. Lond., Edward Arnold, 1972


EE489  Control Systems

Four hours per week for one semester

A four-year subject in the degree course in electrical and electronic engineering.

Classical design techniques for linear systems:


References


EE505  Integrated Circuit Components

Four hours per week for one semester

A subject in the graduate diploma course in digital electronics.

Algorithmic state machines: definition of classes, symbols, conversion of functional specifications into ASM charts. Realisation of ASMs with small scale, medium scale and large scale integrated circuit devices. Application of ASM techniques. Microprogrammed computer architecture, bit slice microprocessor components and techniques. Linked ASMs and their relationship to interfacing methods for hardware and software modules.

References


EE506  Digital System Techniques

Four hours per week for one semester

A subject in the graduate diploma course in digital electronics.

An exploration of the techniques applicable to digital systems including addressing, bussing, multiplexing, serial and parallel data transmission. The design of sequential state machines and digital computer systems. The use and impact of microprocessor based systems, using the above techniques, will be considered.

References


EE507  Digital System Applications

Four hours per week for one semester

A subject in the graduate diploma course in digital electronics.

A study of digital systems design problems using the techniques developed in the previous three semesters. The choice of parallel or serial signals, use of standard components, hard-wired logic, ROMs, and microprocessors. Interfacing and timing. Synchronous and asynchronous systems.

Applications are selected from the field of: timing and counting, displays, control, communication, logic sequencing and signal transmission and reception.

Opportunity is provided for students to design systems relevant to their own area of special interest.

References


EE508  Design and Project

Four hours per week for one semester

A subject in the graduate diploma course in digital electronics.

Individual design projects undertaken by participants under supervision. Each project entails setting of specifications, system design, choice of components, testing and reporting performance. Each participant in the program presents a seminar and a formal written report on the completed design.

Project topics are selected by participants in consultation with staff supervisors.

Design projects may be integrated with the participant’s normal work program, but must be approved by a supervisor before commencement.
EE570 Design and Project
205 hours over 19 weeks
A final-year subject in the electrical stream of the degree course in electrical and electronic engineering.

Systems engineering principles. Economic, environmental, and social aspects of design, cost-benefit analysis, design case studies.

Project work involving design, experimentation, investigation, testing, and presentation of thesis. Student seminar on project topics.

References
McColl, C.D. The Economics of Electricity Supply in Australia. MUP, Carlton, 1976

EE572 Design and Project
205 hours over 19 weeks
A final-year subject in the electronics stream of the degree course in electrical and electronic engineering.

Systems engineering principles. Economic, environmental, and social aspects of design, cost-benefit analysis, design case studies.

Project work involving design, experimentation, investigation, testing, and presentation of thesis. Student seminars on project topics.

References
McColl, C.D. The Economics of Electricity Supply in Australia. MUP, Carlton, 1976

EE575 Electrical Power and Machines
Six hours per week for one semester
A final-year subject in the electrical stream of the degree course in electrical and electronic engineering.

Electrical machines transients. Transient representation of synchronous, induction and DC machines. Electrical machine dynamics.


Overvoltages and transients of electrical supply systems. Overvoltage protection.

Circuit interruption principles and circuit breakers. Protection principles. Protection schemes for electrical plant and systems.

Distribution engineering. Basic outline of public authority and commercial systems and the factors influencing their planning and design.


References
Bewley, L.V. Travelling Waves on Transmission Networks. 2nd edn. N.Y., Dover, 1951

EE576 Electronics
Four hours per week for one semester
A final year subject in the electrical stream of the degree course in electrical and electronic engineering.

Single chip microcomputers and their applications in power engineering (e.g. protection).

Power switching devices, control circuits and applications. DC choppers feeding inductive loads, PWM control of DC motors.

Inverters, uninterruptable supplies, and domestic AC supply from batteries. Variable frequency supply for AC machines. Power factor correction.

Electromagnetic interference. Generation of emi by power switching systems. Effect of emi on control circuits.

Analogue instrumentation methods. Analogue signal transmission practices. Analogue processing of power circuit variables.

Analogue data acquisition, A/D conversion, and digital data processing.

Data communications and interfacing. Basic serial data transmission standards, line driving and receiving.

References
Ramshaw, R.S. Power Electronics: Thyristor Controlled Power for Electric Motors. Lond., Chapman and Hall, 1973

EE577 Electronics
Six hours per week for one semester
A final-year subject in the electronics stream of the degree course in electrical and electronic engineering.

Analogue electronics: phase locked loop components and basic performance parameters. data acquisition components, power electronics.

Digital electronics: comparison of alternative microprocessors and interfacing methods, high speed line driving and receiving for digital data transmission, input/output isolation.

References
National Semiconductor Interface Databook. 1980
Intel, MCS48 User’s Manual

EE578 Communications
Four hours per week for one semester
A final year subject in the electronics stream of the degree course in electrical and electronic engineering.

Data transmission: modern, modulation methods, interfacing, line conditioning, multiplexers and concentrators, switched and leased lines, Datel, CCITT standards, protocols, bit and byte oriented protocols, BSC, HDLC, SNA, ISO model, public data networks, AUSTPAC, DDN, ISDN.

Antennas and propagation: linear dipole HF, array VHF and aperture microwave antennas. Propagation characteristics from HF to microwave.

Optical communications: sources, detectors, fibres, system design of fibre optic systems, free-space links, computer techniques.

Filter analysis and synthesis: filter approximations, Butterworth, Chebychev and elliptic functions, impedance and frequency scaling, introduction to active filter synthesis.

References
EE579 Control Systems
Two hours per week for one semester

A final year subject in the degree course in electrical and electronic engineering.

Optimal control: static and dynamic optimisation, review optimisation theory and techniques, time optimal control, optimal control of a steady state process.

Sampling and discrete data: nature of sampling as a modulation process. Data holds. Introduction to difference equations and Z transforms. Stability of discrete data systems.

Process control: survey of process control; PLC, process loop control, PID controllers, variations to basic process loop.

Digital control and data acquisition: outline of elements of digital based system, applicability of sampling theory, interfacing techniques, microprocessor based systems, digital control algorithms.

References


EE590 Computer Systems Engineering
Three hours per week for one semester

A final year elective subject in the degree course in electrical and electronic engineering. This subject is conducted jointly by the Department of Electrical and Electronic Engineering and the Department of Computer Studies.

Computer electronics: LSI technology; microprocessors, memories, peripherals, high density and high speed technologies; computer architecture, computer elements, microprogrammable processors; buses and bus standards, interfacing to peripherals and processors; hardware and software support for developing dedicated systems, allocation of hardware and software functions.

Computer software: storage of data sets, searching and sorting techniques, high level languages and their compilation, introduction to operating systems, memory management, program segmentation and linking, multiprocessing, distributed processing.

EE591 High Voltage Systems
Three hours per week for one semester

A final year elective subject in the degree course in electrical and electronic engineering.

Travelling wave theory and surge phenomena. Insulation co-ordination for lines and stations.

High voltage insulation. Breakdown mechanisms.

Characteristics and applications.

Selected topics from high voltage DC systems, circuit breakers, transformers and other station equipment.

Advanced protection schemes.

References


EE592 Communication Systems
Three hours per week for one semester

A final-year elective subject in the degree course in electrical and electronic engineering.

Computer communications analysis and design

Topography, access methods, random access methods, baseband and broadband local area network.

Antennas and propagation

Advanced topics in computer design and analysis of antennas, navigational aids, radar.

Satellite communications

Spare segment characteristics, ERP, G/T, transponder characteristics, link budget, earth station characteristics, AUSSAT, INTELSAT.

References

Aussat Pty. Ltd. Network Designer’s Guide. 1984


EE593 Electrical Machine Drives
Three hours per week for one semester

A final year elective subject in the degree course in electrical and electronic engineering.

Direct current machines: transfer functions, state models. Control strategy, torque and speed feedback loops. Transducers. Solid state control, four quadrant operation, regenerative braking, fully-controlled converters, choppers. Starting methods.

Induction motor: speed control by variation of terminal voltage, pole changing, pole amplitude modulation, variation of rotor resistance.

Energy return to supply. The static inverter. Performance of an Induction motor on a non-sinusoidal supply, high frequency equivalent circuit.

Synchronous machine: motor-starting methods and operation under variable speed applications.


References
Ramshaw, R.S., Power Electronic Thyristor Controller Power for Electric Machines. Lond., Chapman and Hall, 1973

Murphy, J.D., Thyristor Control of AC Motors. Oxford, Pergamon Press, 1971

A51359 General Requirements for Rotating Electrical Machines. Standards Association of Australia

EE594 Electronic Systems
Three hours per week for one semester

A final year elective subject in the degree course in electrical and electronic engineering.

Digital filters: Z transforms, filter realisations; S, Z transforms.

Analogue techniques: transversal filters, CCDs, SCRs.

Digital hardware techniques: Mixed logic, Custom ICs; (gate arrays, VLSI-MPCs), large system testing including signature analysis.

References

Peatman, J.B., Microcomputer Based Design. N.Y., McGraw-Hill, 1977


EE596 Operations Research in Electrical Engineering

Three hours per week for one semester

A final-year subject in the electrical power stream of the degree course in electrical and electronic engineering. This subject is conducted jointly by the Department of Electrical and Electronic Engineering and the Department of Mathematics.

A selection of topics from: linear programming, Markov processes, queuing theory, dynamic programming, network analysis, simulation. Case studies in the application of operations research techniques to electrical engineering.

References

EE599 Control Systems

Three hours per week for one semester

A final-year elective subject in both streams of the degree course in electrical and electronic engineering.


Designed-based projects: A set of projects covering the topics outlined above.

References

EE631 Electrical Power and Electronics

Four hours per week for one semester

A subject in the graduate diploma course in telecommunication systems management.


References
Connor, FR. Antennas. Lond., Edward Arnold, 1972
Connor, FR. Modulation. Lond., Edward Arnold, 1973

EE632 Administrative Practice

Four hours per week for one semester

A subject in the graduate diploma course in telecommunication systems management.


References
Commonwealth of Australia, Report of the Committee of Inquiry into Telecommunications Services in Australia, 3 Vol., Canberra, AGPS, 1982

EE633 Telecommunication Principles

Six hours per week for one semester

A subject in the graduate diploma course in telecommunication systems management.


References
Connor, FR. Antennas. Lond., Edward Arnold, 1972
Connor, FR. Modulation. Lond., Edward Arnold, 1973

Faculty of Engineering
EE731  Electronics
Four hours per week for one semester
A subject in the graduate diploma course in telecommunication systems management.

References
Frenzel, L.E. Getting Acquainted with Microcomputers, Indianapolis, Sams, 1979

EE733  System Planning and Control
Six hours per week for one semester
A subject in the graduate diploma course in telecommunication systems management.

References
Selected Australia, British, DEF (Aust.) and M11 Standards.

EE734  Telecommunication Systems
Six hours per week for one semester
A subject in the graduate diploma course in telecommunication systems management.

References

EE735  Elective Subject
A subject in the graduate diploma course in telecommunication systems management.
Technical elective or project appropriate to the student’s interest or employment, taken continuously for 3 weeks at end of semester.
Note: This time may be extended up to a maximum of 6 weeks to enable completion of projects or approved special electives.

EF197  Introduction to Engineering
One hour per week for two semesters plus 15 hours in selected non-teaching periods
A first-year subject in all degree courses in engineering which provides an introduction to a professional engineer’s role and responsibility in the community, an appreciation of the role and technical practice of members of the engineering workforce, and some practical experience in basic process skills.

References
The Institution of Engineers, Australia, Code of Ethics, IE Aust., 1981
**EP421 Applied Statistics and Operational Research**

Two hours per week for two semesters

Assessment by test and class assignments

A subject in the graduate diploma course in industrial management.

Statistics: frequency 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; queueing theory; simulation; replacement theory, network analysis.

References


Lockyer, K.C. An Introduction to Critical Path Analysis. 3rd edn, Lond., Pitman, 1969


**EP422 Engineering Administration**

Two hours per week for two semesters

Assessment by tests and class assignments

An introductory subject in the graduate diploma course in industrial management

Organisation and management: historical survey; types and purposes of organisations: roles of management. Organisation structures and relationship to planning; directing, communicating and controlling. Organisation structures: division of labour; job definitions; departmentalisation. Functions in industry. Financial forecasting; control of production; material 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**

Two hours per week for two semesters

Assessment by examination and class assignments

A subject in the graduate diploma course in industrial management


References


Mathews, R.L. The Accounting Framework. 3rd edn, Melb., Cheshire, 1971


**EP424 Human Relations in Industry**

Two hours per week for two semesters

Assessment by examination and class assignments

A subject in the graduate diploma in industrial management.

General psychology and the individual, awareness and interpretation of the environment; motivation and behavioural patterns. Industrial psychology: individual differences; selection and training of employees; physical conditions of work. Social psychology of groups: behaviour patterns: morale; group leadership. Industrial relations machinery; trade unions; employees' associations, conciliation and arbitration: collective bargaining. Job enrichment and participation.

References


**EP425 Legal Aspects of Industrial Management**

Two hours per week for two semesters

Assessment by a three-hour examination

An optional subject in the graduate diploma in industrial management.

Introduction: industrial law and its relation to general law; Australian law and its relation to English law, powers and organisation of Australian courts, contract law as it applies particularly to employment, selling and 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

Heron, L.R. and Hill, W.R. eds Mayman's Australian Commercial Law and Principles. 11th edn, Melbourne, Pitman, 1968

Keating, D. Law and Practice of Building Contracts, including the Law Relating to Architects and Surveyors. 3rd edn, London, Sweet and Maxwell, 1969

Sykes, E.J. The Employer, the Employee and the Law. 3rd edn, Sydney, Law Book Co., 1973

EP426 Management Practice
Three hours per week for two semesters
Assessment by examination and class assignment
An optional subject in the graduate diploma courses in industrial management and manufacturing technology.
The subject is devoted to the 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.

EP432 Work Study
Two hours per week for two semesters
Assessment by tests, contribution to class discussions, plus nominated assignments.
An optional subject in the graduate diploma courses in industrial management and manufacturing technology.
The subject covers the principles, objectives and application of work study in the achievement of higher production within all types of business enterprise. While special emphasis is placed on methods analysis, task simplification and work measurement techniques, the course will also outline a number of associated disciplines such as plant layout, materials handling, logical thinking, feasibility studies, incentives and balanced labour levels related to budget and scheduling commitments.

EP431 Production Management
Two hours per week for two semesters
Assessment by examination and class assignment
An optional subject in the graduate diploma courses in industrial management and manufacturing technology.
The subject covers aspects of production management as related to the manufacturing process. Production: factors of; planning procedures; machine selection and replacement. Modern trends: principles of automatic controls; effects of computer control of production; operational research techniques as applied to production. Group technology.

EP435 Physical Distribution Management
Two hours per week for two semesters
Assessment by assignments, case studies and tests
An optional subject in the graduate diploma course in industrial management which covers the planned scientific approach to decision-making in the areas of site selection, distribution, packaging, materials handling, etc.
Operations research techniques are applied to warehousing, inventory systems, forecasting systems, ordering systems. Evaluation of materials handling plant. Comparison of transportation systems.

EP436 Environmental Studies
Two hours per week for two semesters
Assessment by project and test
An optional subject in the graduate diploma courses in industrial management and manufacturing technology.
Ecology and the effects of environmental imbalance. A detailed examination of the managerial implications of air, water and earth pollution. Noise and waste legislation. Preventive measures. A large segment of the course is devoted to the completion of an appropriate project.

References
Attention, P.R. Planning a Distribution System. Lond., Cower Press, 1971
Smykay, E.W. Physical Distribution Management. 3rd edn, Lond. and N.Y., Macmillan, 1973

Textbook

References
Bufta, E.S. Modern Production Management. 4th edn, N.Y., Wiley, 1973
Lockyer, K.C. Production Control in Practice. 2nd edn, Lond., Pitman, 1975

References

Textbook
Drucker, P.F. Management: Task, Responsibilities, Practices. Lond., Heinemann, 1974
Humble, J.W., Management by Objectives. Lond., Cower Foundation, 1972
Yuill, B. Developing Managers in Organisations. Syd., Wesley, 1975

EP436 Environmental Studies
Two hours per week for two semesters
Assessment by project and test
An optional subject in the graduate diploma courses in industrial management and manufacturing technology.
Ecology and the effects of environmental imbalance. A detailed examination of the managerial implications of air, water and earth pollution. Noise and waste legislation. Preventive measures. A large segment of the course is devoted to the completion of an appropriate project.

References
Meadows, D. Limits of Growth. Lond., Earth Island, 1972
ME126 Energy Systems
Two hours per week for first semester and four hours per week for second semester, including lectures, tutorials and laboratory work.

A first-year subject in all degree courses in engineering. The subject is divided into three parts: thermodynamics, engineering dynamics and an introduction to mechanical engineering.

Thermodynamics

Engineering dynamics
A first course in the elementary theory of dynamics with application to the mechanics of machines.


Introduction to mechanical engineering
A series of lectures, films and equipment demonstrations covering other aspects of mechanical engineering.

References
Joel, R. Basic Engineering Thermodynamics, 3rd edn., Lond., Longmans, 1971

ME169 Building Services I
Three hours per week for two semesters

A first-year subject in the diploma course in building surveying designed to provide students with an understanding of the basic principles and practice of various specialist services relevant to buildings.

Ventilation and heating: general principles, equipment, inspection and maintenance, regulations and standards.

Hot water services: distribution systems, heaters and boilers, steam lines. Solar heating. Inspection and maintenance regulations.

Acoustics: basic principles, noise protection, interpretation on regulations, means of overcoming problems.

Personal movement systems: lifts, escalators, walkways

Ergonomics: effects of features of building services on human performance and comfort, special arrangements for the physically handicapped, system effects of various services.

Fire protection: human behaviour in fires, cause of fires and the way fires develop. Design for fire protection. The roles of building surveyor, engineer, architect, builder and legislative authority.

Fire services: detectors, monitors, controls, alarms, sprinkler systems, smoke control.

Electrical services: Basic principles of electrical circuits and devices, including generators, transformers, transmission and distribution systems. Single and three-phase circuits. Motor types, construction and characteristics. Power and reactive volt-amperes.

ME212 Applied Mechanics
Three and a half hours per week for two semesters including lectures, laboratory and tutorial work.

A second-year subject in the degree course in mechanical engineering consisting of two parts: mechanics of materials and dynamics of machines.

Mechanics of materials
One and a half hours per week for two semesters.


References

Dynamics of machines
Two hours per week for two semesters

An introductory course in the concepts and engineering applications of dynamics. This includes: kinematics and kinetic analysis of particles, systems of particles and rigid bodies in plane curvilinear motion. Solution methods using force-acceleration, work and energy and impulse-momentum. Periodic motion and free, undamped vibration. Application of energy methods to determine natural frequencies and modes.

References

ME219 Applied Mechanics
Five hours per week for two semesters, Including lectures and laboratory/tutorial work.

A second-year subject in the degree course in manufacturing engineering.

The syllabus is divided into three parts:

A course of sixty hours involving treatment of combined loading, differential method of beam analysis, Mohrs circle for bi-axial stress, strain gauging, stress concentration, fatigue, dynamic stresses, dimensional analysis.

Machines
A course of sixty hours involving treatment of linear and angular systems, conservation of energy and momentum, impulse, free and forced single degree of freedom vibration.

Fluid mechanics
A course of thirty hours involving treatment of fluid properties, fluid statics, fluid dynamics, measuring devices, boundary layers, flow and pressure drop in pipes, the external characteristics of pumps.

References
ME222  Energy Systems  
Three and-a-half hours per week for two semesters  
A second-year subject in the degree course in mechanical engineering which establishes the principles of energy conversion and fluid flow.  
This subject comprises: Thermodynamics — two hours per week for two semesters  
Fluid mechanics — one and a half hours per week for two semesters  

ME232  Electronics and Measurement Systems  
Two hours per week for two semesters  
A second-year subject in the degree course in mechanical engineering. The subject is taken in two parts: electronics, and instrumentation and measurement systems, both of which run for two hours per week for one semester.  
Electronics  
A continuation of the first-year subject EE187 Electronics, Circuits and Computing.  
The syllabus deals with digital electronics and microcomputers. Basic digital devices — logic gates, combining logic gates; flip flops and latches; multiplexer and demultiplexer; semiconductor memories; introduction to microcomputers; simplified microcomputer operation. Linear amplifiers — introduction to BJT amplifiers; characteristics of amplifiers; input/output resistances; multistage amplifiers; cascading; operational amplifiers. Transducers — active and passive transducers; thermocouple, piezo-electric, photoelectric, optical, resistive, capacitive, inductive. Communications — modulation — amplitude, frequency and pulse code. Motors — DC motors, AC motors, and AC/DC motors.

References  
Instrumentation and measurement systems  
A laboratory/tutorial intensive course in the principles and application of instrumentation for the measurement of physical parameters in engineering.  
The syllabus deals with the principles of measurement of displacement, time, velocity, force, pressure, flow-rate, density, and temperature. Transducing elements for conversion among mechanical, thermal and electrical quantities, including analysis of the performance of electro-mechanical, capacitance, piezo-electric, resistance, inductance, and thermo-electric transducers. Analysis of the performance of electro-mechanical transducers; input/output characteristics of transducer; compatibility of transducers, amplifiers, measuring circuits and recorders in measuring systems.

References  
ME242  Ergonomics  
Two hours per week for two semesters including lectures, laboratory and tutorial work  
A second-year subject in the mechanical engineering degree course. It involves study of the characteristics, development and evaluation of man-machine systems and human characteristics of size, shape, anatomy and physiology.  
Design of experiments involving people: principles of biomechanics applied to tools and controls: information, systems and displays: the effects of heat stress, noise, lighting, acceleration and vibration on human performance.

ME261  Engineering Practices  
Three hours per week for two semesters including lectures, workshop and industrial visits  
A second-year subject in the degree course in mechanical engineering.  
This course involves treatment of the role of trades and practices, industrial safety, machine shop, welding and fabrication, plumbing and sheetmetal, electrical systems.

ME269  Building Services 2  
Three hours per week for first semester and two hours per week for second semester  
A second-year subject in the diploma course in building surveying, intended to extend students’ understanding of the services relevant to building.  
Air-conditioning basic principles of human comfort requirements and of equipment used to achieve these. Thermal equipment and housing; acoustics.  
Specialty services: reticulated compressed air, vacuum lines, stand-by generating sets.  
Provisions for controls, adjustments, inspections and maintenance.  

ME271  Design for Industry  
Three hours per week for two semesters including lectures and practical work  
A second-year subject in the degree course in mechanical engineering.  
This course is designed to introduce students to mechanical engineering design and to develop abilities of engineering analysis and synthesis of components, and elementary systems.  
Graphical techniques and applications, design methodology, modelling of design systems, design of components, features and application of mechanical components, simple systems selection, analysis and specification.

References  
ME312  Mechanics of Materials  
Two hours per week for one semester  
A third-year subject in the degree course in mechanical engineering.  

References  
ME319 Applied Mechanics
Three hours per week for one semester including lectures, laboratory and tutorial work.
A third year subject in the degree course in manufacturing engineering with an emphasis on aspects of solid mechanics and dynamics relevant to studies in design, technology and systems engineering.

Machines
Introduction to vibrations (1 degree of freedom), energy method, frequency response; multi-degree of freedom. Dunkerley, Rayleigh and Holzer methods; balancing and whirling; mechanisms.

Solid mechanics
Theories of elastic failure, unsymmetrical bending, plasticity, experimental stress analysis.

References

ME322 Energy Systems
Four hours per week for one semester
A third-year subject in the degree course in mechanical engineering which provides a foundation in the physical laws governing thermal energy transfer and fluid dynamics.

This subject comprises:
- Thermodynamics — three hours per week for one semester
- Fluid mechanics — one hour per week for one semester


References

ME329 Fluid Mechanics
Three hours per week for one semester, including lectures and laboratory/tutorial work
A third-year subject in the degree course in manufacturing engineering.

This subject provides a study of fluid mechanics appropriate to the chemical engineering stream of manufacturing engineering.

Review of fluid properties; fluid statics and dynamics; measuring devices; boundary layer concepts; flow and pressure drop in pipes. Valve characteristics, pipework systems; characteristics of pumps and fans, effect of blade orientation, cavitation, Net positive suction head; positive displacement machines; methods of control.

References

ME332 Machines and Controls
Four hours per week for one semester, including lectures, laboratory and tutorial work.
A third-year subject in the degree course in mechanical engineering designed to foster students’ ability to apply basic principles of mechanics to the analysis of engineering systems.
The course is in two equal parts:

Mechanisms and machines

Dynamic and controls
Mathematical modelling of engineering physical systems; representation of components and systems by block diagrams. Application of the Laplace transform and transfer function H(s). Transient response and initial conditions. Inverse transform and time domain response, steady state error. Poles and zeros of H(s), characteristic equation, S plane, stability and root locus. Harmonic response H(\omega), amplitude and phase, representation by Bode and Nyquist plots. Applications to lower order linear systems.

References

ME342 Ergonomics
Three hours per week for one semester including lectures, laboratory and tutorial work
A third-year subject in the degree course in mechanical engineering. This subject involves the design and evaluation of workplaces, investigation of parameters influencing vigilance and alertness, strategies of human decision-making, performance characteristics.

ME371 Design for Industry
Three hours per week for one semester including lectures, laboratory and tutorial work
A third-year subject in the degree course in mechanical engineering which enables students to gain experience and proficiency in more complex aspects of mechanical engineering design and specification of integrated systems.

Functional systems analysis and matching, specification and selection of commercial components and sub-systems, application of standards to design computations. Mechanical design of pressure vessels, machine frames and bases, hydraulics and pneumatics, economics of design, optimum design.

References
ME412 Mechanics of Materials

References

ME422 Energy Systems
A fourth-year subject in the degree course in mechanical engineering. The course is in two equal parts — thermodynamics and fluid mechanics, designed to provide a foundation in the physical laws governing energy transfer and conversion and to provide students with a logical explanation of established and developing plant and equipment. Nuclear power plant. Gas and vapour flow in nozzles and diffusers. Turboexpanders and compressors. Similarly laws. Fluid drag. Momentum and thermal boundary layers. Wake flow.

ME432 Machines and Controls
A fourth-year subject in the degree course in mechanical engineering.
Four hours per week for one semester, including lectures and laboratory/tutorial work.

Dynamics
Vibrations of systems with multiple degrees of freedom. Review of damped forced vibrations, transient vibrations, transmissibility of force and motion, vibration isolation. Modes, modal fractions, principal coordinates and coupling, tuned absorbers.
Torsional vibrations, equivalent systems. Discrete models of physical systems, analysis by matrix methods, concept of modal analysis for linear systems and structures. Industrial controls Analysis and design of single variable control systems of arbitrary order by classical methods. Open and closed loop transfer functions, steady state error and stability criteria. Performance criteria, system design and compensation techniques. Analysis and design of linear servo systems and regulators. State space techniques: state variables and equations of state, relationship to the transfer function and system stability. Polynomial approximations to forcing functions, Leverrier algorithm and the transition matrix.

References
Church, A.F. Mechanical Vibrations, 2nd edn., N.Y., Wiley, 1963

ME442 Ergonomics
Three hours per week for one semester including lectures, laboratory and tutorial work.
A fourth-year subject in the degree course in mechanical engineering. Course work in this subject covers information theory, the analysis of motor skills, psychophysics, signal detection theory, job design analysis and specification, psychometric selection, training and industrial motivation. Organisational structure and variables influencing speech communication and group leadership.

ME451 Technical Planning and Sales Engineering
Two hours per week for one semester including lectures, laboratory and tutorial work.
A elective subject in the fourth year of the degree course in mechanical engineering designed to introduce the student to marketing and sales, within a traditional business organisation. Fundamentals of marketing and consumer behaviour, buying processes, technical planning associated with sales. Particular emphasis on technical communication skills for both sales and internal engineering management purposes. Advanced applications and techniques of traditional technical planning.

ME461 Engineering Plant and Equipment
Two hours per week for one semester including lectures, laboratory and tutorial work, with site visit(s) to industry as appropriate.
A fourth-year elective subject in the degree course in mechanical engineering. This course involves the formation and operation of complex mechanical engineering plant systems composed of machinery, control and interfacing sub-systems. Practical mechanical systems are considered for a wide range of Australian industrial conditions. The performance, monitoring, improvement and management of systems are covered throughout the life cycles of the systems.

References
Collacott, R.A. Mechanical Fault Diagnosis and Condition Monitoring. Lond., Chapman-Hall, 1977

ME471 Design for Industry
Three hours per week for one semester including lectures, laboratory and tutorial work.
A fourth-year subject in the degree course in mechanical engineering designed to improve the students’ ability to specify engineering objectives, design original equipment and select commercial equipment to form complex engineering systems, and develop the necessary skills to perform the project design function to industry. Safety and maintenance of advanced mechanical systems, project management, modern design techniques, future trends, materials and systems. Closed loop fluid power systems. Project design of substantial advanced mechanical systems, with seminar presentation of results.

References
ME482 **Engineering investigation**  
Two hours per week for one semester  
A four-year subject in the degree course in mechanical engineering designed to familiarise students with the correct procedures to be followed when undertaking an engineering project or investigation. The program covers a literature search, feasibility study and preliminary technical report indicating technical feasibility, costing and time restraints. Where appropriate the work should be continued under the fifth year subject, engineering project.

ME501 **Engineering Science I**  
Four hours per week for one semester  
A subject in the fifth year of the degree course in mechanical engineering. Four 30-hour units are offered: advanced mathematics, advanced gas physics, energy systems and thermofluid mechanics. Students must take two of the four alternatives offered.  
Advanced mathematics  
Two hours per week of integrated lectures and practice for one Semester  
A selection of topics will be made from the following list. Advanced finite difference methods; classical optimisation; linear programming and queuing theory; solution of partial differential equations using Laplace equations; Fourier transforms; calculus of variations and Lagrangean dynamics; regression methods.

**References**  
Craggs, J.W. *Calcul of Variation*. Lond., George Allen and Unwin, 1973  
Advanced gas physics  
Two hours per week including lectures and laboratory/demonstration work.  
The syllabus will develop the following subject areas: quantum mechanics, statistical thermodynamics, solid state physics, and optics (applications of lasers and holography, Doppler techniques, and fibre optics).

**References**  
Energy systems  
Two hours per week for one semester, including lectures, laboratory work and tutorials  
This unit provides an overview of energy conversion processes along with work on established and developing thermal plant and equipment.

**Available energy.** Mixtures and psychrometry. Solar radiation and applications. Topics selected from → direct energy conversion, advanced heat transfer, turbocharging IC engines and alternative automotive power units.

**References**  
Watson, N. and Junor, M.S. *Turbocharging the IC Engine*. Lond., MacMillan, 1982  
**Thermofluid mechanics**  
Two hours per week for one semester, including lectures, laboratory work and tutorials  
Three topics selected from → turbulence theory, flow of an ideal fluid, unsteady and compressible flow, low Reynolds number flows, free surface flows.

**References**  

ME502 **Engineering Science II**  
Four hours per week for one semester  
A subject in the fifth year of the degree course in mechanical engineering. Three 30-hour units are offered: mechanics of materials, vibrations and acoustics, and instrumentation and systems controls. Students must take two of the three units offered.  
Mechanics of materials  
Two hours per week for one semester  
The subject deals with advanced strength of materials. Beams on elastic foundations; local bending in shell structures. Deformation symmetrical about an axis; thick walled cylinders, stresses due to interference fits, rotating discs of variable profile, thermal stresses in turbine discs. Finite element methods in stress analysis.

**References**  
Vibrations and acoustics  
Two hours per week for one semester  
The syllabus deals with advanced vibration analysis and acoustics. Vibrations: multi-degree of freedom systems, inertia, stiffness and damping; matrix representation. Modal analysis, parameter estimation, complex residues and poles, synthesis of the system transfer function H(s) and the frequency response function H(w) from experimental measurements. Interpretation of the modal analysis function components. Analysis of periodic and random signals, measurements, signal processing and associated errors, transducer calibration techniques.

Acoustics: sound source characteristics, sound fields, sound generation by vibration, transmission, No ise control and reduction.

**References**  
Instrumentation and systems control  
Two hours per week for one semester  
An advanced course in control applications to industrial systems and processes.

Control algorithms with application to industrial and process control systems, advanced control techniques for large scale multivariable systems. Distributed digital systems for instrumentation and control hardware and software aspects of microprocessor based controls.

Introduction to non-linear behaviour; linearisation, the describing function method of analysis, stability analysis and compensation of non-linear systems.

**References**  
ME503 Engineering Technology
Six hours per week for one semester

A subject in the fifth year of the degree course in mechanical engineering. Three 45 hour units are offered: ergonomics, advanced design and numerical continuum mechanics. Students must take two of the three alternatives offered. Ergonomics Three hours per week for one semester including lectures, laboratory and tutorial work. The syllabus covers measurement techniques including physiological measures, scaling and data analysis, questionnaires and interviews: aspects of the socio-technical system: application of ergonomics principles to transport, buildings, computer systems, and control systems. Students are expected to undertake a study in depth and to present an oral report to the class. Advanced design Three hours per week for one semester including lectures, laboratory work and excursions. Topics will be selected from: reliability and maintainability, risk engineering, computer packages, robotics, plant specification and tendering, and emerging technologies.

References
Numerical Continuum Mechanics
Three hours per week for one semester including lectures, laboratory and tutorial work.

This subject introduces students to the application of advanced numerical methods. Accuracy of the modelling technique, degree of difficulty, computing time and cost effectiveness are compared with experimental techniques and data for specific applications: heat transfer, vibration analysis of structures, stress analysis, and fluid mechanics.

References

ME504 Engineering Management
Four hours per week for one semester

A subject in the fifth year of the degree course in mechanical engineering. Three 30 hour units are offered: marketing, law and technological forecasting, decision analysis and financial management, and plant information systems. Students must take two of the three alternatives offered: Marketing, law and technological forecasting Two hours per week for one semester including lectures and tutorial work. The syllabus covers law and engineering organisations including regulatory and environmental laws, contract and patent laws, and professional and product liability, and marketing, the prediction of marketing trends, planning business actions, marketing policies and use of appropriate technologies.

References
Decision analysis and financial management Two hours per week for one semester including lectures, and tutorial work. The syllabus is designed to develop further modern concepts and techniques used in the management of engineering resources. Selection of technological and economic parameters in formulation of procedures for achieving optimum solutions, advanced techniques of predicting, evaluating and decision-making. Problem analysis techniques incorporating consideration of more qualitative decision factors.

References
Plant information systems Two hours per week for one semester including lecture and tutorial work. The syllabus is designed to develop expertise in modern methods of handling information to do with engineering plant and equipment. Acquisition, documentation, filing, processing, analysis, prediction and decision-making techniques associated with information concerning engineering plant, equipment and related personnel. Applications include procurement, operation, reliability, maintenance, updating and disposal of equipment and related personnel resource management.

References

ME582 Engineering Project
160 hours over 19 weeks

A fifth-year subject in the degree course in mechanical engineering which develops skills necessary to select, integrate, and apply appropriate knowledge, concepts and techniques to bring projects to successful conclusion. The project may take various forms in which technology, research and development, design, experimental work and business acumen vary in their relative significance. Where possible the planning phase should be covered in the fourth-year subject, engineering investigation, with project execution in this project period. This will enable the work experience between to be used as a gestation period for the students and enable equipment to be ordered or constructed.
ME421 Air-conditioning I
Four hours per week for two semesters
A subject in the graduate diploma course in air-conditioning.

- Psychrometric properties of steam-air mixtures, processes, sensible and latent heat transfers in direct contact processes, enthalpy potential, cooling coils, cooling towers. Human comfort, ventilation, sh and total air requirements. Cooling load estimation, introduction to computer methods. Heat transfer in structures, zoning, shading, boilers and heat generation.

References
- American Society of Heating, Refrigerating and Air Conditioning Engineers, ASHRAE Handbooks (Fundamentals, Systems, Applications and Equipment Volumes), published by this Society, Atlanta, GA, USA
- The Australian Institute of Refrigeration, Air Conditioning and Heating, (INC), AIRAH Design Data Manual, published by this Institute, National Science Centre, Parkville, Vic.
- Department of Housing and Construction in Association with the Australian Institute of Refrigeration, Air Conditioning and Heating, Mechanical Engineering Services Design Aids, Australian Government Publishing Service, Canberra, 1980
- The Trane Company, Trane Air Conditioning Manual, published by the Trane Company, La Crosse, Wisconsin, USA, 1974

ME622 Refrigeration I
Three hours per week for two semesters
A subject in the graduate diploma course in air-conditioning.


References
- American Society of Heating, Refrigerating and Air Conditioning Engineers, (ASHRAE), Guide and Data Books
- Stoecker, W.F. and Jones, J.W., Refrigeration and Air Conditioning, Tokyo, McGraw-Hill, 1982
- International Institute of Refrigeration, Refrigeration Tables

ME672 Maintenance Management
Four hours per week for two semesters
A subject in the graduate diploma course in maintenance engineering.

The function of a maintenance department within an organisation, covering financial management aspects, including budgeting, control, risk and maintenance theory including life-cycle costing and system design and effectiveness.

Fundamentals of reliability and maintainability including applications. Quantitative methods such as statistical methods, queuing theory, network analysis, simulation.

References
- Davies, J.R. and Hughes, S., Managerial Economics. Plymouth, McDonald and Evans, 1977
- ME673 Maintenance Engineering Science
Three hours per week for two semesters including lectures and laboratory work.

A subject in the graduate diploma course in maintenance engineering.


References

ME721 Air-conditioning 2
Four hours per week for one semester
A subject in the graduate diploma course in air-conditioning which follows on subject ME621.


References
As for ME621 Air-conditioning 1.

ME722 Refrigeration 2
Three hours per week for one semester
A subject in the graduate diploma course in air-conditioning which follows on subject ME622.


References
As for ME622 Refrigeration 1.

ME729 Fluid Mechanics
Three hours per week for one semester, including lectures and laboratory/tutorial work
A subject in the graduate diploma course in biofluids engineering and chemical engineering.

This subject provides a study of fluid mechanics appropriate to chemical engineering.

Review of fluid properties, fluid statics and dynamics, measuring devices, boundary layer concepts, flow and pressure drop in pipes, Valve characteristics, pump systems, characteristics of pumps and fans, effect of blade orientation, cavitation, Net positive suction head, positive displacement machines, methods of control.

References
ME731 Instrumentation and system control

Three hours per week for one semester

A subject in the graduate diploma course in air-conditioning.


References

ME772 Maintenance Management

Four hours per week for two semesters

A subject in the graduate diploma course in maintenance engineering.

Management decisions on emergency, corrective or preventive maintenance strategies. Resource management including personnel factors such as industrial relations, behavioural science, training and work measurement methods.

Occupational health and safety requirements. Inventory control methods and information management including database assessment, software for maintenance management.

References

ME773 Diagnostic Processes

Three hours per week for two semesters including lectures and laboratory work.

A subject in the graduate diploma course in maintenance engineering.

Study of diagnostic and analytical methods with application to plant and equipment, covering vibration and noise, oil analysis, determination and interpretation of wear debris, thermography. Applications of these methods and setting up inspection procedures, records, trends, etc. logical fault-finding in fluid power, electrical and mechanical systems.

References
Church, A.H. Mechanical Vibration. 2nd edn, N.Y., Wiley, 1963
Collacot, R.A. Mechanical Fault Diagnosis and Condition Monitoring. Lond., Chapman Hall, 1977

ME781 Project and Energy Management

Four hours per week for one semester

A subject in the graduate diploma in air-conditioning.

Contract law, scheduling, costing, optimisation, maintenance program development. Energy source selection and life cycle costing, system optimisation.

Field project of a practical nature linking the course elements of air-conditioning, refrigeration and system control and preferably involving the application of project and energy management techniques.

References

MP106 Engineering Drawing and Graphics

Three hours per week for two semesters

A first-year subject in all engineering degree courses.

The course is arranged in two main sections: basic studies and special studies (electives). Basic studies cover the fundamental principles of engineering drawing – standards, conventions, practices and procedures – applicable to the general field of engineering. Studies and exercises cover principles, use of correct lines, orthographic and pictorial projection, freehand sketching, assembly and detail drawings, material lists, sectioning, use of scales, dimensioning and specification.

Graphic solution of engineering problems, bending moment and stress diagrams, layout of cans and mechanisms.

Introduction to computer aided draughting and graphics.

Special studies (electives) extend the basic studies to cover the special drawing requirements in particular fields of engineering: Civil: welded and bolted structural steelwork, reinforced and prestressed concrete, survey and earthwork drawings. Electrical and electronic: electrical control circuits, electronic circuits and devices, printed circuit artwork, electrical machines, electromechanical devices, electrical hardware. Mechanical and manufacturing: machine elements, screwed fasteners, keys and keyways, limits and fits, surface finish, bearings, gearing, welded assemblies, pneumatic cylinders, couplings, fixtures.

Assembly and detail drawings incorporating these features.

Textbook
Australian Engineering Handbook, Parts 1 and 2. The Institution of Engineers, Australia

References
Relevant Australian Standards.
MP182 Building Materials
Two hours per week for first semester and three hours per week for second semester
A first-year subject in the diploma course in building surveying, intended to give students an understanding of the behaviour of building materials so that they can determine whether traditional materials are being used correctly and appraise new materials.
The solid state: bonding, phases, solid solutions, metal crystal structures, polymer structures, silicate structures.
Equilibrium: phase relationships and equilibrium diagrams.
Mechanical properties: deformation and fracture, non-destructive testing.
Cement and concrete: constituents, setting and hardening, admixtures.
Corrosion and deterioration: causes, prevention and minimisation
Materials: broad treatment of the following: ferrous metals, non-ferrous metals, light metals, timber, polymers, ceramics, paints.

MP183 Materials and Processes
Four hours per week for one semester
Assessment by laboratory, assignments and examination
A first-year subject in all engineering degree courses.
Solid state: effects of bonding and atomic structure on mechanical properties of solid materials.
Deformation and forming: elastic, plastic and viscoelastic, relationship of manufacturing process to properties of final product.
Fracture: ductile, brittle, creep, fatigue and stress corrosion.
Equilibrium: solidification and structure; equilibrium diagrams; corrosion.
Mechanical testing: commonly used testing methods.
Case studies: several case studies will be considered involving manufacturing processes, quality and reliability, measurement and instrumentation, value engineering.

Textbook

References
Davies, E.P. Materials and Processes in Manufacturing. Lond., Collier Macmillan, 1979

MP211 Manufacturing Technology (P)
Three hours per week for two semesters
Assessment by laboratory work, tests and assignments
A second-year subject in the course in manufacturing engineering.
Machining processes: traditional chip removal processes; types, theory of metal cutting, tool materials and geometry, cutting parameters, tool life, cutting fluids. Non-traditional machining processes; USM, EDM, ECM, LEW, etc.
Powder metallurgy, casting, production of plastic components: power production, component design; methods of casting metals; extrusion, injection moulding and other processes.
Forming techniques: metal working processes both bulk forming and sheet metal working. Empirical solutions to metal forming problems.
Engineering dimensional metrology: Equipment and methods used in measurement of lengths, angles, straightness, surface texture. Standards, accuracy, uncertainty in measurement.
Waste and effluent disposal: Treatment of wastes from manufacturing processes — e.g. plating wastes, cutting fluids, etc.

Textbooks
Hazelhurst, M. Manufacturing Technology 2nd edn. Lond., English Universities Press, 1972

MP213 Manufacturing Technology (C)
Three hours per week for two semesters
Assessment is by examination and practical assignments
A second-year subject in the course in manufacturing engineering.
Introduction to chemical engineering: history and development of the chemical process industries; origins, flowsheets and process descriptions of chemical processes exemplifying the inorganic chemicals industry and the organic chemicals industry (including both natural and mineral sources).
The role of the chemical engineer and a general outline of the broad area, of study of chemical engineering.
Thermodynamics and physical chemistry: First law of thermodynamics, ideal gas law, equations of state, compressibility, fugacity, entropy, and entropy. Second law of thermodynamics, refrigeration and other compression and expansion processes.
Physical equilibrium, bubble and dewpoint relations, phase diagrams; activity, activity coefficients, Gibbs-Duhem equation. Chemical reaction equilibria, heats of reaction and mixing, concentration, temperature, and pressure dependence of rate of reaction; batch, plug flow and backmix reactors; absorption and catalysis, electrochemistry.

Textbook

MP222 Building Materials 2
Two hours per week for one semester
Assessment by assignments and examination
A second-year subject in the diploma course in building surveying designed to extend students’ knowledge of material behaviour relevant to building construction.
Detailed treatment of behaviour of selected materials used in building: steels, high strength weldable steels, aluminium alloys, polymers used for cladding and pipe systems.
Joining methods: principles of behaviour of the different joining systems including welding, adhesieve bonding, soldering, brazing, mechanical fasteners, comparative costs of various joining methods.
**MP231 Industrial Engineering**

Two hours per week for one semester

Assessment by tests and class assignments

A second-year subject in the degree course in manufacturing engineering.

History, theory and practice of methods study and work measurement principles, definitions, symbols and terminology. Introduction to charting techniques; time study; improvement procedures.

Elements of activity sampling and predetermined measurement systems.

Standard performance and reward concepts. Applications of work study to manufacturing.

**Textbooks**


**MP251 Design for Manufacture (P)**

Three hours per week for two semesters

Assessment by assignments, project work and tests

A second-year subject in the degree course in manufacturing engineering.

Introduction to design: methodology, decision-making, criteria of design: functionality, reliability — precision strength and endurance. Component design to suit manufacturing processes.

Basic Mic tool design: drives, kinematic design — design features of typical machines.

Tolerances and production standards: systems of tolerancing, gauges and inspection, geometrical tolerancing statistical tolerances.

Basic machine elements design: joining elements, transmission elements. Applications of Australian and overseas standards to design of special products.

**Textbooks**

Hosling, A.K. and Harris, M.R., Applied Mechanical Elements. Applications of Australian and overseas standards to design of special products.

**MP253 Design for Manufacture (C)**

Three hours per week for two semesters

Assessment by examination

A second-year subject in the degree course in manufacturing engineering.

Chemical engineering computations: Exercises in the application to a variety of chemical engineering situations of dimensional analysis, treatment of experimental data, nomographs and graphical techniques.

Basic design techniques: Mass and energy balance calculations; flowsheets; stoichiometry calculations involving bypass, recycle and purge; combustion and heat engine calculations.

General design consideration: Concepts of layout, and the safety and health aspects thereof; air and water pollution control; methods of costing.

**Textbooks**


**MP281 Engineering Materials**

Three hours per week for two semesters

Assessment by assignments and examination

A second-year subject in the degree course in manufacturing engineering.

An extension of the work done in first year Chemistry to consider the science and technology of some materials as a basis for later work in manufacturing technology and design for manufacture.

Structure, properties and treatment of: metals, ferrous and non-ferrous; polymers, thermoplastic, thermosetting, elastomeric; ceramics — crystalline and non-crystalline; composite systems. Welding and joining systems. Tribology.

**Textbook**


**MP282 Engineering Materials**

Three hours per week for one semester

Assessment by assignments and examination

A second-year subject in the degree course in civil engineering. Extends the work covered in first year chemistry into the characteristics of materials of particular importance in civil engineering.


**Textbook**


**MP284 Engineering Materials**

Three hours per week for one semester

Assessment by assignments and examination

A second-year subject in the degree course in mechanical engineering. Extends the work covered in first year chemistry into the characteristics of materials of particular importance in mechanical engineering.


**Textbook**


**MP285 Materials and Environment**

Three hours per week for one semester

A second-year subject in the degree course in electrical and electronic engineering.

Metals — steels and non-ferrous.

Polymeric materials — relationship between the material constituents, their arrangements and their electrical properties.

Corrosion and deterioration — high strength to weight materials; non-destructive testing.

Electrical materials — conductors, semi-conductors and insulators.

Magnetic materials — particularly related to their design and performance.

Pollution; measurements and measuring equipment. Air pollution and gas cleaning methods.

Treatment of liquid effluents, electroplating wastes, nuclear plant wastes.

**References**

Faculty of Engineering

MP301 Instrumentation and Control
Two hours per week for one semester
Assessment by tests, assignments and laboratory work

A third-year subject in the degree course in manufacturing engineering.

Measurement and control of variables in production processes: forces, flow, stress, distance, speed, acceleration, vibration, pressure, temperature, etc. Electrical, hydraulic and pneumatic control devices: signalling, amplification, recording and readout.

Textbook

MP311 Manufacturing Technology (P)
Six hours per week for one semester
Assessment by laboratory, assignments and test

A third-year subject in the degree course in manufacturing engineering.


Polymer: rheology — mathematical description of non-Newtonian fluids; flow on non-Newtonian liquids in a pipe; derivation of Mooney-Rabinowitch equation and temperature dependence of viscosity described by Arrhenius equation; introduction to viscoelastic solids; application of visco-elastic models to constant and cyclic loading; definition of complex moduli and less tenuity; thermal fatigue of polymers. Compounding — thermodynamic theory of miscibility; effect of compounding on final properties of the material and environmental fracture of material and environmental fracture process, statistical theory of mixing. Extruders and extrusion — description of extrusion process and extruder design; energy consumption; mathematical description of melt fracture and die swell; rheology of die flow; mathematical process of flow blowing and fibre spinning. Laboratory work.


Metal cutting: theories of friction and wear, economics of machining, tool life equations and new theories of tool life and cutting, factors affecting machining, machinability-tests research.

Textbooks

MP314 Manufacturing Technology
Three hours per week for one semester including lectures, laboratory and tutorials.

A third-year subject in the degree course in mechanical engineering which familiarises the student with manufacturing methods and techniques.

Fundamental and working standards for metrology, principles of measurement and gauging, instruments, applications to mechanical components. Quality control and assurance in manufacturing, sampling. Modern production methods and machine tools, material removal processes, chip formation, friction, wear, lubricants and coolants, tool life.

Textbook

References
Byrt, W., and Masters, P.R. The Australian Manager. Melb., Sun Book, 1974

MP321 Engineering Administration
Four hours per week for one semester
Assessment by class assignments and tests

A third-year subject in the degree course in manufacturing engineering.

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.

Textbook

References
Byrt, W., and Masters, P.R. The Australian Manager. Melb., Sun Book, 1974

MP351 Design for Manufacture
Four hours per week for one semester
Assessment by assignments, projects and tests

A third-year subject in the degree course in manufacturing engineering.


Value analysis: Quality functionality and cost — optimum product selection. Value analysis → concept, methods of application.

Textbooks

References

Thomas, L.F., The Control of Quality. Lond., Thames and Hudson, 1965
Shipley, J.E., Mechanical Engineering Design. N.Y., McGraw-Hill, 1956

Selected Australian and British Standards.
MP353 Design for Manufacture (C)  
Four hours per week for one semester  
Assessment by examination  
A third-year subject in the degree course in manufacturing engineering.  
Design of mass transfer equipment.  
Selection of required number of stages: the concept of the 
equilibrium stage as applied to distillation, liquid-liquid extraction,  
leaching and other mass transfer operations. Graphical and  
computer-based design techniques employing this concept: McCabe- 
Thiele, Soret and Porchon-Savant methods; batch and continuous  
operation.  
Performance characteristics: behaviour of plate and packed columns;  
characteristics of packings, bubble caps, weirs and downcomers;  
flooding, hold-up and pressure drop; selection of optimum column  
diameter.  
Textbooks  
Coulson, J.M., and Richardson, J.F., Chemical Engineering, Vol. 2,  
Oxford, Pergamon, 1978

MP381 Systems Engineering  
Two hours per week for one semester  
Assessment by tests, assignments and laboratory work  
A third-year subject in the degree course in manufacturing engineering.  
Basic control theory, definitions, open and closed loop systems.  
Regulator and servo problems. Analysis of linear systems using  
classical s-plane and frequency response methods. Laplace transform  
techniques, block diagrams and transfer functions, system stability  
and performance criteria, Nyquist, Bode, and Nichols plots.  
Compensation techniques. Applications to engineering problems.  
Textbook  
Dransfield, P. Engineering Systems and Automatic Control. Englewood  

MP384 Engineering Materials  
Three hours per week for one semester  
Assessment by assignments and examination  
A third-year subject in the degree course in mechanical engineering.  
Alloy steels. Polymer rheology. Powder forming. Class. Composite  
systems. Alloy cast irons.  

MP411 Manufacturing Technology (P)  
Six hours per week for one semester  
Assessment by laboratory work, assignments and tests  
A fourth-year subject in the degree course in manufacturing  
enGINEERING.  
Mathematical analysis of forming: equilibrium analysis of common  
working processes, e.g. wire drawing/strip drawing/extrusion/tube  
drawing/forging/rolling. Redundant work, friction and lubrication.  
Nomograms for solution of forming problems.  
Deformation mechanics: Slip line field applied to cutting and forming  
problems — metal flow.  
Polymer: moulding — description of various moulding processes;  
design of injection moulding machines; mould design; mathematical  
analysis of flow in extruders; mathematical analysis of flow in the  
injection moulds. Quality control — application of modified gas law  
to shrinkage of material in moulds; effect of crystallization process  
on final dimensions of product. Fibres and composite materials — effect  
of fibre spinning on fibre properties; description of fibre properties  
and application; design of composite materials; application of solid  
mechanics in fibre reinforcement. Welding and sealing — introduction  
to theory of bonding between materials; description of modern  
technology in bonding of materials. Polymer laboratory work.  
Vibration and noise: Revision of theory of vibration for multi-degree  
of freedom systems including viscous and hysteretic damping.  
Vibration isolation, transmission and measurement. Equivalent  
systems. Chatter and stability. Sound transmission, power, intensity  
sound absorption. Insulation, resonance, noise rating. Noise control  
and measurement.  
Textbooks  
As for MP311 plus  
Rowe, G.W., Elements of Metalworking Theory. Lond., Arnold, 1979

MP413 Manufacturing Technology (C)  
Six hours per week for one semester  
Assessment by examination and laboratory assignments  
A fourth-year subject in the degree course in manufacturing  
enGINEERING.  
Chemical manufacturing techniques (2): basic fluid/particle systems,  
hydraulic classification, hindered settling, thickening. Flow through  
packed beds, sand filters, fluidisation, pneumatic and hydraulic  
conveying, filtration and centrifuging.  
Power technology: Handling and transport of powders, powder  
mixing, crushing, grinding and screening.  
Non-Newtonian fluid dynamics: Newtonian and non-Newtonian fluid  
dynamics with examples drawn from plastics processing industry.  
Heat transfer equipment: Description and characteristics of shell and  
tube exchangers and alternative geometries such as corrugated plate  
and close tube arrangements; extended surfaces. Boilers, condensers,  
tube stills, fumes, etc., with examples of their application in the  
chemical industry.  
Textbook  
Coulson, J.M., Richardson, J.F. and Backhurst, J.R. Chemical  

MP414 Manufacturing Technology  
Two hours per week for one semester  
Assessment by tests and assignments  
An elective subject in the fourth year of the degree course in  
mechanical engineering.  
Plastic deformation studies relevant to manufacturing methods.  
Plasticity theory and application, slip-line fields, load bounding  
mathematical methods, application to forming and cutting processes.  
Textbook  
Rowe, C.W. Elements of Metalworking Theory. Lond., Arnold 1979

MP421 Industrial Management  
Three hours per week for one semester  
Assessment by test and assignments  
A fourth-year subject in the degree course in manufacturing  
enGINEERING.  
Accounting  
Introduction to accounting, original transactions, balance day  
adjustments, profit determination.  
Financial accounting: measurement of performance, measurement  
of stability.  
Management accounting: Cost-volume-profit relationships, standard  
costing, short-run decision making, capital budgeting.  
Psychology  
The personnel management function, problems and practices;  
personality studies — conditioning (classical and operant),  
assertiveness training and self-esteem, values, defence mechanisms.  
Sexuality and sexism; the use of conceptual models; listening;  
relaxation. Change and conflict in their constructive uses.  
Managerial economics  
Supply and demand, elasticity, pure competition, monopoly and  
oligopoly; microeconomics of cost, profit, marginal concepts; profit  
maximisation, pricing, cost of capital, macroeconomic fundamentals;  
banking system and credit; government controls; inflation; national  
accounts; CDP; international competition; application of DCF to  
leasing.  
Textbook  
Massie, J.L. Essentials of Management, 3rd edn, Englewood Cliffs,  
N.J., Prentice-Hall, 1979
MP422 Engineering Administration
Two hours per week for one semester
Assessment by test and assignments
A fourth-year subject in the degree course in electrical and electronic engineering.
Development of modern management theory and practices.
Organisation of enterprises, their needs and structures. Elements of human behaviour and the fundamentals of leadership and supervision.

Textbook

MP431 Industrial Engineering
Three hours per week for one semester
Assessment by test and assignments
A fourth-year subject in the degree course in manufacturing engineering.
Management services: advanced work study and work analysis — direct (manufacturing), labour, office labour, distributive labour; review of methods improvement and its quantification; product, process and procedure design based on work study; advanced plant layout, models, use of computers; use of work study in construction, operation and maintenance.
Predetermined motion time systems for work measurement — work factor, MTM, MSD, Modaps; analytical estimating, work values; job evaluation; financial incentives based on work measurement; human factors in work study; management and supervisor involvement; communications, planning, scheduling, loading, materials handling.
Applications of operations research to industrial engineering problems; queuing theory applied to machine interference; line balancing; allocation problems in linear programming — assignment, transportation and simplex methods; decision theory applied to machine replacement; network analysis; sequencing.

Textbooks

MP441 Manufacturing Systems
Two hours per week for one semester
Assessment by test and assignments
A fourth-year subject in the degree course in manufacturing engineering.
Introduction to modern manufacturing systems and techniques: forecasting; operations planning; inventory and planning control; operations scheduling; dispatching and progress control. Simulation and modeling techniques for testing production management policy decisions; computer simulation languages — concepts and techniques; systems dynamics applied to industrial problems.

Textbooks

MP451 Design for Manufacture (P)
Four hours per week for one semester
Assessment by tests, assignments and projects
A fourth-year subject in the degree course in manufacturing engineering.
Kinematics of non-uniform motion: cam linkages, non-circular gear trains.
Advanced machine elements design: elements subject to complex stresses, effects of and design for fatigue strength.
Tooling design for metalworking: economy and batch quantity relationship. Jig and fixture design. Cutting tools. Tool design for: sheet metal work, cold and hot forging, and diecasting.

Textbooks

References
As for MP251 and MP351 plus
American Society of Tool and Manufacturing Engineers (ASTME). Tool Engineers Handbook. 2nd edn, N.Y., McGraw-Hill, 1959
American Society of Tool and Manufacturing Engineers (ASTME). Handbook of Fixture Design. N.Y., 1962

MP453 Design for Manufacture (C)
Six hours per week for one semester
Assessment by examination and laboratory assignments
A fourth-year subject in the degree course in manufacturing engineering.
Review of the relevant parts of thermodynamics and heat transfer (1st year), namely; conduction heat transfer, Fourier equation, natural and forced convection, Newton's Law of cooling, overall coefficients. Prediction of coefficients of heat transfer by the mechanism of natural and forced convection, film and airfilm condensation, nucleate and film boiling. Radiation heat transfer including Stefan Boltzmann and Planck equations, emissivity and absorptivity, radiation function, shape factors, Beer's Law.
Finite element technique applied to multi-dimensional and transient heat transfer, LMTO, FT and epsilon-NTU methods to define temperature driving forces. Thermal rating of shell and tube exchangers.

Textbook

MP484 Engineering Materials
Two hours per week for one semester
Assessment by test and assignments
An elective subject in the fourth year of the degree course in mechanical engineering.
Welding and joining of ferrous and non-ferrous materials, treatment of structures of welds, welding processes, weld costing, non-destructive testing, fracture mechanics.
### MP502 Manufacturing Project

A fifth-year subject in the degree course in manufacturing engineering. This subject is the major individual research project in the course. At the end of the fourth-year academic period, each student is given, or allowed to select, a research project related to manufacturing engineering. The student is expected to make all preparations, designs, literature surveys, during the fourth-year industrial training session. At the beginning of the final semester of the course, the student gives short oral presentations of the aims, objectives and experimental method to be followed.

**Textbooks**

As for MP511

### MP513 Manufacturing Technology (C)

Five hours per week for one semester

Assessment by examination


**Textbooks**


### MP521 Industrial Management

Three hours per week for one semester

Assessment by assignments and tests

A fifth-year subject in the degree course in manufacturing engineering. Legal: Australian legal system; commercial law regarding employees, employer liabilities; contract law; sale of goods; common law, criminal law and torts as they affect manufacturers; negligence; offences; industrial property (patents etc); principal and agent; companies law: workers' compensation, insurance.

Management performance: Modern theories of management; motivation; job enrichment; participation in practice; organisation development; professionalism; overseas trends; case studies. Industrial relations in Australia; collective bargaining; conciliation and arbitration; wage and salary administration; Law studies.

**Textbooks**

None

### MP531 Industrial Engineering

Three hours per week for one semester

Assessment by assignments and tests


Advanced study of total systems. Making use of computer simulation techniques in system dynamics.

**Textbooks**


### MP551 Design for Manufacture (P)

Three hours per week for one semester plus a thirty-hour project in industry

Assessment by assignments and projects


Project in industry: One week duration project after the examination week. Design of tools and equipment for productivity improvement.

**Textbooks**

None

**References**


M. Maj "General Principles of Tool Design", Special Interest Group Session of 35th Annual Conference of the Australasian Institute of Metals, Sydney, Swinburne Press, 1982

Faculty of Engineering

MP553 Design for Manufacture (C)
Three hours per week for one semester plus a thirty hour project in industry
Assessment by examination

A fifth-year subject in the degree course in manufacturing engineering.

Computer graphics including flowsheet and layout preparation; exercises in preparation of computer solutions to problems in momentum, heat and mass transfer.

Duhring and Cox charts, boiling point elevation, single and multi-effect evaporator systems, thermal and mechanical recompression; operation, control and economics of evaporation systems.

Examples of solid, liquid and gaseous effluents associated with chemical manufacturing and other industries: methods of treatment and disposal; ecological considerations; legal requirements.

Project in industry: a one-week project after the examination week in July. The project is concerned with productivity improvement in chemical manufacturing.

Textbooks

MP611 Production Technology 1
Six hours per week for one semester
Assessment by assignments, tests and laboratory work

A subject in the graduate diploma course in manufacturing technology.

Sheetmetal work: rheology — mathematical description of non-Newtonian fluids; flow on non-Newtonian liquids in a pipe; derivation of Mooney-Rabinowitsch equation and temperature dependence of viscosity described by Arrhenius equation; introduction to visco-elastic solids; application of visco-elastic models to constant and cyclic loading; definition of complex moduli and loss tangents; thermal fatigue of polymers. Compounding — thermodynamic theory of miscibility; effect of compounding on final properties of the material; chemical corrosion of material and environmental fracture process; statistical theory of mixing. Extruders and extrusion — description of extrusion process and extruder design; energy consumption; mathematical description of melt fracture and die swell; rheology of die flow; mathematical process of flow blowing and fibre spinning.


Textbooks
As for MP311

MP612 Production Technology 2
Six hours per week for one semester
Assessment by assignments, tests and laboratory work

A subject in the graduate diploma course in manufacturing technology.

Mathematical analysis of forming: equilibrium analysis of common working processes, e.g. wire drawing, strip drawing, extrusion, tube drawing, forging and rolling. Redundant work, friction and lubrication. Nomograms for solution of forming problems.

Deformation mechanics; Slip line field applied to cutting and forming problems — metal flow.

Polymers: moulding — description of various moulding processes; design of injection moulding machines; mould design; mathematical analysis of flow in extruders; mathematical analysis of flow in the injection moulds. Quality control — application of modified glass law to shrinkage of material in moulds; effect of crystallisation process on final dimensions of product. Fibres and composite materials — effect of fibre spinning on final properties; description of fibre properties and application; design of composite materials; application of solid mechanics in fibre reinforcement. Welding and sealing — introduction to theory of bonding between materials; description of modern technology in bonding of materials. Polymer laboratory work.


Textbooks
As for MP311

MP613 Production Technology 3
Five hours per week for one semester
Assessment by assignments, tests and laboratory work

A subject in the graduate diploma course in manufacturing technology.

Automation and automated assembly: CAM, CAD, manufacturing systems. NC Robots feeding orientation and placement.


Metalworking laboratory: polymer processing — selection and costing — optimising the use of materials with respect to material properties, moulding and cost. Calendering and coating — development of mathematical model for flow between rollers; application of model in predicting the power consumption of process; mathematical description of melt flow in wire coating.

Textbooks
As for MP311

MP614 Systems Engineering
Two hours per week for one semester
Assessment by assignments, tests and laboratory work

A subject in the graduate diploma course in manufacturing technology

Basic control theory, definitions, open and closed-loop systems. Regulator and servo problems. Analysis of linear systems using classical, S-plane and frequency response methods. Laplace transform techniques; block diagrams and transfer functions; system stability and performance criteria; Nyquist, Bode and Nichols plots. Compensation techniques. Applications to engineering problems.

Textbook
MP615 Instrumentation and Control
Two hours per week for one semester
Assessment by assignments, tests and laboratory work

A subject in the graduate diploma course in manufacturing technology.

Measurement and control of variables in production processes; forces, flow, stresses, distance, speed, acceleration, vibration, pressure, temperature, etc. Electrical, hydraulic and pneumatic control devices; signalling, amplification, recording and readout.

Textbook

MP651 Production Design 1
Four hours per week for one semester
Assessment by assignments, projects and tests

A subject in the graduate diploma course in manufacturing technology.


Value analysis: quality functionability and cost — optimum process selection. Value analysis — concept, methods of application.

Textbooks
As for MP351

MP652 Production Design 2
Two hours per week for one semester
Assessment by projects, tests and assignments

A subject in the graduate diploma course in manufacturing technology.

Tooling design for metalworking: Economy and batch quantity relationship. Jig and fixture design. Cutting tools. Tool design for: sheet metal work, cold and hot forging, and die casting.

Textbooks
As for MP251 and MP351

MP711 Mass Transfer
Six hours per week for one semester
Assessment by examination and laboratory assignments

A subject in the graduate diploma courses in chemical and biochemical engineering.

Theories of diffusion, boundary layer theory, penetration theory, absorption with chemical reaction. HTU and NTU, experimental determination of mass transfer coefficients.

Application of mass transfer such as distillation, gas absorption, liquid-liquid extraction, leaching, with descriptions of the equipment used for these operations.

Textbooks

MP712 Unit Operations
Six hours per week for one semester
Assessment by examination and laboratory assignments

A subject in the graduate diploma courses in chemical engineering and biochemical engineering.

Fluid/Particle systems, hydraulic classifications, hindered settling, thickening. Flow through packed beds, sand filters, fluidisation, pneumatic and hydraulic conveying. Handling and transport of powders, powder mixing, crushing, grinding and screening.

Newtonian and non-Newtonian fluid dynamics with examples drawn from plastics processing.

Description and characteristics of shell and tube exchangers and alternative geometries; extended surfaces. Boilers, condensers, tube sheets, furnaces etc, with examples of their application in the chemical industry.

Textbooks

MP721 Chemical Engineering Design I
Three hours per week for two semesters
Assessment by examination

A subject in the graduate diploma courses in chemical and biochemical engineering.

Exercises in the application to a variety of chemical engineering situations of dimensional analysis, treatment of experimental data, nomographs and graphical techniques.

Mass and energy balance calculations; flow sheets; stoichiometry calculations involving bypass, recycle and purge; combustion and heat engine calculations.

Textbooks

MP722 Stagewise Process
Four hours per week for one semester
Assessment by examination

A subject in the graduate diploma course in chemical engineering

The concept of the equilibrium stage as applied to distillation, liquid-liquid extraction, leaching, and other mass transfer operations.

Graphical and computer-based design techniques, including Lewis- Soret, McCabe-Thiele and Ponchon-Savarit methods; batch and continuous operation.

Behaviour of plate and packed columns, characteristics of packings, bubble caps etc; flooding, hold-up and pressure drop; selection of optimum column diameter.

Textbooks
MP723 Heat Transfer
Four hours per week for one semester
Assessment by examination and laboratory assignments
A subject in the graduate diploma courses in chemical and biochemical engineering.
Review of the relevant parts of thermodynamics and heat transfer, namely: conduction heat transfer, Fourier equation, natural and forced convection, Newton's law of cooling, overall coefficients.
Prediction of coefficients of heat transfer by the mechanism of natural and forced convection, flow and droplet condensation, nucleate and film boiling. Radiation heat transfer including Stefan-Boltzmann and Planck equations, emissivity and absorptivity, radiation function, shape factors, Beer's law.
Finite element technique applied to multidimensional and transient heat transfer. LMTO, FT and e-NTU methods to define temperature driving forces. Thermal rating of shell and tube exchangers.
Textbooks

MP724 Chemical Engineering Design 2
Five hours per week for one semester
Assessment by examination
A subject in the graduate diploma course in chemical engineering.
Computer graphics including flowsheet and layout preparation; exercises in preparation of computer solutions to problems in momentum, heat and mass transfer.
Duhring and Cox charts, boiling point elevation, single and multi-effect evaporator systems, thermal and mechanical recompression; operation, control and economics of evaporation systems.
Examples of solid, liquid and gaseous effluents associated with chemical manufacturing and other industries; methods of treatment and disposal; ecological considerations; legal requirements.
Textbooks

MP731 Physical and Chemical Equilibria
Three hours per week for one semester
Assessment by examination and laboratory assignments
A subject in the graduate diploma course in chemical engineering.
Students with a qualification in engineering are required to study the following material which forms the Semester 2 content of MP213, namely: physical equilibria, bubble and dewpoints, phase diagrams; activity, activity coefficients, Gibbs-Duhem equation.
Chemical reaction equilibria, heats of reaction and mixing; concentration, temperature and pressure dependence of rate of reaction; batch, plug flow and CSTR reactors; absorption and catalysis, electrochemistry.
Textbook

MP751 Design Applications
Five hours per week for one semester
Assessment by examination
A subject in the graduate diploma course in chemical engineering.
Drying, crystallisation, water cooling and humidification. Study of heat and momentum transfer as applied to a selection of soap, polymer, glass, food and similar industries. Mechanical design of pressured vessels, heat exchangers. Safety mechanisms such as safety valves and bursting discs. Routing and support of pipes, coupling methods; gland sealing on pumps and valves. Fixed and variable speed drives. Reinforced concrete; foundations; methods of holding down. Causes of failure.
Textbooks

MP761 Powder Technology
Three hours per week for one semester
Assessment by examination and laboratory assignment
A subject in the graduate diploma course in biochemical engineering.
This is the Semester 1 part of MP413 (MP712) as follows:
Fluid/particle systems, hydraulic classification, hindered settling, thickening. Flow through packed beds, sand filters, fluidisation, pneumatic and hydraulic conveying, filtration and centrifuging. Handling and transport of powders, powder mixing, crushing, grinding and screening.
Textbook

SA296 Physical Science
Two hours per week for two semesters
Assessment is by semester examinations
A second-year subject in the degree course in manufacturing engineering. A selection of six ten-hour units is made from a range of units offered in physics and chemistry. Students may select six physics units, six chemistry units or three of each.
Physics units: scientific instrumentation A and B, physical optics systems, physics of non-destructive testing, acoustics, solid state physics, nuclear physics, nuclear energy, biophysics, biomechanics, quantum mechanics, relativity.
Chemistry units: water, energy and fuels, instrumental analysis, industrial processes, practical work.
Textbook
There is no prescribed text.

SC197 Chemistry
Three hours per week for one semester
A first-year subject in all degree courses in engineering which provides students with an appreciation of the chemistry forming the background of engineering studies and practices. The course will be treated so that students are able to recognise its relevance to engineering.
Review of preliminary principles, energy, equilibria, electrochemistry, organic and inorganic chemistry, Ellingham diagrams — their relevance to engineering processes structure and properties of metals.
Textbook

SC571 Biology
Four 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, human biology, genetics, and microbiology.
References
I. Introduction to the use of computer equipment: description and introduction to the use of computer equipment: description and demonstration of analogue, digital and hybrid machines; types of computers used to each type of machine.

SC572 Microbiology
Three hours per week for two semesters
All students should have passed SC582, SC583, SC584, or SC585.

A subject in the graduate diploma course in biochemical engineering designed to provide basic instruction in the techniques and methods of microbiology.


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.

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 anabolic pathways; integration of metabolism; enzyme kinetics.

SC583 Physical Biochemistry
Two hours per week for one semester
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, X-ray crystallography, spectroscopy and enzyme kinetics.

Reference

SK296 Computer Programming
One hour per week for one semester
A second-year subject in the degree course in manufacturing engineering which provides practical programming experience of BASIC and FORTRAN and application to simple problems in production engineering. Students will be expected to complete several programming assignments. These will involve writing programs and using or modifying existing programs.

SK298 Computer Programming
One hour per week for two semesters
A second-year subject in the degree course in mechanical engineering which instructs students in languages and procedures relating to computer usage so that subsequently they may use computers as engineering tools for computations and simulations.

Instruction and practice in a high level language, BASIC; other languages; simulation packages; use of pre-programmed libraries, discussion of data base management systems, low level languages.

SK390 Computer Programming
One hour per week for one semester
A third-year subject in the degree course in civil engineering which extends students’ knowledge of the application of computers in solving engineering problems.

Advanced aspects of FORTRAN or other suitable programming languages, including sub-programs, non-numerical applications and file-handling on magnetic media. The course has a strong emphasis on practical work and students will be expected to devise suitable programming projects which are associated with their course.

SK496 Computer Applications
Two hours per week for one semester
A fourth-year subject in the degree course in manufacturing engineering which is intended to develop skill in writing programs in APL, BASIC and/or FORTRAN, of increasing levels of difficulty. Use of packages relevant to production engineering, and interpretation of results. Use of on-line programs and modifying them to suit individual problems. Simulation of machining operations and manufacturing processes.

SK527 Computing Techniques
Three hours per week for two semesters
Practical programming work
Assessment is by progressive assignments and major project

An optional subject in the graduate diploma courses in industrial management and manufacturing technology which consists of a selection from: algorithms and algorithmic processes, advanced high level language techniques, special purpose languages, manufacturing and engineering design and data-base systems, simulation techniques, hardware considerations, scientific and engineering computer system specification, costing and management, software libraries, time-share networks and information services.

Textbooks
Suitable textbooks and general reading will be advised during the lectures.

SK631 Computer Programming
Two hours per week for one semester
A subject in the graduate diploma course in telecommunication systems management.

Introduction to algorithmic processes. Functions and sub-routines use of library routines. Practical programming experience of BASIC and application to simple problems. Exercises in writing programs and using or modifying existing programs.

SM191 Computations
Three hours per week for first semester and two hours per week for second semester
A first-year subject in the diploma course in building surveying, intended to develop manipulative skills in mathematics and computing techniques for use in later subjects.

Statistics: data presentation and interpretation; regression, correlation; distributions; statistical inference. Calculus: functions and their inverses, graphs; differentiation; integration methods, use of tables; partial differentiation; differential equations, concepts, direct methods. Approximate integration: trapezoidal and Simpson methods. Linear algebra: matrices; determinants; inverse matrix, solution of system of equations. Introduction to the use of computer equipment: description and demonstration of analogue, digital and hybrid machines; types of problems suited to each type of machine.

Elementary digital programming using a procedural language; language syntax (BASIC or FORTRAN); program and data structure; introduction to algorithmic processes.

References
SM197 Engineering Mathematics
Four hours per week for first semester and three hours per week for second semester
A first-year subject in all degree courses in engineering which covers the basic mathematical knowledge considered to be minimal for an adequate understanding of the concurrent first-year studies in engineering.
The subject presents some additional material relevant to later engineering studies which will enable the students to develop further their mathematical knowledge and skills.
Functions, differentiation, integration methods, applications of differentiation and integration, infinite series, complex numbers, hyperbolic functions, differential equations, analytical geometry, functions of more than one variable, linear algebra.
numerical methods. Sample statistics.

References
Shenk, A. Calculus and Analytic Geometry. 2nd edn, USA Coodyear Publishing Company, 1979
USA or Scott, Foresman and Company, 1982

SM292 Engineering Mathematics
Four hours per week of integrated instruction and practice for two semesters
A second-year subject in the degree course in civil engineering.

References

SM294 Engineering Mathematics
Four hours per week of integrated instruction and practice for two semesters
A second-year subject in the degree course in electrical engineering.

Reference

SM296 Engineering Mathematics
Four hours per week of integrated instruction and practice for two semesters
A second-year subject in the degree course in manufacturing engineering.

References
Spiegel, M.R. Advanced Mathematics for Engineers and Scientists. N.Y., McGraw-Hill (Schaum), 1968

SM298 Engineering Mathematics
Three hours per week of integrated instruction and practice for two semesters
A second-year subject in the degree course in mechanical engineering.
Statistics — descriptive methods, probability, probability distributions for discrete and continuous variates, distributions of compound variates, confidence limits for the mean, tests of hypothesis, t-tests, F and x² distributions, correlation, regression. Laplace transforms — revision of differential equations, transforms and their inverses, solutions for differential equations, applications.
Integration — integration methods, plane polar co-ordinates, double integrals and applications, cylindrical and spherical co-ordinates, triple integrals and applications.
Vector calculus — scalar and vector fields, gradient of a scalar field, potential, surface integrals, flux of a vector field, Gauss divergence theorem, continuity of fluid flow, line integrals, curl, Stokes theorem, introduction to fluid flow.
Linear algebra — orthogonal matrices, eigenvalues, real symmetric matrices and applications.

Textbook

Reference

SM392 Engineering Mathematics
Three hours per week of integrated instruction and practice for one semester
A third-year subject in the degree course in civil engineering.
Introduction to finite difference methods for initial and boundary value problems in ordinary and partial differential equations. Large matrix problems. Linear programming and transportation.

References

SM394 Engineering Mathematics
Three hours per week of integrated instruction and practice for one semester
A third-year subject in the degree course in electrical engineering.
Linear systems. Fourier transforms. Special functions. Curvilinear coordinates.

Reference

SM396 Engineering Mathematics
Four hours per week of integrated instruction and practice for one semester
A third-year subject in the degree course in manufacturing engineering.

References

Faculty of Engineering
SM398  Engineering Mathematics
Three hours per week of integrated instruction and practice for one semester.

A third-year subject in the degree course in mechanical engineering. Fourier series and partial differential equations. Introduction to finite difference methods. Further statistics including the analysis of variance and non-parametric methods.

References

SM492  Engineering Mathematics
Three hours per week for one semester.

A subject in the fourth year of the degree course in civil engineering. Introduction to finite element methods: approximation, basis functions, quadrature, weighted residual methods, ordinary and partial differential equations.

Applied probability: queuing theory, probability modelling, extreme value theory.

References
Saaty, T.L. Elements of Queueing Theory with Applications. N.Y., McGraw-Hill, 1961

SM494  Engineering Mathematics
Three hours per week of integrated instruction and practice for one semester.

A fourth-year subject in both streams of the degree course in electrical engineering. Functions of a complex variable, conformal mapping, inversion of Laplace transforms. Statistical decision theory.

References

SM496  Engineering Mathematics
Two hours per week of integrated instruction and practice for one semester.


References

SM498  Engineering Mathematics
Three hours per week of integrated instruction and practice for one semester.

A fourth-year subject in the degree course in mechanical engineering. Introduction to finite element methods: approximation, basis functions, quadrature, weighted residual methods, ordinary and partial differential equations.

Dynamics: Lagrange’s method, vibrations
Complex functions: Cauchy — Riemann equations, conformal mapping, complex integration.

References

SM631  Mathematics
Four hours per week for one semester.

A subject in the graduate diploma course in telecommunication systems management. Complex numbers with applications to circuit theory. Periodic functions and an introduction to Fourier Series. Calculus: functions, differentiation and integration methods, applications to circuit theory. Statistics and probability: descriptive statistics, probability theory, distributions, queuing theory.

References
Shenk, A. Calculus and Analytic Geometry. California, Goodyear, 2nd edn, 1979
Thomas, G. and Finney, R. Calculus and Analytic Geometry, Reading, Mass. Addison-Wesley, 5th edn, 1979

SP191  Building Science
Three hours per week for one semester.

A first-year subject in the diploma course in building surveying, which introduces students to basic scientific principles underlying the behaviour of physical and chemical systems.

Measurement: quantities, units, S.I.
Waves: types, propagation, speed, reflection, transmission, interference, standing waves, forced oscillations, resonance.
Thermal physics: temperature, heat, internal energy, first law of thermodynamics, thermal conductivity, specific heat, calorimetry, adiabatic and isothermal processes.
Optics: mirrors, lenses, diffraction, resolution, optical instruments.
Physics of the solid state: crystal structure, lattice parameters, bonding of crystals; force-separation and potential energy — separation curves; equilibrium atomic separation. Structure and subdivisions of matter: atoms, and molecules; compounds and chemical reactions; acids, bases, oxidation, reduction principles of corrosion; the chemical processes involved in: the formation and weathering of soils, the constituents and treatment of natural water and domestic effluents from a chemical viewpoint. Simple treatment of air pollution.

The practical work supplements the lectures. Students are placed in practical situations in order to encourage logical thinking in the simple treatment of air pollution.
SP197  Physics

Three hours per week for first semester and two hours per week for second semester.
Assessment by semester examinations for theory, and continuous assessment for practical work.

A first-year subject in all degree courses in engineering.
Linear and rotational mechanics; waves in elastic media; optics; electricity and magnetism; gravitation; fluid mechanics; kinetic theory of gases; atomic physics.

The practical course is comprised of fourteen experiments on dynamics, wave motion, electricity and magnetism, physical optics and atomic physics.

Textbooks

SP294  Engineering Physics

Two hours per week for two semesters
Assessment by examination

A second-year subject in the degree course in electrical and electronic engineering.
Quantum physics and quantum optics. Wave-particle dualism. Schrodinger's equation and probability; uncertainty principle. Applications to tunnel effect; laser and maser action; laser communication, holography. Review of solid state physics of electronic devices and materials in current use and in development. Electronic statistics and noise. Electromagnetic waves: Maxwell's equations; propagation; application to communication systems; fibre optics; thin films; special relativity; Michelson-Morley experiments; application to communication and energy conversion. Nuclear physics: nuclear structure, properties, stability, decay, and reactions. Instruments and accelerating machines used in nuclear physics. Thermonuclear energy from fission and fusion.
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Swinburne College of TAFE

Director
B.J. MacDonald, BEc(Mon.), DipEd(Rus.)

Vice-Principal
P.C. Quail, BEc, DipEd(Mon.), (acting)

Head, Building Division
G.A. Martin, BA(SIT), BEd(LaT.), MMS, MAIB

Head, Business Division
P.C. Quail, BEc, DipEd (Mon.)

Head, Engineering Division
R.C. Chamberlain, TTrlc, DipMechE, CertEng(Aero)

Head, General Studies Division
G.A. Harrison, BSc (Melb.), DipMechE (CIT), TTTC (Haw.)

Membership of Board of Studies

As at August 1984

Ex officio
Chairman
Dr W.R. Longworth (Principal Director)

Director
Mr B.J. MacDonald

Vice-Principal
Mr P.C. Quail (acting)

Heads of Division
Mr G.A. Harrison — General Studies
Mr G.A. Martin — Building
Mr R.C. Chamberlain — Engineering
Mr P.C. Quail — Business

Heads of Teaching Departments
Ms D. Bennett — Humanities
Mr E.A. Trotter — Building Construction
Mr R.W. Conn — Business Studies
Mr F.A. Gaunt — Electrical and Electronics
Mr D. Cusworth — Machines and Materials
Mr R. Cullan — Mathematics and Science
Mr M.A. Kefford (acting) — Plumbing and Mechanical Services

Office Manager
Mr D.T. Barnard

Swinburne Librarian
Mr W.G. Linklater

Representatives, Swinburne Council
Mr W.J. Braden
Dr P.M. Edgar

Academic Board representatives
Mr I.B. Chapman
Dr M. Harney

Head, Education Unit
Mr B. Hawkins

Co-ordinator, Student Health and Welfare Unit
Miss M. Algar

Education Services Coordinator
Vacant

President, Student Union
Mr S. Wooden

Elected members
Staff representative
Miss P.D. Caven
Mr R.M. Carmichael
Mr W. Ponton
Mr K. Wiltshire

Student representatives
Vacant
Application procedure

Enrolment 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 fifteen years old and after having selected a trade, should:

1. Apply to the Industrial Training Commission, Nauru House, 80 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.

Certificate courses

See under the entry in the appropriate Division.

Tertiary Orientation Program

See under General Studies Division.

Mature-age entry

Special provision is made for mature-age entry. The scheme is designed for applicants who have not satisfied the standard entry requirements but who are able to show that they can cope with their proposed course of study. Applicants in this category are generally people, or beyond their early twenties who have some years of work experience in a relevant field.

Closing dates for applications (Full-time)

TOP Humanities and Business 30 November 1984
All other courses 11 December 1984

(Further applications received after these dates will be considered if places are available)

Part-time study

Application should be made in person between 9am and 8pm on 13 and 14 December 1984 or 5 and 6 February 1985

Student administration

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

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

Location and office hours

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

Office hours are as follows:

During teaching weeks
8.00am-8.00pm Monday to Thursday
8.00am-5.00pm Friday

During non-teaching weeks
8.45am-5.00pm Monday to Friday

Note
The office is closed during Public Holidays.

Enrolment regulations

Definitions

In this section:

Enrolment includes 're-enrolment'.
Enrolment form includes 're-enrolment form'.
Subject means any area of study which is part of a course leading to an award and which has a title and code number in the subject register maintained by the Student Administration section of the Registrar's department; the singular includes the plural.

Awarding department means the department responsible for the particular course.

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

Abandonment means the discontinuation of enrolment without formal notification.

Conditions of enrolment

Enrolment at Swinburne College of TAFE is conditional upon:
the information which is supplied by the applicant upon which an offer of a place in a course is based, being accurate;
the approval of the head of the awarding division (or his nominee) of the subjects concerned;
the completion of the requisite enrolment and statistical information forms required by the College;
the undertaking of the student to abide by the regulations and standards of conduct of Swinburne College of TAFE and to grant to the Registrar the power to provide appropriate authorities who have permitted a particular student to enrol at the College, details of that person's academic progress as may be required as a condition of approval by that department or authority;
the payment of any prescribed tuition fee (unless exempt);
the payment of the prescribed general service fee;

Note
Enrolment is not completed until the fee is paid.

Students whose fees are to be paid by an employer or other body must bring written evidence at time of enrolment so that the College may send to the body an invoice for fees.

Amendment to enrolment details

Change of subjects

If any of the subjects, after the initial enrolment, have been dropped, or any new subjects added, the student must complete an Amendment to Enrolment form (available from Student Administration and departments) which must be presented to the head of department for approval then lodged at the Student Administration Office, within seven days.

Students must notify the Student Administration Office of any withdrawal and/or additions of subjects.

(a) by 12 April 1985 for subjects with a Mid-year final examination/result and
(b) by 6 September 1985 for subjects with an end of year final examination/result.

Failure to notify will affect the student's examinations and results in those subjects.

Note
If a class has been cancelled by the department due to insufficient enrolments after a student's official enrolment, students are still required to lodge an Amendment to Enrolment form.
Cancellation of enrolment
If a student discontinues enrolment at any time, an Amendment to Enrolment form must be completed and submitted to Student Administration Office after approval from the head of the department. Students are strongly urged to discuss a proposed withdrawal from studies with the head of the department or contact teacher before taking any action.

Refund of fees as a result of cancellation
Application for refund of fees is provided for on the same form, and is valid until 31 March, 1985. Applications received after this date will be considered in exceptional circumstances only. A College service fee may be deducted from the refund.

Enrolling in an additional course
Students who enrol for a course and then later decide to do extra subjects in a different course should only complete an Amendment to Enrolment form to add those subjects. A new enrolment form is not required and additional fees are not required in circumstances where enrolment changes from part-time to full-time status, and where a student continues to study in Semester 2 and has only paid fees for Semester 1.

Enrolling in a different course
In this case students are also required to fill in an Amendment to Enrolment form to change their course and subjects information. A new enrolment form is not required and additional fees are not required to be paid except in circumstances as outlined in the previous paragraph.

Residential address for correspondence
Throughout the year information regarding courses, examination results and other special notices are sent to students. Students must provide a correct address so that they may be contacted at a moment's notice, otherwise they may jeopardise their chances of meeting deadlines and observing other special requirements.

If a student changes a name, an address, or employer, an Amendment to Personal Details form must be completed and lodged immediately at the Student Administration Office.

Exemptions
Students seeking exemptions from subjects should complete an Application for Exemption form obtainable from Student Administration or from the department controlling the subject. The purpose of granting exemptions is to establish the equivalence of alternative studies. If there is doubt as to whether an exemption should be recommended the matter should be referred to the appropriate head of the subject area.

Provision of additional information
If the alternative subject is not part of a widely recognised course the provision of results will not be sufficient. Applicants should also provide details of:
- syllabus content
- length of course
- assessment procedures.

Sighting of original documents
Original documents should be submitted in person so that they may be photocopied by an officer of the College and returned immediately.

Identity cards
All students enrolling or re-enrolling at Swinburne will be issued with a 1985 identity card.

Initial issue will be from the Library enquiries counter on the presentation of the receipt for the General Service Fee.

Cards are not transferable and are valid only when signed. A current card must be produced when borrowing or photocopying, otherwise service may be refused.

A Student who loses the card should:
- a) notify the Reader Services Librarian as soon as possible after discovery of the loss as card holders may be held responsible, under library rules, for any transactions made on the card up to the time of notification of the loss.
- b) apply to the Library for the issue of a replacement card (cost $1.00)

A student who wishes to withdraw from a course must return the card to the Swinburne Library.

Fare concessions
Metropolitan Transit Authority, country and interstate rail and airline fare concession application forms are available from the Student Administration office. Only full-time students are eligible for fare concessions.

Fees
At the time of going to press the General Service fee for 1985 had not been determined. In 1984 the fees were:
- Full-time $75.00
- Part-time $28.00

Sighting of original documents
Original documents should be submitted in person so that they may be photocopied by an officer of the College and returned immediately.
Examinations

General

1. Time-tables
   Approximately half-way through each semester, a provisional examination time-table is displayed on notice boards around the College. Students should note their examination times and immediately report any clashes to the examinations officer. The final time-table, without room allocations, is posted approximately one month later. Room allocations are posted at least one week before classes end.
   It is the responsibility of students to ascertain dates and times of examinations. No information is given by telephone.

2. Identity cards
   Students must take their identity cards into the examination room.

3. Publication of results
   Examination results will not be given over the telephone. Results are displayed on the notice board in the quadrangle on the date or dates announced by the Registrar.

Internal examinations

Swinburne College of TAFE Examination and assessment regulations

1. Scope
   1.1 The following rules apply to all courses and subjects taught and examined by the Swinburne College of TAFE, except where external examinations may require otherwise.

2. Definitions
   2.1 An examination is a formal assessment undertaken during the period proclaimed for examinations by the Board of Studies and which is subject to the control of the Registrar through his designated officer.
   2.2 A test is an assessment scheduled at any time during the course of a subject by the subject panel.
   2.3 An assignment may cover the following:
       - laboratory work, field work, projects, class problems, essays, folios, design reports and general reports.
   2.4 A final result is a formal notation of achievement derived from one or more of the above definitions.
   2.5 The chief examiner is the Principal Director of Swinburne. Responsibilities of the Chief Examiner are, for the time being, delegated to the Director, Swinburne College of TAFE.
   2.6 An awarding division board is the Division Board responsible for making recommendations to the Swinburne Council for the grant of a particular award.

3. Subject panels
   3.1 The head of department shall appoint a subject panel for the necessary subject areas comprising at least two members of the teaching staff of SCT, one of whom shall be appointed the convener.
   The head of department shall notify the appropriate division board of the panel's composition no later than the April meeting.
   3.2 The panel shall, when required, draft the appropriate material and submit same through its convener to a moderator appointed by the head of department.
   3.3 A moderator shall be responsible for final submissions to the head of department.
   3.4 The convener of each panel shall be responsible for:
       3.4.1 in the case of examinations and tests, the allocation of questions, the final balance of the paper and the distribution of scripts for marking;
       3.4.2 in the case of continuous assessment, the method of assessment and the maintenance of the register of requirements, tests and performance.
   3.5 Each examination or test paper shall be provided with written solutions or a statement of basic skills to be attained. The panel must be in agreement with the solutions, statement and assessment.
   3.6 The convener shall arrange for appropriate proof-reading and checking of papers and assignments. All examination papers must be forwarded to the Examinations Officer accompanied by a completed Examination Face Sheet.
   3.7 The subject panel must check the times and rooms allocated for examinations in the subjects for which it is responsible, and notify the Examinations Officer of any irregularities.
   3.8 The subject panel must ensure that one of its members be on campus and immediately available to the Examinations Officer for the duration of those examinations for which the panel is responsible.
   3.9 The panel shall carry out any further duties as required by the head of department.
4. Conduct of examinations

4.1 General

Unless otherwise stated on the time-table, morning examinations will commence at 9.05 am and afternoon examinations at 1.35 pm. Students will not be permitted to enter the examination room after 30 minutes have elapsed from the commencement of the examination, and will not be permitted to leave during the first 30 minutes nor during the last 30 minutes of the examination.

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

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

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

4.2 Special provisions for disabled students

Special examination arrangements may be made for students with temporary or permanent disabilities. Applications for special arrangements are to be made to the Head of Departments who will recommend appropriate arrangements to the Chief Examiner for approval. The Chief Examiner will notify approved arrangements to the Examinations Officer who will be responsible for their implementation.

4.3 Collection and despatch of papers

The Examinations Officer is solely responsible for redirecting all completed examination scripts to the appropriate marking authority. Internally marked examination scripts will be available at the Examination Centre when all relevant documents have been cleared but, in any case, not before the afternoon of the day following the examinations.

4.4 Examination discipline

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

4.4.2 At the conclusion of the examination the Chief Examiner shall convene a meeting of the subject convener, the student concerned and the head of the teaching department to determine:

(a) whether there has been a breach of examination discipline;
(b) whether there is a need for assistance with communication with the student; if it resolves that there is such a requirement it shall adjourn the meeting and arrange for the presence of appropriate professional services when the meeting is re-convened;
(c) if it resolves that there has been a breach of examination discipline, the penalty to be imposed upon the student.

4.4.3 The maximum penalty for cheating or other examination irregularities is that the student be permanently excluded from further study at the College of TAFE and if any penalty is imposed the student shall be notified in writing.

4.4.4 The student shall have the right of appeal as to the finding of a breach of examination discipline and/or the penalty imposed.

Such appeal shall be determined by a committee appointed for the purpose by the Principal Director.

The Appeal Committee shall consist of five persons of whom:
(a) one shall be the nominee of the Chief Examiner
(b) one shall be a student of the College nominated by the President of the Student Union;
(c) one shall be the nominee of the subject convener;
(d) two shall be members of the academic/teaching staff of the College nominated by the Head of the Teaching Division provided that no member of the Appeal Committee shall have been a party to the original investigation.

5. Processing results

5.1 The convener shall within 14 days of the completion of the examination period, submit to the Head of the Teaching Department the following:

5.1.1 The result recommended for each student enrolled for the subject;

5.1.2 A signed subject report in a form approved by the awarding faculty board, including:
(a) certification that these regulations have been carried out;
(b) a statement of the assessment procedure followed;
(c) copies of all examinations, tests and assignments;
(d) where appropriate, copies of solutions or statements of minimum qualities; and
(e) an appraisal of the subject as a whole.

The results under 5.1.1 above shall be transmitted by the Head of the teaching department to Student Administration.

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

5.1.4 After the awarding division board (or the Board Committee established for the purpose) has approved the results the Chairman shall advise Student Administration of the final result category for each student.
5.1.5 Student Administration shall arrange for the publication of the results in a public place as soon as practicable after the determination by the division board or its committee and for the posting to each student a certificate showing his or her results for the semester concerned.

5.2 Result categories

5.2.1 Unless indicated below, results for subjects which are internally assessed shall use the following gradings:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit</td>
<td>75 - 100%</td>
</tr>
<tr>
<td>Pass</td>
<td>50 - 74%</td>
</tr>
<tr>
<td>Fail</td>
<td>0 - 49%</td>
</tr>
</tbody>
</table>

5.2.2 Subjects undertaken as part of a Tertiary Orientation Program will be recorded and reported using the following grades:

- Pass with various grades of distinction
  - 80% - 100% A
  - 70% - 79% B
  - 60% - 69% C
  - 50% - 59% D
  - 40% - 49% E
  - 3% - 39% F
- OX - 4%

5.2.3 Subjects undertaken as part of a VISE accredited Year 12 certificate (Higher School Certificate) will use the following grades where VISE report by grades:

- Pass with various grades of distinction
  - 80% - 100% A
  - 70% - 79% B
  - 60% - 69% C
  - 50% - 59% D
  - 40% - 49% E
  - 3% - 39% F
  - OX - 4%

and, where VISE reports in two categories only:

- Satisfactory S
- Unsatisfactory N

5.2.4 Apprenticeship module results are recorded as:

- Credit CR
- Pass P
- Not Completed NC

5.2.5 The following notations are applicable in special circumstances:

- Special Exam SPX
- Deferred Result DEF
- Not Completed - Continuing NC
- Ceased no withdrawal CNW

Special circumstances in connexion with the NC category must be approved by the Board of Studies.

6. Absence from examinations

Students who are absent from an examination due to illness or other reason may apply through the Student Administration Office for a special examination. Such application must be accompanied by evidence of a genuine inability to attend the examination and must be lodged within forty eight (48) hours of the examination, weekends and public holidays excluded.

7. Deferred results

7.1 A deferred result may be granted only by the Head of a teaching department. The special circumstances justifying the grant of a deferment must be set out in writing to the Chairman of the awarding division board.

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

7.3 The deferred result shall be recorded as "DEF" in the result listings for the subject.

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

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

7.6 Student Administration shall notify the head of the awarding division of any deferred result which has not been finalised within three months of the date of publication of the deferment. The division board must deal with the matter at its next meeting.

8. Students discontinuing

Any student who is enrolled in a subject on the date on which final candidates lists are produced and who is known to the teaching staff to have discontinued the subject may be recorded as having ceased the subject. The result grade used in such a case shall be CNW - Ceased, no withdrawal.

9. Retention of examination scripts

All examination scripts, papers and records of raw assessments must be retained by the department for a period of six months.
10. Reports

On payment of the appropriate fee within thirty (30) days of publication of the results, a candidate is entitled to a report on his final written examination paper. This does not apply to practical examinations.

Reports are in the following categories:
(a) Breakdown of marks allocated for each question
OR
(b) A full report.

Fees
Fees for such reports shall be determined from time to time by the Principal Director.

11. Alteration of Original Result

Any amendment to internally assessed results will be accepted upon presentation of a Result Amendment form duly signed by the subject teacher, the head of department, and authorised by the head of the teaching division.

The head of division can authorise amendments to results within two (2) months after the date of original publication of the result.

Any amendments proposed after two (2) months must be submitted to the divisional board responsible for the teaching department involved for approval.

External examinations

Important extracts from TAFE examination instructions

Special examinations
A candidate who is not granted a pass on a recorrection of the examination paper will be furnished with a report on that examination paper. This does not apply to practical examinations.

(i) the candidate, as a result of the recorrection, is granted a pass in the subject, or
(ii) a special examination, where no supplementary examination is held.

These special provisions do not apply to electrical wiring, plumbing or any trade practical examinations.

An application for a special examination must be made to the college within 48 hours of the date of the examinations, and if the request is being made on medical grounds, a report from a qualified medical practitioner must be submitted.

The Principals' recommendation in such cases should be based on any of the following criteria:
(i) Illness during the year;
(ii) Illness before and during the examination;
(iii) Elements of personal environment.

Recorrections

1 Any candidate at an external examination other than a practical examination may, on payment of a fee of $11.50 have the examination paper in that subject recorrected.

2 Any application for a recorrection must be lodged, together with the prescribed fee, at the office of the Education Department not later than thirty days after the publication of examination results for the subject.

3 Applications should be in writing and addressed to the Cashier, Education Department, 2 Treasury Place, Melbourne, 3002, not to the Examinations Branch.

4 The result of the recorrection will be provided as soon as possible, though not necessarily before the supplementary examination for subjects in which December supplementary examinations are held.

5 Where a candidate's eligibility to sit for a supplementary examination depends on the result of a recorrection, and where the recorrection result is not available before the time set for the examination, the candidate should be allowed to sit for the examination and an appropriate endorsement of the fact should be made on the front of the answer papers.

6 A candidate who is not granted a pass on a recorrection of an examination paper will be furnished with a report on that examination paper.

7 The fee mentioned in paragraph (1) will be refunded if
(a) the candidate, as a result of the recorrection, is granted a pass in the subject, or
(b) the Deputy Chairman, TAFE Board considers that special circumstances warrant the refunding of the fee.
Awards

Students eligible to receive certificates are required to apply on the form prescribed, available from Student Administration. Applications close on 31 October each year for applicant who anticipate completing the academic work in the following December exams, the conferring ceremony will be held in the following year.

Any request for exemption(s) must be approved in writing by the College before an application for a certificate can be made, in order to prevent delays in granting of the certificate.

Original evidence of same subjects completed elsewhere must be supplied with applications together with an additional photocopy which will be retained by Student Administration.

For more information refer to section on exemptions.

Swinburne College of TAFE Computer Service

Supervisor: J.E. Browne, MSc, DipEd.

The Swinburne College of TAFE Computer Service provides computing facilities for any department teaching subjects involving computers and/or computer programming.

The computer Service is in Room N9 and houses a Spectrum I/Computer with 64K of Central Processor memory plus 1.26 mega-bytes of floppy disk storage. Students actually run their own programs by placing their cards in a Hewlett Packard Mark-sense/Punch Card Reader and removing their print-out from the LA180 printer attached to the computer. Languages currently available to students are BASIC, FORTRAN, COBOL and PASCAL.

Students who find they have problems they cannot solve themselves may obtain programming help from the supervisor.

Loans and assistance schemes

With the approval of the Loan Fund Committee, long-term and short-term financial assistance can be obtained from the following loan funds:

- Swinburne Council Fund for Tertiary Orientation Program Students
- Student Union Aid Fund
- Rotary Swinburne Bursary

Enquiries should be made to the student counselling service. Telephone 819 8025.

Education Allowance

Certain categories of full-time students may be eligible for an Education Department education allowance. Enquiries about this allowance should be made at the Student Administration Office.

Living allowances

Information regarding a number of living allowance schemes and scholarships is available from the student counselling service. Application forms are also available.

Swinburne College of TAFE

Tertiary Education Assistance Scheme (TEAS)

The Commonwealth Government provides financial assistance for full-time study. This includes courses at technician, certificate, diploma, degree and postgraduate diploma level. To be eligible, students must also meet certain requirements regarding previous study, other awards held, etc.

As from 1 January 1985 the following benefits are available subject to a means test:

- **Maximum living allowance**
  - for dependent students at home $2,321 p.a.
  - for independent students $3,581 p.a.
  - for students away from home $2,220 p.a.
- **Incidentals allowance** $30 p.a.

Applications may be made after enrolment in a course. Pamphlets and application forms available from student counselling service or the Commonwealth Department of Education, 17 Yarra Street, Hawthorn 3122.

Adult Secondary Education Assistance Scheme (ASEAS)

This Commonwealth scheme provides assistance to students aged nineteen years or over at 1 January 1985 in the Tertiary Orientation Program, who have not completed Year 12 in the past three years, subject to a means test and certain conditions of eligibility.

Benefits are similar to the TEAS scheme.

Further details and application forms are available from the student counselling service.

Secondary Allowance Scheme (SAS)

This scheme provides assistance to families of Tertiary Orientation Program students under nineteen, with a limited income. An allowance of up to $1,202 p.a. is paid, subject to a means test.

Details may be obtained from the student counselling service.

Assistance for isolated children

Students likely to qualify for this assistance are those who do not have reasonable daily access to an appropriate government school. This includes Tertiary Orientation Program students who must live away from home when the family moves away during a school year, those who must live away from home to undertake a remedial or other special type of course, those who live in a geographically isolated area and those who are disabled.

Benefits include a boarding allowance, a second home allowance and a correspondence allowance.

Details may be obtained from the student counselling service.

Aboriginal Grants Schemes

These schemes provide assistance to secondary and post-secondary students of Aboriginal or Torres Strait Island descent.

Details are available from the student counselling service or the Commonwealth Department of Education, 17 Yarra Street, Hawthorn 3122.
Scholarships

Alexander Rushall Memorial Scholarship
This is available to Protestant male students in the Tertiary Orientation Program and in the Swinburne College of TAFE. There is a means test. Value $40 to $200 and is tenable for one year. Applications close in December.

Dafydd Lewis Trust Scholarship
This is available to male students who will be proceeding with degree level study in 1985, this is subject to a means test and certain conditions of eligibility. Value ranges from $2912 to $4524 p.a. Applications close at end of November.

Victorian Overseas Foundation
Scholarships are provided each year for outstanding tradesmen between twenty-one and twenty-five years of age who have completed their apprenticeship indentures and a prescribed course at a technical college. Scholarship winners go overseas for a period of up to two years for training, work and study. Applications close on 31 May of each year.

Wainwright A.N.A. Scholarship
This scholarship will be awarded in 1985 after consideration of the candidate's year's work in a tertiary orientation year of study and is tenable for the full length of any approved technical course. Applications close in December. Value: $50 p.a.

Walter Lindrum Memorial Scholarship
This is available to a student who is qualified to enter the first year of a degree or diploma course. Value: $500 p.a. Applications close 1 November.
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Building construction courses offered ........................................... CT14
---Apprenticeships ........................................... CT14
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---Technician certificates
---Building Foreman ........................................... CT15
---Building Inspector ........................................... CT16
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---Certificates of Technology
---Building Surveyor ........................................... CT17
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---Building Construction ........................................... CT17
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---Building Construction ........................................... CT19
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general information

swinburne institute of technology

applied science

art

arts

business

engineering

swinburne college of TAFE

building division

business division

engineering division

general studies division

The section indicator denotes the general position in the book of each section.
Building Division
Head
G.A. Martin, BA, BEd, MMS, MIIE, MAIB

Building Construction Department
Head
E.A. Trotter, CertBuild, TTIC

Academic staff
A. Boltman, GradlEAust, DipEd, MlEAust
A.R. Cottle, DipBldg, DipEd, BuildForemanCert, CoFWcert, BldgSurvCert, FAIBS
R.L. D’Argaville, TTrlC
S. Day, TTrlC
D.R. Dendle, TTrlC
M.J. Finnerty, DipTT, CoFWcert, MBPDS
T. Harris, TTrlC
D.G. Hendry, DipBldg, DipEd, BldgSurvCert, BuildInspCert, FAIBS, AAlB, AArlA, MBS
H. Lovig
J. Miller
S. Mitchell, DipTT, TechCert
V.N. Osterlund, TTrlC, TechCert
A.L. Patience, DipBldg, BEd, MEdStuds, MAICS, MAIB, MIAA
ZP. Szirom, DipBldg, TTIC
R.P. Ulbrick, TTrlC, DipTT, TechCert-InspC of W.Foreman
C.W. Watson, ACTT

Plumbing and Mechanical Services Department
Head
M.A. Kefford, DipTT, GradDipEdAdmin, (Acting)

Academic staff
J. Coghlan, DipTT, TechCert, MIPA
M. Dempsey, DipTT
J.F.T. Gooding, DipTT, CertTech, TechCert
G.A. Grendon, DipTT
L.A. Griffin, DipTT
I. Heafley, DipTT, MIPA
R.C. Hill, TechCert, AssAIRAH, DipTT
B.J. Morrison, TTrlC
N.J. McBride, DipTT
G. Oldham, DipTT, CertServInst&Des, MIPA
G. Rees, TTrlC
J.B. Tobin, DipTT, TechCert
L.J. Walker, DipTT, CertTech, TechCert, AssAIRAH
G.J. Williams, DipTT, AssAIRAH, GradDipEdAdmin
R. Wilson, COTT

Building construction courses
The following courses are offered by the Building Construction Department.

Apprenticeships — Carpentry, Joinery, Carpentry and Joinery
The 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, joinery trades regulations of the Industrial Training Commission.

Technician Certificate — Building courses
The building technician certificate is accepted as evidence that certificate holders have received training which should enable them to accept positions of responsibility in the industry. It is possible to complete the course by evening and/or part-time attendance at the college. Apprentices may take a technician course concurrently with normal apprenticeship training, but attendance at evening classes is necessary.

Certificate of Technology — Building courses
To train, for a variety of special areas of responsibility in the building industry; immediate support personnel to management and the professions.

Certificate of Technology — Building Surveyor
The Certificate of Technology — Building (Building Surveyor) course meets the academic requirements of the Building Qualifications Board for the issue of the Municipal Building Inspectors Certificate.

Certificate of Technology — Timber Framing Code
The Certificate of Technology — Building (Timber Framing Code) course meets the academic requirements of the Building Qualifications Board for the issue of the Municipal Building Surveyors Certificate.

B34CAC Clerk of Works
B34CAB Building Foreman
B34CAD Building Inspector
B21CAD Building Surveyor
B21CAA Estimating
B21CAB Building Supervisor
B21CAG Fire Technology
B21CAC Building Construction
B42CBQ Timber Framing Code
Apprenticeship courses

B32CBA  Apprenticeships, Carpentry, Joinery or Carpentry and joinery

Eight hours per week for three years to complete a minimum total of twenty-four modules.

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.

Course structure

<table>
<thead>
<tr>
<th>Code</th>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB051</td>
<td>Mod. 1</td>
<td>Simple base structures, basic tool skills</td>
</tr>
<tr>
<td>TB052</td>
<td>Mod. 2</td>
<td>Simple timber wall framing</td>
</tr>
<tr>
<td>TB053</td>
<td>Mod. 3</td>
<td>Simple timber roofing – skillion and gable</td>
</tr>
<tr>
<td>TB054</td>
<td>Mod. 4</td>
<td>Simple doors — ledged and braced – fly wire</td>
</tr>
<tr>
<td>TB055</td>
<td>Mod. 5</td>
<td>Simple windows — casement frame and sash</td>
</tr>
<tr>
<td>TB056</td>
<td>Mod. 6</td>
<td>Timber, fencing and gates</td>
</tr>
<tr>
<td>TB057</td>
<td>Mod. 7</td>
<td>Timber villa construction → sub-floor structure to include set of wall plates</td>
</tr>
<tr>
<td>TB058</td>
<td>Mod. 8</td>
<td>Timber villa construction → wall framing</td>
</tr>
<tr>
<td>TB059</td>
<td>Mod. 9</td>
<td>Timber villa construction → ceiling and gable roof framing</td>
</tr>
<tr>
<td>TB060</td>
<td>Mod. 10</td>
<td>Timber villa construction → simple hip roofing</td>
</tr>
<tr>
<td>TB061</td>
<td>Mod. 11</td>
<td>Door and door frames (domestic)</td>
</tr>
<tr>
<td>TB062</td>
<td>Mod. 12</td>
<td>Window joinery → double hung sash with patented balances rectangular louvre</td>
</tr>
<tr>
<td>TB063</td>
<td>Mod. 13</td>
<td>Window joinery → double hung sashes in box frame</td>
</tr>
<tr>
<td>TB064</td>
<td>Mod. 14</td>
<td>Simple stairs — timber and concrete</td>
</tr>
<tr>
<td>TB065</td>
<td>Mod. 15</td>
<td>Brick veneer construction and hand saw sharpening</td>
</tr>
<tr>
<td>TB066</td>
<td>Mod. 16</td>
<td>Hip and valley roofing</td>
</tr>
<tr>
<td>TB071</td>
<td>Mod. A51/B51</td>
<td>Concrete formwork</td>
</tr>
<tr>
<td>TB072</td>
<td>Mod. A52</td>
<td>Hip and valley roofing 1 (equal pitch)</td>
</tr>
<tr>
<td>TB073</td>
<td>Mod. A53/B53</td>
<td>Internal fixing</td>
</tr>
<tr>
<td>TB074</td>
<td>Mod. A56/B56/C56</td>
<td>Star building 1</td>
</tr>
<tr>
<td>TB075</td>
<td>Mod. A57</td>
<td>Hip and valley roofing 2 (unequal pitch)</td>
</tr>
<tr>
<td>TB076</td>
<td>Mod. A58</td>
<td>Shoring, centres and levelling</td>
</tr>
<tr>
<td>TB077</td>
<td>Mod. B52</td>
<td>Formwork for concrete and systems</td>
</tr>
<tr>
<td>TB078</td>
<td>Mod. B55</td>
<td>Industrial roofing, irises and ceilings</td>
</tr>
<tr>
<td>TB079</td>
<td>Mod. B57</td>
<td>Site works, setting out and levelling</td>
</tr>
<tr>
<td>TB080</td>
<td>Mod. B58</td>
<td>Large centres, shoring and trenches</td>
</tr>
<tr>
<td>TB081</td>
<td>Mod. C52/D52</td>
<td>Joinery 1 (doors, windows and louvres)</td>
</tr>
<tr>
<td>TB082</td>
<td>Mod. C53/D53</td>
<td>Joinery 2 (curved work)</td>
</tr>
<tr>
<td>TB083</td>
<td>Mod. C57</td>
<td>Stair building 2</td>
</tr>
<tr>
<td>TB084</td>
<td>Mod. C58</td>
<td>Stair building 3</td>
</tr>
</tbody>
</table>

Technician Certificate — Building courses

B34CAB  Technician Certificate — Building (Building Foreman)

Course detail

The course consists of eleven subjects. All subjects are offered on a part-time evening basis, however most subjects are also conducted during the day.

The Technician Certificate is awarded to any student who completes the following:

All subjects in the Technician Certificate — Building (Building Foreman) plus completion of an approved apprenticeship course i.e. Carpentry and Joinery, Plumbing and Gasfitting or Bricklaying.

Subjects

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<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>TH145</td>
<td>Building English</td>
<td>2</td>
</tr>
<tr>
<td>TB222</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>TB126</td>
<td>Building Mathematics (T)</td>
<td>2</td>
</tr>
<tr>
<td>TB220</td>
<td>Building Science 1</td>
<td>2</td>
</tr>
<tr>
<td>TB417</td>
<td>Building Surveying (T) Theory and Maths</td>
<td>5</td>
</tr>
<tr>
<td>TB222</td>
<td>Technical Reports (Building)</td>
<td>2</td>
</tr>
<tr>
<td>TB426</td>
<td>Building Administration and Supervision</td>
<td>2</td>
</tr>
<tr>
<td>TB440</td>
<td>Builders Quantities</td>
<td>2</td>
</tr>
</tbody>
</table>

Hours per week
B34CAD Technician Certificate — Building (Building Inspector) (1976 syllabus)

General description and aim of course
The course is designed
(a) to be a job-oriented extension to the basic vocational courses;
(b) to suit the particular needs and interests of students and employers;
(c) to meet the minimum entrance requirements of the Certificate of Technology — Building.

Entrance requirements
Completion of a year ten standard of education, and engaged in an appropriate vocational program.

Career potential
Substantial opportunities exist in municipal building inspection and similar positions may be available with the building departments of various large organisations, e.g., banks, government departments and authorities.

Course structure
The course consists of twelve subjects. All subjects are offered on an evening part-time basis and all subjects are offered during the day.

Disclaimer: The course is designed to meet the minimum entrance requirements of the Certificate of Technology — Building (Building Inspector) and is not available to new students.

Completion of course
The Technician Certificate — Building (Building Inspector) course meets the academic requirements of the Building Qualifications Board for the issue of the Municipal Building Inspectors Certificate.

Students who have completed the Technician Certificate — Building (Building Inspector) are eligible to continue studies leading to a Certificate of Technology — Building (Building Surveyor) or other Certificate of Technology — Building course.

Course structure

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB216 Building Construction 1A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB217 Building Construction 1B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB222 Technical Reports (Building)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB222 Building Construction 2A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB223 Building Construction 2B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB435 Scaffolding Inspection A</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TB439 Scaffolding Inspection B</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TB412 Building Construction 3A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB413 Building Construction 3B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB426 Building Administration and Supervision</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB436 Practical Inspection (Building)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB437 Statutory Control of Building</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB435 Applied Mechanics I (for students who are eligible to continue to Certificate of Technology — Building (Building Surveyor))</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB126 Building Mathematics (T) 1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

B34CAC Technician Certificate — Building (Clerk of Works)

It is necessary for entrants to the course to be sewing, or have served, an apprenticeship (with proficiency) in one of the following approved building trades:

- Carpentry
- Joinery
- Plumbing — Sanitary, General and Gasfitting
- Plumbing — Mechanical Services, General and Gasfitting
- Bricklaying
- or
- have at least ten years’ relevant experience, approved by the head of the department.

Course structure

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB216 Building Construction 1A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB217 Building Construction 1B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB220 Building Science (T) A and B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB222 Technical Reports (building)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB222 Building Construction 2A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB223 Building Construction 2B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB247 Building Surveying (T) theory and maths</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>TB412 Building Construction 3A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB413 Building Construction 3B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB426 Building Administration and Supervision</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB419 Specifications, drawing, interpretation and co-ordination</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB436 Practical Inspection (building)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB435 Scaffolding Inspection A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB439 Scaffolding Inspection B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB502 Quantity Surveying 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB810 Contracts and Building Law</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB520 Role and Function of a Clerk of Works (one semester)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

B21CAE Building Surveyor Certificate

(1967 syllabus)

This course applies to completing students only and is not available to new students.

Course structure

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB216 Building Construction 1A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB217 Building Construction 1B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB217 Building Construction 2A</td>
<td>2</td>
<td></td>
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<tr>
<td>TB222 Building Construction 2B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB312 Building Construction 3A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB313 Building Construction 3B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB313 Building Surveyor Part 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB426 Building Administration and Supervision</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB429 Building Practice</td>
<td>2</td>
<td></td>
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<tr>
<td>TB435 Scaffolding Inspection A</td>
<td>1</td>
<td></td>
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<tr>
<td>TB439 Scaffolding Inspection B</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TB435 Building Surveyor Part 2</td>
<td>2</td>
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<tr>
<td>TB434 Powers and Duties of a Municipal Building Surveyor Part 2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB442 Building Construction 2C (structural analysis)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB442 Building Construction 3C (theory of structure)</td>
<td>2</td>
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</tr>
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</table>

Group A

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB216 English Report Writing, Library and Thesis</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB425 Applied Mechanics I</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB442 Building Science 1A and B (building surveyors)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB434 Powers and Duties of a Municipal Building Surveyor Part 2</td>
<td>2</td>
<td></td>
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Group B

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>week</th>
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<tbody>
<tr>
<td>TB431 English Report Writing, Library and Thesis</td>
<td>2</td>
<td></td>
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<tr>
<td>TB434 Powers and Duties of a Municipal Building Surveyor Part 2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB442 Building Construction 2C (structural analysis)</td>
<td>2</td>
<td></td>
</tr>
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</table>
### B21CAD Certificate of Technology — Building (Building Surveyor) (1976 syllabus)

<table>
<thead>
<tr>
<th>Course structure</th>
<th>Hours week</th>
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<tbody>
<tr>
<td>TB116 Building Construction 1A</td>
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</tr>
<tr>
<td>TB117 Building Construction 1B</td>
<td>2</td>
</tr>
<tr>
<td>TB122 Building Construction 1A</td>
<td>2</td>
</tr>
<tr>
<td>TB123 Building Construction 1B</td>
<td>2</td>
</tr>
<tr>
<td>TB412 Building Construction 3A</td>
<td>2</td>
</tr>
<tr>
<td>TB413 Building Construction 3B</td>
<td>2</td>
</tr>
<tr>
<td>TH115 Communication Studies 1A (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TH116 Communication Studies 1B (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TB436 Building Administration and Supervision</td>
<td>2</td>
</tr>
<tr>
<td>TB460 Professional Practice of a Building Surveyor</td>
<td>2</td>
</tr>
<tr>
<td>TB415 Practical Inspection (building)</td>
<td>2</td>
</tr>
<tr>
<td>TB416 Applied Mechanics 1</td>
<td>2</td>
</tr>
<tr>
<td>TB437 Statutory Control of Building</td>
<td>2</td>
</tr>
<tr>
<td>TB504 Applied Geomechanics</td>
<td>2</td>
</tr>
<tr>
<td>TB427 Building Construction 2C</td>
<td>2</td>
</tr>
<tr>
<td>TB428 Building Protection</td>
<td>2</td>
</tr>
<tr>
<td>TS215 Behavioral Studies 1A (semester one)</td>
<td>3</td>
</tr>
<tr>
<td>TS216 Behavioral Studies 1B (semester two)</td>
<td>3</td>
</tr>
<tr>
<td>TB470 Introduction to Building Law</td>
<td>1A and B</td>
</tr>
<tr>
<td>TB455 Scaffolding Inspection A</td>
<td>1</td>
</tr>
<tr>
<td>TB456 Scaffolding Inspection B</td>
<td>1</td>
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<tr>
<td>TB460 Elements of Town Planning</td>
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### B21CAB Certificate of Technology — Building (Building Supervisor) (1976 syllabus)

<table>
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<tr>
<th>Course structure</th>
<th>Hours week</th>
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<tbody>
<tr>
<td>TB216 Building Construction 1A</td>
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<td>TB217 Building Construction 1B</td>
<td>2</td>
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<tr>
<td>TB322 Building Construction 1A</td>
<td>2</td>
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<tr>
<td>TB323 Building Construction 1B</td>
<td>2</td>
</tr>
<tr>
<td>TB412 Building Construction 3A</td>
<td>2</td>
</tr>
<tr>
<td>TB413 Building Construction 3B</td>
<td>2</td>
</tr>
<tr>
<td>TB241 Services in Building</td>
<td>2</td>
</tr>
<tr>
<td>TB366 Practical Structures and Practical Workshop</td>
<td>3</td>
</tr>
<tr>
<td>TB160 Site Organisation and Administration</td>
<td>2</td>
</tr>
<tr>
<td>TB242 Basic Quantities and Estimating (one semester)</td>
<td>2</td>
</tr>
<tr>
<td>TB280 Specifications 1</td>
<td>2</td>
</tr>
<tr>
<td>TB120 Advanced Building Graphics</td>
<td>4</td>
</tr>
<tr>
<td>TB220 Building Science I</td>
<td>2</td>
</tr>
<tr>
<td>TB520 Building Science 2</td>
<td>2</td>
</tr>
<tr>
<td>TM120 Mathematics 1H</td>
<td>2</td>
</tr>
<tr>
<td>TM220 Mathematics LH</td>
<td>2</td>
</tr>
<tr>
<td>TH115 Communication Studies 1A (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TH116 Communication Studies 1B (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TB516 Building and Community Development</td>
<td>2</td>
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<tr>
<td>TS215 Behavioral Studies 1A (semester one)</td>
<td>3</td>
</tr>
<tr>
<td>TS216 Behavioral Studies 1B (semester two)</td>
<td>3</td>
</tr>
<tr>
<td>TB530 Network Scheduling for Critical Path Analysis</td>
<td>2</td>
</tr>
<tr>
<td>TB452 Industrial Relations 1A and 1B</td>
<td>2</td>
</tr>
<tr>
<td>TB501 Building Plant and Method</td>
<td>2</td>
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<tr>
<td>TB110 Contracts and Building Law</td>
<td>2</td>
</tr>
<tr>
<td>TB380 Specifications 2</td>
<td>2</td>
</tr>
</tbody>
</table>

### B21CAA Certificate of Technology — Building (Estimating)

**Course structure**

The course consists of twenty-three subjects (thirty units) all of which may be taken part-time.

The expected duration of the course is six years part-time, however, this may be shortened by taking advantage of those subjects offered during daytime hours.

<table>
<thead>
<tr>
<th>Course detail</th>
<th>Hours week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB116 Building Construction 1A</td>
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<tr>
<td>TB117 Building Construction 1B</td>
<td>2</td>
</tr>
<tr>
<td>TB122 Building Construction 1A</td>
<td>2</td>
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<tr>
<td>TB123 Building Construction 1B</td>
<td>2</td>
</tr>
<tr>
<td>TB412 Building Construction 3A</td>
<td>2</td>
</tr>
<tr>
<td>TB413 Building Construction 3B</td>
<td>2</td>
</tr>
<tr>
<td>TB241 Services in Buildings</td>
<td>2</td>
</tr>
<tr>
<td>TB415 Practical Inspection (building)</td>
<td>2</td>
</tr>
<tr>
<td>TB455 Scaffolding Inspection A</td>
<td>1</td>
</tr>
<tr>
<td>TB456 Scaffolding Inspection B</td>
<td>1</td>
</tr>
<tr>
<td>TB460 Elements of Town Planning</td>
<td>3</td>
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<tr>
<td>TB411 Mathematics 1H</td>
<td>2</td>
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<tr>
<td>TM120 Mathematics LH</td>
<td>2</td>
</tr>
<tr>
<td>TH115 Communication Studies 1A (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TH116 Communication Studies 1B (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TB516 Building and Community Development</td>
<td>2</td>
</tr>
<tr>
<td>TB530 Network Scheduling for Critical Path Analysis</td>
<td>2</td>
</tr>
<tr>
<td>TB452 Industrial Relations 1A and 1B</td>
<td>2</td>
</tr>
<tr>
<td>TB501 Building Plant and Method</td>
<td>2</td>
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<tr>
<td>TB110 Contracts and Building Law</td>
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<tr>
<td>TB380 Specifications 2</td>
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### B21CAC Certificate of Technology — Building (Construction)

#### First Year

<table>
<thead>
<tr>
<th>Course structure</th>
<th>Hours week</th>
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<tbody>
<tr>
<td>TB100 Building Practices A (Modules 1-16)</td>
<td>16</td>
</tr>
<tr>
<td>TH115 Communication Studies 1A (Semester 1)</td>
<td>2</td>
</tr>
<tr>
<td>TH116 Communication Studies 1B (Semester 2)</td>
<td>2</td>
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<tr>
<td>TB417 Building Surveying (1) Theory and Maths</td>
<td>5</td>
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<tr>
<td>TB216 Building Construct-ont A</td>
<td>2</td>
</tr>
<tr>
<td>TB217 Building Construct-ont B</td>
<td>3</td>
</tr>
<tr>
<td>TB218 Site Organisation and Administration</td>
<td>2</td>
</tr>
<tr>
<td>TB501 Quantity Surveying 1</td>
<td>3</td>
</tr>
<tr>
<td>TB502 Quantity Surveying 2</td>
<td>3</td>
</tr>
<tr>
<td>TB411 Mathematics 1H</td>
<td>2</td>
</tr>
<tr>
<td>TB116 Communication Studies 1A (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TB115 Communication Studies 1B (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TB416 Practical Structures and Practical Workshop</td>
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<tr>
<td>TB417 Industrial Relations 1A and 1B</td>
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#### Second Year

<table>
<thead>
<tr>
<th>Course structure</th>
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<tbody>
<tr>
<td>TB101 Building Practices B (Modules 17-24)</td>
<td>8</td>
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<tr>
<td>TB134 Social Science 1H and 2H</td>
<td>2</td>
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<tr>
<td>TB120 Advanced Building Graphics</td>
<td>4</td>
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<tr>
<td>TB198 Structural Mechanics (Building)</td>
<td>2</td>
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<tr>
<td>TB322 Building Construction 2A</td>
<td>2</td>
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<tr>
<td>TB323 Building Construction 2B</td>
<td>2</td>
</tr>
<tr>
<td>TB220 Building Science 1</td>
<td>2</td>
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</table>

#### Third Year

<table>
<thead>
<tr>
<th>Course structure</th>
<th>Hours week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB412 Building Construction 3A</td>
<td>2</td>
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<tr>
<td>TB413 Building Construction 3B</td>
<td>2</td>
</tr>
<tr>
<td>TB426 Building Administration and Supervision</td>
<td>2</td>
</tr>
<tr>
<td>TB502 Quantity Surveying 1</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Fourth Year

<table>
<thead>
<tr>
<th>Course structure</th>
<th>Hours week</th>
</tr>
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<tbody>
<tr>
<td>TB200 Introduction to Building Law 1A and 1C</td>
<td>2</td>
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<tr>
<td>TB516 Building and Community Development</td>
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</table>
Plus 4 electives from subjects listed below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB362</td>
<td>Estimating and Costing</td>
<td>2</td>
</tr>
<tr>
<td>TB552</td>
<td>Quantity Surveying 2</td>
<td>4</td>
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<tr>
<td>TS101</td>
<td>Accounting 1 (1 semester)</td>
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<tr>
<td>TS103</td>
<td>Accounting 3 (1 semester)</td>
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</tr>
<tr>
<td>TB501</td>
<td>Building Plant and Method</td>
<td>2</td>
</tr>
<tr>
<td>TB241</td>
<td>Services in Buildings</td>
<td>2</td>
</tr>
<tr>
<td>TB901</td>
<td>Scaffolding Construction 1</td>
<td>2</td>
</tr>
<tr>
<td>TB902</td>
<td>Scaffolding Construction 2</td>
<td>2</td>
</tr>
<tr>
<td>TB435</td>
<td>Scaffolding Inspection A</td>
<td>2</td>
</tr>
<tr>
<td>TB439</td>
<td>Scaffolding Inspection B</td>
<td>2</td>
</tr>
</tbody>
</table>

**B2ICAG Certificate of Technology — (Fire Technology)**

**Career potential**

The course is generally suitable for students within the following organisations:

(i) Operations (fire-fighting organisations, safety officers)

(ii) Design (installation designers, draughtsmen)

(iii) Insurance (assessors, insurance surveyors).

**Entrance requirements**

Satisfactory completion of Year 11 (Form 5) or mature-age entry.

Special provision is made for mature-age entry. The scheme is designed for applicants who have not satisfied the standard entry requirements but are able to cope with their proposed course of study. Applicants in this category are generally people in, or beyond their early twenties who have some years of work experience in a relevant field. Preference will be given to mature-age applicants already employed in the fire users’ industries.

**Course structure**

The course consists of subjects to the value of twenty-eight (28) units. It comprises ten compulsory core subjects totalling twenty units plus a minimum four approved elective subjects totalling eight units.

Ten compulsory core subjects = 20 units

Elective subjects = 8 units

Course total 28 units

All subjects may be taken part-time; the expected duration of the course is 4 years part-time.

**Core subjects**

(2 units per subject)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM129</td>
<td>Applied Mathematics</td>
<td>2</td>
</tr>
<tr>
<td>TM229</td>
<td>Basic Fire Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>TH115</td>
<td>Communication Studies 1A (semester one)</td>
<td>2</td>
</tr>
<tr>
<td>TH116</td>
<td>Communication Studies 1B (semester two)</td>
<td>2</td>
</tr>
<tr>
<td>TB822</td>
<td>Principles of Fire Behaviour</td>
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</tr>
<tr>
<td>TB823</td>
<td>Fire-fighting Equipment and its Application</td>
<td>2</td>
</tr>
<tr>
<td>TB824</td>
<td>Fire Safety Management</td>
<td>2</td>
</tr>
<tr>
<td>TB825</td>
<td>Detection and Suppression Systems</td>
<td>2</td>
</tr>
<tr>
<td>TB826</td>
<td>Building Structures and Methods 1</td>
<td>2</td>
</tr>
<tr>
<td>TB827</td>
<td>Building Structures and Methods 2</td>
<td>2</td>
</tr>
<tr>
<td>TB829</td>
<td>Material Science</td>
<td></td>
</tr>
</tbody>
</table>

**Elective subjects**

Students are advised to select a minimum of eight approved units from any one occupational orientation stream. Each subject requires two hours per week.

**Suggested occupation orientation**

**Operations**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB830</td>
<td>Command and Communication (2 units)</td>
<td>2</td>
</tr>
<tr>
<td>TB831</td>
<td>Personnel Emergency Treatment (1 semester) (1 unit)</td>
<td>2</td>
</tr>
<tr>
<td>TB832</td>
<td>Fire Investigation (1 semester) (1 unit)</td>
<td>2</td>
</tr>
<tr>
<td>TB833</td>
<td>Rural Fire Behaviour and Detection (2 units)</td>
<td>2</td>
</tr>
<tr>
<td>TB433</td>
<td>Basic Supervision (2 units)</td>
<td>2</td>
</tr>
<tr>
<td>TB836</td>
<td>Special Hazards (2 units)</td>
<td>2</td>
</tr>
<tr>
<td>TB243</td>
<td>Introduction to Law 1A (1 semester) (1 unit)</td>
<td>2</td>
</tr>
<tr>
<td>TB840</td>
<td>Fire-related Law (1 semester) (1 unit)</td>
<td>2</td>
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</tbody>
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**Design**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB832</td>
<td>Fire Investigation (1 semester) (1 unit)</td>
<td>2</td>
</tr>
<tr>
<td>TB836</td>
<td>Special Hazards (2 units)</td>
<td>2</td>
</tr>
<tr>
<td>TB837</td>
<td>Detection and Suppression Design I (2 units)</td>
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<tr>
<td>TB838</td>
<td>Detection and Suppression Design II (2 units)</td>
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<tr>
<td>TB243</td>
<td>Introduction to Law 1A (1 semester) (1 unit)</td>
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</tr>
<tr>
<td>TB840</td>
<td>Fire-related Law (1 semester) (1 unit)</td>
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</tr>
<tr>
<td>TB843</td>
<td>Building Services (2 units)</td>
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</tr>
</tbody>
</table>
B42CBQ  Timber Framing Code

As a result of changes to the Uniform Building Regulations, the provisions of the Timber Framing Code AS1684-1979 are being increasingly enforced by Local Authorities.

The course requires a minimum of 24 hours class study. At the end of the course there will be an assessment based on a practical exercise that covers the major aspects of the Timber Framing Code.

Course structure
TB940  Timber Framing Code

B42CAK  Scaffolding Inspection

Scaffolding inspection meets the requirements of the building surveyor’s course, the building inspector’s course, and is suitable for those who are to be employed as scaffolding inspectors. The duration of the subject is one year, based on two hours per week.

TB435  Scaffolding Inspection A
TB439  Scaffolding Inspection B

B21CAL  Certificate of Advanced Building Construction

B34CAF  Building Construction Certificate

It is anticipated that these two courses will be offered from the commencement of the academic year in 1985.

With the introduction of these two certificates the existing —
Certificate of Technology — Building (Estimator)
Certificate of Technology — Building (Supervisor)
Certificate of Technology — Building (Construction)
will be replaced by the —
Certificate of Advanced Building Construction
and the existing —
Technician Certificate — Building (Foreman)
Technician Certificate — Building (Clerk of Works)
will be replaced by the —
Building Construction Certificate

The Certificate of Advanced Building Construction will be offered as full-time day, part-time day and part-time evening courses.

The Building Construction Certificate will be offered as part-time day and part-time evening courses.

Entrance requirements

Entry to either certificate course may be by way of:

(i) Successful completion of Year 11 schooling.
(ii) An equivalent to (i) year of study.
(iii) A completed year of indenture in a building trade.
(iv) Mature-age entry.

The single compulsory subject for entry is Year 11 English. If it has not been previously gained, however, it may be studied concurrently.

Issue of award:

Prior to any certificate being awarded, it is necessary for the candidate to complete the academic requirement and have at least two (2) years of recent and relevant industrial experience.

B21CAL  Certificate of Advanced Building Construction

The course consists of core and elective subjects. Core subjects represent a total of 1,292 hours of study and elective subjects represent a total of 272 hours of study.

<table>
<thead>
<tr>
<th>Semester 1 Full-time course</th>
<th>Hours week</th>
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</thead>
<tbody>
<tr>
<td>TB216 Building Construction 1 (Theory)</td>
<td>4</td>
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<tr>
<td>TB711 Structural Applications 1</td>
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<tr>
<td>TB217 Building Construction 1 (Tutorial sessions incorporating Drafting for Builders)</td>
<td>4</td>
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<tr>
<td>TB714 Building Practice 1</td>
<td>8</td>
</tr>
<tr>
<td>TH115 Communication Studies 1A</td>
<td>2</td>
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<tr>
<td>TB716 Building Materials and Services</td>
<td>3</td>
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<tr>
<td>TB710 Safety in Construction 1</td>
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Total = 425 each semester
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<tr>
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<tbody>
<tr>
<td>(Core subjects)</td>
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<tr>
<td>TB322</td>
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<tr>
<td>TB323</td>
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<td>TB701</td>
<td>Construction Surveying (Introduction)</td>
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<tr>
<td>TB703</td>
<td>Regulations and Government Authorities</td>
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<tr>
<td>TB717</td>
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<td>TB718</td>
<td>Quantity Surveying for Builders 1</td>
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<tr>
<td>TB720</td>
<td>Estimating and Cost Control 1</td>
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<tr>
<td>TB704</td>
<td>Contract Law and Contract Administration</td>
<td>3</td>
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</tr>
<tr>
<td>TB722</td>
<td>Network scheduling for Critical Path 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>TB705</td>
<td>Site Supervision and Management</td>
<td>2</td>
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<tr>
<td>TB706</td>
<td>Self Development and Interpersonal Skills</td>
<td>2</td>
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<tr>
<td>TB724</td>
<td>Industrial Relations 'A'</td>
<td>2</td>
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<tr>
<td>TB435/9</td>
<td>Scaffolding Inspection (A and B)</td>
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<td>TB707</td>
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<th>Semesters 4 and 5</th>
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<tr>
<td>Part-time/Elective subjects</td>
<td>Minimum of eight (8) hours per week per semester.</td>
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<tr>
<td>TB412</td>
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<td>TB713</td>
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<td>TB702</td>
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<td>TB437</td>
<td>Statutory Control of Buildings</td>
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<td>TB719</td>
<td>Quantity Surveying for Builders 2</td>
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<tr>
<td>TB721</td>
<td>Estimating and Cost Control 2</td>
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<td>TB116</td>
<td>Building Mathematics 'T'</td>
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<tr>
<td>TB725</td>
<td>Industrial Relations 'B'</td>
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<tr>
<td>TB436</td>
<td>Practical Inspection (Building)</td>
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<td>Safety in Construction 2 (Applied Practice)</td>
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<td>TB722</td>
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<td><strong>Total</strong></td>
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<tbody>
<tr>
<td>TB716</td>
<td>Building Materials and Services 1</td>
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<tr>
<td>TB721</td>
<td>Estimating and Cost Control 2</td>
<td>2</td>
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</tr>
<tr>
<td>TB724</td>
<td>Industrial Relations 'A'</td>
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<tr>
<td>TB725</td>
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<td>2</td>
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</tr>
<tr>
<td>TB722</td>
<td>Structural Applications 2</td>
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<tr>
<td>TB723</td>
<td>Building Construction 2 (Tutorial sessions incorporating Design/Specification)</td>
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<td></td>
<td><strong>Total</strong></td>
<td><strong>2 x 5 = 85 each semester</strong></td>
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**B34CAF Building Construction Certificate**

The course consists of core and elective subjects. Core subjects represent a total of 425 hours of study and elective subjects represent a total of 170 hours of study.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours per week</th>
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<tbody>
<tr>
<td>(Core subjects)</td>
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<td></td>
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</tr>
<tr>
<td>TB216</td>
<td>Building Construction 1 (Theory)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TB217</td>
<td>Building Construction 1 (Tutorial sessions incorporating Drafting for Builders)</td>
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<tr>
<td>T1115</td>
<td>Communication Studies 1A</td>
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<td><strong>Total</strong></td>
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<table>
<thead>
<tr>
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<th></th>
<th></th>
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<tbody>
<tr>
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<td>Building Construction 1 (Theory)</td>
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<tr>
<td>TB217</td>
<td>Building Construction 1 (Tutorial sessions incorporating Drafting for Builders)</td>
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<tr>
<td>T1116</td>
<td>Communication Studies 1B</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>102 each semester</strong></td>
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</table>

**CT20**
Plumbing and Gasfitting courses

The following courses are offered by the Plumbing and Mechanical Services Department.

Apprenticeship courses

Three separate apprenticeship courses are available to serve the classification of the apprenticeship being undertaken.

- T23 Plumbing — Sanitary, General and Gasfitting (P32CDB)
- T23A Plumbing — Mechanical Services, General and Gasfitting (P32CDD)
- 32CDA — Plumbing (P32CDA)

T23 and T23A are available for repeat students only in the evening and comply with the Industrial Training Commission of Victoria requirements of being in modular form. This type of training program, introduced in 1971, is designed to provide flexibility of progression during the three years the student is attending.

Courses for both these apprenticeships are common for twenty of the twenty-eight modules. Students completing one of these apprenticeship courses may undertake and qualify in an alternative apprenticeship course by completing the eight specialist modules successfully.

Qualifying examinations are conducted twice yearly in June/July and November/December.

32CDA

The third apprenticeship course, 32CDA, was introduced in 1980 as a pilot course under the Systems Approach to Learning Scheme. This gives the students active participation with 'On-site' situations that they may encounter in plumbing installations, and meets the needs of the Industrial Training Commission of Victoria and the National Basic Trade Common Course in Plumbing and Gasfitting.

The students are required to attend part-time Block release for this course which comprises one thousand and forty hours of student learning over three stages. Stage 1 and 2 comprise eight hundred and fifty hours and make up the basic units. To complete the course, students in consultation with their employers and the College will select the final study area. Students may undertake any of the other alternative study areas in their own time.

Further details of this course are available from Mr. M. Kefford, Tel: 819 8518.

Technician courses

Four technician courses are available to serve the specific needs of people involved in the plumbing and mechanical services industry.

- P34CDD Technician Certificate — Plumbing (Heating, Ventilation and Air-conditioning)
- P34CDC Technician Certificate — Plumbing (Gasfitting)
- P34CDB Technician Certificate — Plumbing (Sanitary)

The purposes of these courses are to train qualified tradesmen in the more advanced techniques of the various branches of the plumbing and mechanical services industry.

- P34CDE Technician Certificate — Plant Services Detail Drafting

The usual duration of this course is three years' part-time and it is designed to train personnel in the preparation of detailed working drawings of heating, ventilating, air-conditioning and refrigeration systems and services for private, commercial and industrial projects.

Enquiries Mr. M. Kefford, 819 8518.
Apprenticeship course details

P32CDB  Plumbing — Sanitary, General and Gasfitting

P32CDD  Plumbing — Mechanical Services, General and Gasfitting

Course structure T23
Sanitary, Mechanical Services, General and Gasfitting

<table>
<thead>
<tr>
<th>Code</th>
<th>Module No. and Title</th>
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</thead>
<tbody>
<tr>
<td>TP01</td>
<td>1 Drawing</td>
</tr>
<tr>
<td>TP02</td>
<td>2 Calculations, science and communication</td>
</tr>
<tr>
<td>TP03</td>
<td>3 Sanitary plumbing drainage welding and cutting</td>
</tr>
<tr>
<td>TP04</td>
<td>4 Roof plumbing and soldering</td>
</tr>
<tr>
<td>TP05</td>
<td>5 Water supply and gasfitting</td>
</tr>
<tr>
<td>TP06</td>
<td>6 Sheet lead and sheetmetal</td>
</tr>
<tr>
<td>TP07</td>
<td>7 Roof plumbing</td>
</tr>
<tr>
<td>TP08</td>
<td>8 Copper tube and mild steel sections</td>
</tr>
<tr>
<td>TP09</td>
<td>9 Drawing and building cost</td>
</tr>
<tr>
<td>TP10</td>
<td>10 Roof plumbing</td>
</tr>
<tr>
<td>TP11</td>
<td>11 Sheetmetal</td>
</tr>
<tr>
<td>TP12</td>
<td>12 Roof plumbing</td>
</tr>
<tr>
<td>TP13</td>
<td>13 Gasfitting and heaters</td>
</tr>
<tr>
<td>TP14</td>
<td>14 Welding and cutting</td>
</tr>
<tr>
<td>TP15</td>
<td>15 Mild steel sections</td>
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</table>

Sanitary and Gasfitting

<table>
<thead>
<tr>
<th>Code</th>
<th>Module No. and Title</th>
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<tbody>
<tr>
<td>TP16</td>
<td>A51 Sanitary plumbing</td>
</tr>
<tr>
<td>TP17</td>
<td>A52 Drainage</td>
</tr>
<tr>
<td>TP18</td>
<td>A53 Water supply</td>
</tr>
<tr>
<td>TP19</td>
<td>A54 Sheet lead</td>
</tr>
<tr>
<td>TP20</td>
<td>A55 Copper tube and plastics</td>
</tr>
<tr>
<td>TP21</td>
<td>A56 Sanitary plumbing</td>
</tr>
<tr>
<td>TP22</td>
<td>A57 Drainage</td>
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<td>TP23</td>
<td>A58 Water supply</td>
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<tr>
<td>TP24</td>
<td>A59 Gasfitting</td>
</tr>
<tr>
<td>TP25</td>
<td>A60 Welding and cutting</td>
</tr>
<tr>
<td>TP26</td>
<td>A61 Sheet lead and plastics</td>
</tr>
<tr>
<td>TP27</td>
<td>A62 Mild steel sections</td>
</tr>
<tr>
<td>TP28</td>
<td>A63 Copper tube and special materials</td>
</tr>
<tr>
<td>TP30</td>
<td>A64 Plumbing — Sanitary Theory 3 Final</td>
</tr>
<tr>
<td>TP34</td>
<td>A66 Plumbing — Sanitary General and Gasfitting Practice 3 Final</td>
</tr>
<tr>
<td>TP35</td>
<td>A67 Plumbing — General Theory 3 Final</td>
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</table>

Course structure T23A
Mechanical Services, General and Gasfitting

<table>
<thead>
<tr>
<th>Code</th>
<th>Module No. and Title</th>
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<tbody>
<tr>
<td>TP29</td>
<td>Q31 Heating</td>
</tr>
<tr>
<td>TP30</td>
<td>Q52 Ventilating</td>
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<tr>
<td>TP31</td>
<td>Q53 Water supply</td>
</tr>
<tr>
<td>TP32</td>
<td>Q54 Mild steel pipe</td>
</tr>
<tr>
<td>TP33</td>
<td>Q55 Copper tube and plastic</td>
</tr>
<tr>
<td>TP34</td>
<td>Q56 Heating</td>
</tr>
<tr>
<td>TP35</td>
<td>Q57 Ventilating, air-conditioning and refrigerating</td>
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<td>TP36</td>
<td>Q58 Water supply</td>
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<td>TP37</td>
<td>Q59 Gasfitting</td>
</tr>
<tr>
<td>TP38</td>
<td>Q60 Welding and cutting</td>
</tr>
<tr>
<td>TP39</td>
<td>Q61 Mild steel pipe and plastic</td>
</tr>
<tr>
<td>TP40</td>
<td>Q62 Mild steel section</td>
</tr>
<tr>
<td>TP41</td>
<td>Q63 Copper tube special materials</td>
</tr>
<tr>
<td>TP42</td>
<td>Q64 Plumbing — Mechanical Services Theory 3 Final</td>
</tr>
<tr>
<td>TP43</td>
<td>Q65 Plumbing — Mechanical Services General and Gasfitting Practice 3 Final</td>
</tr>
<tr>
<td>TP44</td>
<td>Q66 Plumbing — Gasfitting Theory 3 Final</td>
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<tr>
<td>TP45</td>
<td>Q67 Plumbing — General Theory 3 Final</td>
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</table>

Hours per course (Block release)
Modules 1 to 12, four hundred hours per year (five x eighty hours)
Modules 13 to 20, three hundred and twenty hours per year (eight x forty hours)
Modules 21 to 28, three hundred and twenty hours per year (eight x forty hours)

Advanced study subjects of the module course
Students wishing to undertake advanced study subjects may apply to the head of department.

Course structure 32CDA

<table>
<thead>
<tr>
<th>Code</th>
<th>Module No.</th>
<th>Stage No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>TP901</td>
<td>1</td>
<td>1</td>
<td>Introductory Skills (10 units)</td>
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<tr>
<td>TP902</td>
<td>2</td>
<td>2</td>
<td>Drainage (5 units)</td>
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<tr>
<td>TP903</td>
<td>3</td>
<td>2</td>
<td>Sanitary and Water Supply (16 units)</td>
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<tr>
<td>TP904</td>
<td>4</td>
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<td>Gas and Water Supply (9 units)</td>
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<tr>
<td>TP905</td>
<td>5</td>
<td>2</td>
<td>Roof and Water Supply (10 units)</td>
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<tr>
<td>TP906</td>
<td>6</td>
<td>2</td>
<td>Mechanical Services and Water Supply (10 units)</td>
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<tr>
<td>TP907</td>
<td>7</td>
<td>3</td>
<td>Sanitary and Water Supply (6 units)</td>
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<tr>
<td>TP908</td>
<td>8</td>
<td>3</td>
<td>Gas (Interim) (1 unit)</td>
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<tr>
<td>TP910</td>
<td>10</td>
<td>3</td>
<td>Mechanical Services and Water Supply (5 units)</td>
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<tr>
<td>TP912</td>
<td>12</td>
<td>3</td>
<td>Advanced Waste Disposal and Drainage Final External Exam</td>
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<td>TP913</td>
<td>13</td>
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<td>Advanced Gas Interim Final External Exam</td>
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<td>TP915</td>
<td>15</td>
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<td>Advanced Mechanical Services Final External Exam</td>
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<td>TP916</td>
<td>16</td>
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</table>

Advanced study subjects of the 32CDA Syllabus course
Students wishing to undertake advanced units may apply to the head of the department.

Hours per course (Block release)
Year 1 — four hundred hours (five x eighty hours)
Year 2 — three hundred and twenty hours (eight x forty hours)
Year 3 — three hundred and twenty hours (eight x forty hours)
Technician course details

P34CDF  Technician — Plumbing (Heating, Ventilating and Air-conditioning)

Pilot Course 1985

This course began at Swinburne College of TAFE in 1959 and was revised in 1970 and again in 1979. A further major revision was conducted ready for piloting in 1985. No new candidates will be admitted to the P34CDF course.

Career potential

The purpose of the course is to train qualified tradesmen in the more advanced techniques of air-conditioning installations, to develop in technicians the expertise necessary for the supervision of complex air-conditioning installations and to train qualified tradesmen to provide adequate support to management in large air-conditioning organisations.

Prerequisites

Students should have completed or be undertaking an apprenticeship course, in a trade related to the air-conditioning industry.

Entry to the course is permitted if, in the opinion of the Principal of the college, the applicant has the ability to complete the course successfully or is engaged in related employment.

Award of certificate

The technician certificate is awarded to any student who completes the following:

The requisite number of units from the various groups of subjects, plus completion of an approved apprenticeship course, i.e., Plumbing and Gasfitting, Electrical Mechanics, Fitting and Machinery, Refrigeration.

Unit

A unit is two hours study per week for one semester.

Course structure

<table>
<thead>
<tr>
<th>Area of study</th>
<th>Unit value</th>
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<td><strong>Croup 1 General</strong></td>
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<tr>
<td>(For students without approved Form V)</td>
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<tr>
<td>TH140 English 1T</td>
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<tr>
<td>TM130 Mathematics 1T</td>
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<tr>
<td>TM170 Science (Physics) 1T</td>
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<tr>
<td><strong>Advanced or specialist units</strong></td>
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<tr>
<td>TH240 Air-conditioning 2T</td>
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<tr>
<td>TM230 Mathematics 2T</td>
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<tr>
<td>TM270 Science (Physics) 2T</td>
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<tr>
<td>TP237 Process Heating</td>
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<tr>
<td>TP238 Fluid Mechanics</td>
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<tr>
<td>TP180 Plant Services Drafting</td>
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<td>TB220 Building Science 1A and 1B</td>
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<td><strong>Advanced or specialist units</strong></td>
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<tr>
<td>TP421 Site Supervision and Organisation (Foremanship)</td>
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<tr>
<td>TP310 Contracts and Building Law (Sub-contracts)</td>
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<td>TP453 Mechanical Services Drafting</td>
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<tr>
<td><strong>Croup 3 General practices</strong></td>
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<tr>
<td>TP358 Reticulated Systems 1T</td>
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<tr>
<td>TP450 Instrumentation</td>
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<tr>
<td><strong>Advanced or specialist units</strong></td>
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<tr>
<td>TP458 Reticulated Systems 2T</td>
<td>2</td>
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<tr>
<td>TP451 Electrical and Controls</td>
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<tr>
<td><strong>Croup 4 Specialist practices</strong></td>
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<tr>
<td>TP446 Air-conditioning 1T</td>
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<td>TP449 Refrigeration 1T</td>
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<tr>
<td>TP490 Installation of Solar Energy Systems</td>
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**Advanced or specialist units**

TP446 Air-conditioning 2T 2
TP449 Refrigeration 2T 2
TP452 Balancing and Commissioning 2

The student may select the order in which to attempt the subjects. The course will comprise twenty-six units — All twelve units from Group 1
At least six units from Groups 2 and 3
At least four units from Group 4.

<table>
<thead>
<tr>
<th>Area of study</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Croup 1 General Studies</strong></td>
<td></td>
</tr>
<tr>
<td>TP500 Mathematics (Air-conditioning)</td>
<td>2</td>
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<tr>
<td>TP501 Physics (Air-conditioning)</td>
<td>2</td>
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<tr>
<td>TP502 Communications (Air-conditioning)</td>
<td>2</td>
</tr>
<tr>
<td>TP503 Fluid Mechanics</td>
<td>2</td>
</tr>
<tr>
<td>TP504 Applied Heat</td>
<td>1</td>
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<tr>
<td><strong>Croup 2 General Practices</strong></td>
<td></td>
</tr>
<tr>
<td>TP510 Air-conditioning 1A</td>
<td>1</td>
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<tr>
<td>TP511 Air-conditioning 1B</td>
<td>1</td>
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<tr>
<td>TP512 Air-conditioning 1C</td>
<td>1</td>
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<tr>
<td>TP513 Air-conditioning 2A</td>
<td>1</td>
</tr>
<tr>
<td>TP514 Air-conditioning 2B</td>
<td>1</td>
</tr>
<tr>
<td>TP515 Air-conditioning 2C</td>
<td>1</td>
</tr>
<tr>
<td>TP516 Refrigeration 1A</td>
<td>1</td>
</tr>
<tr>
<td>TP517 Refrigeration 1B</td>
<td>1</td>
</tr>
<tr>
<td>TP518 Electrical 1</td>
<td>1</td>
</tr>
<tr>
<td>TP519 Automatic Controls 1</td>
<td>1</td>
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<tr>
<td><strong>Croup 3 Specialist Practices</strong></td>
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</tr>
<tr>
<td>TP530 Air-conditioning 3</td>
<td>1</td>
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<tr>
<td>TP531 Air-conditioning 4</td>
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<tr>
<td>TP532 Air-conditioning 5</td>
<td>1</td>
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<tr>
<td>TP533 Refrigeration 2A</td>
<td>1</td>
</tr>
<tr>
<td>TP534 Refrigeration 2B</td>
<td>1</td>
</tr>
<tr>
<td>TP535 Electrical 2</td>
<td>1</td>
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<tr>
<td>TP536 Automatic Controls 2A</td>
<td>1</td>
</tr>
<tr>
<td>TP537 Automatic Controls 2B</td>
<td>1</td>
</tr>
<tr>
<td>TP538 Instrumentation</td>
<td>1</td>
</tr>
<tr>
<td>TP539 Balancing and Commissioning</td>
<td>2</td>
</tr>
<tr>
<td>TP540 Estimating</td>
<td>2</td>
</tr>
<tr>
<td>TP541 Contract Management</td>
<td>2</td>
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<tr>
<td><strong>Croup 4 Related Practices</strong></td>
<td></td>
</tr>
<tr>
<td>TP550 Reticulated Services</td>
<td>2</td>
</tr>
<tr>
<td>TP490 Installation of Solar Energy Systems</td>
<td>1</td>
</tr>
</tbody>
</table>

It is recommended that the Group 1 General Studies be completed before attempting the other groups.

The course comprises twenty-six (26) units of the following distribution:

All nine units from Group 1
All ten units from Group 2
At least seven units from Groups 3 and 4

Swinburne College of TAFE
**P34CDC Technician — Plumbing (Gasfitting)**

**Career potential**
The course is designed to train qualified tradesmen in the more advanced techniques of installing and servicing modern gas appliances in building complexes.

Certificated technicians will have developed a particular expertise which will enable them to diagnose and rectify faults in more intricate modern gas installations.

**Prerequisites**
Students must be registered with the Plumbers and Gasfitters Registration Board or be undertaking the relevant apprenticeship course.

Entry to the course is permitted if, in the opinion of the Principal of the college, the applicant has the ability to complete the course successfully or is engaged in related employment.

**Award of certificate**
The technician certificate is awarded to any student who completes the following:

- the requisite subjects of the course plus completion of the approved plumbing and gasfitting apprenticeship.

**Course structure**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
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<tr>
<td>TH140</td>
<td>English 1T</td>
<td>2</td>
</tr>
<tr>
<td>TM310</td>
<td>Mathematics 1T</td>
<td>2</td>
</tr>
<tr>
<td>TM170</td>
<td>Science 1T</td>
<td>2</td>
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<tr>
<td></td>
<td>Trade subjects completed or modules 1-15.</td>
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<tr>
<td>2nd year</td>
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<tr>
<td>TH240</td>
<td>English 2T</td>
<td>2</td>
</tr>
<tr>
<td>TM230</td>
<td>Mathematics 2T</td>
<td>2</td>
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<tr>
<td>TM270</td>
<td>Science 2T</td>
<td>2</td>
</tr>
<tr>
<td>TP335</td>
<td>Process Heating (1 semester)</td>
<td>2</td>
</tr>
<tr>
<td>TP238</td>
<td>Fluid Mechanics (1 semester)</td>
<td>2</td>
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<tr>
<td></td>
<td>Trade subjects completed or modules 16-28.</td>
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<tr>
<td>3rd year</td>
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<tr>
<td>TP315</td>
<td>Reticulated Systems 1T</td>
<td>2</td>
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<tr>
<td>TP335</td>
<td>Gas Technology 1T (fundamentals of gas</td>
<td>2</td>
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<tr>
<td></td>
<td>Technology A and B)</td>
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<tr>
<td>4th year</td>
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<tr>
<td>TE161</td>
<td>Electronics B*</td>
<td>2</td>
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<tr>
<td>TP434</td>
<td>Gas Technology 2T A (gas control techniques</td>
<td>2</td>
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<tr>
<td></td>
<td>1A and 1B)</td>
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<tr>
<td>TP435</td>
<td>Gas Technology 2T B (gas control techniques</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2A and 2B)</td>
<td></td>
</tr>
</tbody>
</table>

*Electronics A and B equal TE326 Industrial Electronics 1T

**P34CDB Technician — Plumbing (Sanitary)**

This course began at Swinburne College of TAFE in 1975, at the request of representatives from the plumbing industry and is available either as a total course or as individual units to serve specific needs. ‘Units’ are defined as 2 hours’ study per semester.

**Career potential**
The purpose of the course is to train qualified tradesmen in the more advanced techniques of complex modern sanitary installations; to develop in technicians, the expertise necessary for the supervision of complex sanitary installations and to train qualified tradesmen to provide adequate support to management in large plumbing organisations.

**Prerequisites**
Students must be registered with the Plumbers and Gasfitters Registration Board or be undertaking the relevant apprenticeship course.

Entry to the course is permitted if, in the opinion of the Principal of the college, the applicant has the ability to complete the course successfully or is engaged in related employment.

**Award of certificate**
The technician certificate is awarded to any student who completes the following:

- the requisite number of units from the various groups of subjects plus completion of the approved plumbing and gasfitting apprenticeship.

**Course structure**

<table>
<thead>
<tr>
<th>Area of study</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 General</td>
<td></td>
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<tr>
<td>(For students without approved Form V</td>
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<tr>
<td>English, Mathematics and Science)</td>
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<tr>
<td>TH140 English 1T</td>
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<tr>
<td>TM130 Mathematics 1T</td>
<td>2</td>
</tr>
<tr>
<td>TM170 Science (Physics) 1T</td>
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<tr>
<td>Advanced or specialist units</td>
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<tr>
<td>TM310 Mathematics 2T</td>
<td>2</td>
</tr>
<tr>
<td>TM270 Science (Physics) 2T</td>
<td>2</td>
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<tr>
<td>TP210 Communication and Technical Reports</td>
<td>2</td>
</tr>
<tr>
<td>Group 2 Related background studies</td>
<td></td>
</tr>
<tr>
<td>TP316 Quantity Surveying (Plumbing)</td>
<td>2</td>
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<tr>
<td>TP310 Contract and Building Law</td>
<td>1</td>
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<tr>
<td>TP421 Site Supervision and Organisation (Foremanship)</td>
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<tr>
<td>TP260 Plan Reading</td>
<td>1</td>
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<tr>
<td>TP262 Building Science 1A and 1B</td>
<td>2</td>
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<tr>
<td>Advanced or specialist units</td>
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<tr>
<td>TP263 Estimating and Quantity Surv. (Plumbing)</td>
<td>2</td>
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<tr>
<td>TP261 Business Practice and Bookkeeping</td>
<td>1</td>
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<tr>
<td>TP238 Fluid Mechanics</td>
<td>1</td>
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<tr>
<td>Group 3 General building practices</td>
<td></td>
</tr>
<tr>
<td>TP240 Construction Methods and Practices</td>
<td>1</td>
</tr>
<tr>
<td>TP420 Plant and Equipment (Plumbing)</td>
<td>1</td>
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<tr>
<td>Group 4 Specialist practices</td>
<td></td>
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<tr>
<td>TP340 Pipeline Design A</td>
<td>1</td>
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<tr>
<td>TP341 Pipeline Design B</td>
<td>1</td>
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<tr>
<td>TP418 Drainage Design</td>
<td>1</td>
</tr>
<tr>
<td>TP490 Installation of Solar Energy Systems</td>
<td>1</td>
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<tr>
<td>Advanced or specialist units</td>
<td></td>
</tr>
<tr>
<td>TP320 Basic Measuring and Levelling (Plumbing)</td>
<td>1</td>
</tr>
<tr>
<td>TP480 Water Service Design</td>
<td>2</td>
</tr>
</tbody>
</table>

The student may select the order in which to attempt the subjects. The course will consist of twenty-six units — All twelve units from Group 1 At least eight units from Groups 2 and 3 At least four units from Group 4
P34CDTE Technician — Plant Services Detail Drafting

Career potential
The usual duration of this course is three years. It is designed to train personnel in the preparation of detailed working drawings of heating, ventilating, air-conditioning and refrigerating systems and the essential services for private, commercial and industrial projects.

Entrance standard
Passes in Leaving Technical English, General Mathematics (technician), Technician Science ‘A’, Technical Drawing ‘A’ or ‘B’ or approved equivalents. Trade training is not a prerequisite for the course. Applicants who have successfully completed a technician course will be considered to have completed the necessary entrance requirements and may be entitled to some subject exemptions.

<table>
<thead>
<tr>
<th>Course structure</th>
<th>Hours</th>
<th>week</th>
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<tbody>
<tr>
<td><strong>First year</strong></td>
<td></td>
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<tr>
<td>TP181 Pipe and Duct Fitting 1T</td>
<td>3</td>
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<tr>
<td>TP180 Plant Services Drafting 1T</td>
<td>3</td>
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<tr>
<td>TP182 Building (parameters) Appreciation 1T</td>
<td>2</td>
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<tr>
<td><strong>Second year</strong></td>
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<td></td>
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<tr>
<td>TP281 Pipe and Duct Fitting 2T</td>
<td>3</td>
<td></td>
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<tr>
<td>TP280 Plant Services Drafting 2T</td>
<td>4</td>
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<tr>
<td>TP282 Plant Equipment 1T</td>
<td>2</td>
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<tr>
<td>TP358 Reticulated Systems 1T</td>
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<tr>
<td><strong>Third year</strong></td>
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<tr>
<td>TP380 Plant Services Drafting 3T</td>
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<tr>
<td>TP382 Plant Equipment 2T</td>
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<tr>
<td>or TP348 Air-conditioning 1T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP349 Refrigeration 1T</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>or Approved elective</td>
<td></td>
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</tr>
</tbody>
</table>

Building subject details

**Advanced Building Graphics (TB120)**
Techniques of graphic communication applied to building.

**Air-conditioning 1A (TP510)**
Principles of heating water, chilled water and condenser water circuits. Study of pipes, fittings, valves and in-line instruments.

**Air-conditioning 1B (TP511)**
Principles of air venting, draining and supporting of pipe lines. Study of boilers, expansion tanks and water to air heat-exchanging devices.

**Air-conditioning IC (TP512)**
Study of pumps, boiler units, heat exchangers, chillers, cooling towers and water cooled condensers.

**Air-conditioning 1T (TP348)**
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, dew point, wet and dry bulb temperatures and measurement of air conditions and instruments used.

**Air-conditioning 2A (TP513)**

**Air-conditioning 26 (TP514)**
Study of fans, filters, heating coils, cooling coils, electric duct heaters, humidifiers, dehumidifiers, induction units, mixing boxes, variable volume boxes and attenuators.

**Air-conditioning 2C (TP515)**
Principles of psychrometrics. Design and sizing of duct systems.

**Air-conditioning 2T (TP448)**
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.

**Air-conditioning 3 (TP350)**

**Air-conditioning 4 (TP351)**
Determination of the heating and cooling loads for buildings.

**Air-conditioning 5 (TP352)**

**Applied Geomechanics (TB504)**

**Applied Heat (TP504)**

**Automatic Controls 1 (TP519)**
Basic principles of automatic control systems.

**Automatic Controls 2A (TP356)**
Principles of electric and electronic control systems including the reading, drawing, adjustment and trouble shooting.

**Automatic Controls 2B (TP537)**
Principles of pneumatic control systems including the reading, drawing, adjustment and trouble shooting. Principles of supervisory control systems.

**Balancing and Commissioning (TP452)**
Principles and methods used to commission and balance air-conditioning systems. Use of instruments and report sheets. Basic computations. Practical balancing and commissioning in laboratory.

**Balancing and Commissioning (TP539)**
Principles and procedures used to commission and balance air-conditioning systems. Practical work in the air-conditioning laboratory.

**Basic Measuring and Levelling (plumbing) (TP320)**
To develop the efficient use of levelling instruments, make accurate recording of levels and methods of setting out plumbing installations.
Basic Quantities and Estimating (TB242)
An introduction to quantity taking and estimating in the building industry.

Builders Quantities (TB440)
The subject covers the basic principles for measuring the quantities and preparing order lists of materials required by all building trades concerned with the erection of buildings. Designing of buildings of orthodox construction, and is to be studied for two hours per week for two semesters.

Building Administration and Supervision (TB426)
Approached from the points of view of the builder, the client and public authorities.

Building Appreciation 1T (TP182)
To familiarize 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 Construction 1A (TB216)
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 (TB217)
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 to given problems.

Building Construction 2A (TB322)

Building Construction 2B (TB323)
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 (TB427)

Building Construction 3A (TB412)

Building Construction 3B (TB413)
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 3C (TB428)
Design principles applied to structures.

Building Community Development (TB516)
Development of communities and the building trade. The interactions of both in social and economic terms.

Building Mathematics 1 (TB125)

Building Practices A and B (TB100/101)
These subjects are designed to make students conversant with the skills and techniques of building practices and with the manner in which these are related to the current needs of industry. Building Practices A and Building Practices B are considered to be equivalent to the program for Carpenter and Joinery apprenticeships in Victoria, by the Carpenter and Joinery Trade Committee of the Industrial Training Commission.

Building Science 1 (TB220A)

Building Science 2 (TB320)
To extend work covered in Building Science 1 and to give students a practical, basic working knowledge of the important areas of modern building services.

Building Surveying 1T (TB417)
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.

Business Practice and Basic Bookkeeping (plumbing) (TP261)
Basic accounting concepts, basic data processing, accounting for contractors, office accounting techniques.

Carpentry and Joinery Modules

Module 1 (TB051)
Simple base structures, basic tool skills.

Module 2 (TB052)
Simple timber wall framing.

Module 3 (TB053)
Simple timber roofing — skillion and gable.

Module 4 (TB054)
Simple doors — ledged and braced — flywire.

Module 5 (TB055)
Simple windows — Casement frame and sash.

Module 6 (TB056)
Timber fencing and gates.

Module 7 (TB057)
Timber villa construction — sub-floor structure to include set wall plates.

Module 8 (TB058)
Timber villa construction — wall framing.

Module 9 (TB059)
Timber villa construction — ceiling and gable roof framing.

Module 10 (TB060)
Timber villa construction — simple hip roof.

Module 11 (TB061)
Door and door frames (Domestic).

Module 12 (TB062)
Window joinery — double hung sash with patented balances rectangular louver.

Module 13 (TB063)
Window joinery — double hung sashes in box frame.

Module 14 (TB064)
Simple stairs — timber and concrete.

Module 15 (TB065)
Brick veneer construction hand saw sharpening.

Module 16 (TB066)
Hipped and valley roofing.

Module A51/B51 (TB071)
Concrete formwork.

Module A52 (TB072)
Hipped and valley roofing 1 (equal pitch).

Module A53/B53 (TB073)
Internal fixing.

Module A56/B56/C56 (TB074)
Stair building 1.

Module A57 (TB075)
Hipped and valley roofing 2 (unequal pitch).

Module A58 (TB076)
Shoring, centres and levelling.

Module B52 (TB077)
Formwork for concrete and systems.

Module B53 (TB078)
Industrial roofing, trusses and ceilings.

Module B57 (TB079)
Site works, setting out and levelling.

Module B58 (TB080)
Large centres, shoring and trenches.

Module C52/D52 (TB081)
Joinery I (doors, windows and louvres).

Module C53/D53 (TB082)
Joinery II curved work.

Module C57 (TB083)
Stair building 2.

Module C58 (TB084)
Stair building 3.

Communication Studies 1A (TH115)
Communication theory and its application to the collection, organisation and presentation of scientific information. Forms of task documentation: laboratory and project reports, memos and letters. Oral reports and presentations.

Communication Studies 1B (TH116)
Research and presentation of analytical reports, job briefs and specifications. Group communications skills: meetings, discussions and interviews. Audio-visual techniques and presentations.
Communication and Technical Reports (TP210)
To develop skills in all aspects of communication and report writing as applied to the building industry with particular reference to communication between project operations and head office, plus, the necessity to maintain accurate records. The course will comprise: methods of communication, clear thinking and summary writing, preparation and presentation of reports, application of graphics, operations requiring records, records filing, oral reports, conducting meetings.

Communications (Air-conditioning) (TP502)
Study of communicating skills. Study areas include note taking, precis writing, letter writing, written and oral reports, interpersonal relationships, telephone usage, meeting procedures and recording and filing.

Contract Management (TP541)
Study of the principles of contract management for air-conditioning contracts. Study areas include legal documentation, planning and control.

Contracts and Building Law (TB110) and (TP310)
The role of the architect in building, the obligations of the architect and builder, types and conditions of contracts, tenders and building requirements.

Construction Methods and Practice (plumbing) (TP240)
To develop an understanding of structural systems and their organisation with particular reference to the effect on plumbing systems.

Drainage Design (TP418)
Development of skills in the drafting and design of sanitary drainage installation relating to sewerage regulations. Installation and connection requirements for special apparatus.

Electrical 1 (TP518)
Study of basic electricity including direct current, magnetism, alternating current generators, three-phase systems, impedance, instruments, transformers and induction motors.

Electrical 2 (TP535)
Study of motor starters, in-circuit components and switch boards. Reading and drawing of wiring circuits.

Electrical and Controls (TP451)
SI units, DC and AC supplies, single and three phase supplies, power factor, efficiency, power, motor starting, motors, safety and operating controls, wiring diagrams. Control terminology, two position control, floating control and modulating control, simple control systems, control diagrams.

English 1T (TH1140)
Study of the ability to read with comprehension and appreciation. Practice in oral and written English. Preparation of clear, concise notes and summaries.

English 2T (TH240)
Use of library material, preparation of reports Debating Extension of practice in oral and written English.

English (Building Technician) (TH1145)
Reading of newspapers, technical publications and selected books Vocabulary and comprehension Oral and written expression Preparation of notes.

English Report Writing (Library and Thesis) (TB431)
see Communication (TH1116).

Estimating (TP540)
Study of the principles of estimating for air-conditioning contracts. Topics include tender documentation, procedures, material and labour estimates, profit and tender submittal.

Estimating and Costing (TB362)
To develop skills in general methods of detailed estimating and costing used for the purpose of tendering. Measuring and adjusting related to variations to contract work.

Estimating and Quantity Surveying (plumbing) (TB263)
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.

Fluid Mechanics (TP238)

Fluid Mechanics (TP503)
Study of fluid flow in pipes and ducts. Study areas include properties of fluids, types of flow, steady flow energy equation, total pressure, static pressure, velocity pressure, pressure losses, static regain, equipment and system flow constants, pumps and fans.

Foundations 1A and 1B (TB408)

Gas Technology 1T (TP335) (Fundamentals of gas technology)

Gas Technology 2T (A) (Gas control techniques 1A and 1B) (TP434)
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 and 2B) (TP435)
The principles and applications of combustion. Combustion systems, atmospheric and power mixers and burners, orifice sizing, port loading, flame stability and shape. Domestic, commercial and industrial uses. 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).

Industrial Electronics 1T (TE326)

Industrial Electronics 2T (TE412)

Industrial Relations 1A and 1B (TS452)
A study of interrelationship of management and the work force in the building industry.

Installation of Solar Energy Systems (TP490)
The theoretical and practical consideration and factors covering the installation of solar energy systems. Systems covered are thermal storage, domestic hot water, swimming pool heating, air heating and cooling.

Instrumentation (TP450)
Principles, construction and use and calibration of instruments used in the air-conditioning industry. These include the instruments used to measure temperatures, pressures, velocities, flow rates, speeds, flue gases and electrical quantities.

Instrumentation (TP538)
Principles, construction, use and calibration of instruments used in the air-conditioning industry. These include the instruments used to measure temperatures, pressures, velocities, flow rates, rotational speeds, flue gases and electrical quantities.

Mathematics 1T (TM130)
Two hours per week, daytime or evening, full year. Prerequisites. Year 10 mathematics or equivalent and adult entry.

Assessment: Periodic tests and assignments and a final three hour examination in November.

This course is devoted to teaching basic mathematics of algebra and trigonometry and assumes very limited prior knowledge of these areas. Topics covered are Fundamental Operation of Arithmetic and Algebra, Transpositions, Graphs, Trigonometry, Factorisation, solution, equations, both linear and quadratic and logarithms. Students enrolled in TM130 usually study Science 1T (TM170) also. These two subjects are time-tabled in a four-hour block.

References

Supplied notes
Mathematics (Air-conditioning) (TP500)
Mathematics relating to the technical studies of the Heating, Ventilating and Air-conditioning course. Study areas include decimals, standard form, transposition, negative numbers, fractions, brackets, percentages, ratios, proportions, roots, unit conversion, measurement, basic trigonometry, areas, volumes and common logarithms.

Mathematics 2T (TM230)
Two hours per week, evening over two semesters. Mathematics 1T, adult entry, or qualifications deemed equivalent by the Mathematica1 Science Head of Department. Assessment: Class work (forty per cent) and one final examination (sixty per cent). An extension of Mathematics 1T the topics include: review of basic algebra, advanced units in algebra, graphs of special functions, analysis of experimental data, advanced units in trigonometry, arithmetic and geometric progressions, statistics. Students enrolled in TM230 usually study Science 2T (TM270) concurrently, the two subjects are time-tabled in a four-hour block. References used are supplied notes.

Mathematics 1A and 1B (1H) (TM120)
Five hours per week, daytime for one semester or two hours per week, evening for two semesters. Assessment: consists of class work (thirty per cent) and a final examination (seventy per cent). This unit deals with the following areas of mathematics: equations and formulae; relations and functions, trigonometry and an introduction to calculus. It is designed as a preparatory mathematics course leading to the mathematics 2H unit.

References

Mathematics 2H (TM220)
Full-time. Five hours per week, daytime for one semester. Part-time. Two hours per week daytime or evening for two semesters. Pre-requisites. TM120/ Mathematics 1H. Assessment consists of one external examination paper for qualifying students. The subject consists of the following topics for which assignments must be completed. Trigonometry; differentiation from first principles; techniques of differentiation; equation of tangents and normals; graphs of polynomial function; integration and antidifferentiation; antidifferentiation; complex numbers; small increments and approximations; calculus and ratios; mean and root mean square; work; volume of revolution; differential equations; optimisation theory; centre of mass, centroids and second moments of area; parallel and perpendicular axis theorem; centre of pressure. Revision tests are also included throughout the year.

References
No set text is required. Booklets covering the subject are supplied. The following texts are recommended for background reading.

Network Scheduling for Critical Path Analysis (TB530)
Network planning and construction applicable to the building industry.

Organisation (Plumbing) (TP427)
Dealing with the administrative and supervisory aspects of the foreman’s work, with particular reference to management with emphasis on human relations and head office organisation.

Physics (Air-conditioning) (TP501)
Physical relating to the technical studies of the Heating, Ventilating and Air-conditioning course. Study areas include SI units, velocity, acceleration, force, work, power, energy, hydrostatics, partial pressures, psychrometrics and direct current circuits.

Pipe and Duct Fitting 1T (TP181)
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 (TP281)
A practical exercise in the fabrication and installation of different components of a ducted heating system.

Pipeline Design ‘A’ Sanitary Plumbing 1 unit (TP340)
To develop an understanding of theoretical consideration of factors governing the design of sanitary plumbing installations as required by the Victorian Standard Sewerage Code and the Melbourne and Metropolitan Board of Works By-laws. The principles of sketching of designs to obtain detailed information.

Pipeline Design ‘B’ 1 unit (TP341)
To apply the requirements of the Victorian Standard Sewerage Code and the Melbourne and Metropolitan Board of Works to the drafting and design of sanitary plumbing installations. To develop drafting skills necessary to prepare sanitary plumbing pipeline design drawings.

Plan Reading (plumbing) 1 unit (TP260)
Review the principles of specification report writing and understand the structure and use of specifications and drawings.

Plant and Equipment (plumbing) 1 unit (TP420)
Basic principles of the care and use of equipment, safety regulations and correct procedures.

Plant Equipment 1T (TP282)
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 room layouts incorporating equipment, pipework, valves and controls.

Plant Equipment 2T (TP382)
The study of low velocity, high velocity, duct, and multi-zone air-conditioning systems, and associated equipment such as fans, houings, coils, ductwork, mixing boxes, registers, controls and piping.

Plant Services Drafting 1T and 2T 2 units (TP180, TP280)
Deals with detailing of elements of systems and layouts of relatively simple systems associated with the heating, ventilating, air-conditioning and refrigerating services. The work performed will be in line with the work covered in the subjects Pipe and Duct Fitting 1T and 2T.

Plant Services Drafting 3T (TP380)
Layouts of the more complex systems associated with mechanical services are developed in this subject. A high standard of draftsmanship together with a meticulous attention to detail and appropriate degrees of accuracy is required of all students.

Plumbing and Gasfitting Modules
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.


Sheet lead: the working of collars.

Sheet metal: jointing and fabricating models based on pattern cutting.

Phase 2:
Modules 13 — 15
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 storeys, sewerage pipe systems, fits for industrial and trade purposes, pipe-sizing and estimating.

Drainage: design and installation polluted areas. Septic tanks. Water supply, residential, industrial and special services. Pressure services. Filtration and treatment of water, pumps and ejectors, flush valves. Hot water—residential and industrial services.

Gasfitting natural gas: planning and sizing, commercial and industrial requirements. Automatic controls, regulators. Liquid petroleum gas—single and two stage systems.


Modules Q51 — Q63

Heating: heating equipment, types, piping systems, water heating.

Ventilating, air-conditioning and refrigerating: types of systems, equipment, temperatures.

Water supply: planning, storage, design, source of supply, pressure, special services.

Mild steel pipe, copper tube and plastics: bends and offsets, straight, angle and branch joints.

Mild steel sections: flat, angle and round, applications and welding.

Gasfitting — natural, LP blended: planning, pressures, principles and installation, conversion, safety.

Welding and cutting: oxy-acetylene, electric and argon—techniques.

Plumbing and Gasfitting 32CDA Syllabus

Modules 1-10

TP901 Basic Skills calculations, trade background, safety, welding, building construction, small diameter tubes and pipes, disposal systems. Fitting devices, simple waste pipes, valves, sheetmetal.

TP902 Measuring and levelling, drain installation, trench shoring.

TP903 Installation of sanitary fixtures and water supply.

TP904 Installation and commissioning of gas appliances and water supply.

TP905 Fixing of roofing materials: flashings, downpipes and rainwater products.

TP906 Installation of boiler, small bore heating, room air-conditioners, ducting and pipe work and water supply.

TP907 Designing sewerage drains, plumbing systems, flushing systems. Principles of locating stoppages in drains, cutting branches, water supply.

TP908 (Interim Gasfitting) Planning and sizing, commercial and industrial requirements. Automatic controls, regulators. Liquid petroleum gas.

TP909 (Done at RMIT)


Practical Inspection (building) (TB436)

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.

Practical Structures and Practical Workshop (TB366)

This subject should provide students with a practical appreciation of the physical and mechanical properties of materials, and their application as basic components of structure.

Process Heating (TP237)


Professional Practice of a Building Surveyor (TB601)

Administration and law. Town planning, Building regulations.

Quantity Surveying 1 and Quantity Surveying II (TB503, TB502)


Quantity Surveying (plumbing) (TP316)

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.

Quantity Surveying 2 (TB552)

Quantity Surveying 2 is planned to develop the student’s usefulness in employment and includes the measurement of more complicated structures. The year’s work should include the measurement of excavator, concreter, bricklayer, carpenter, joiner and sundry metalwork items.

Refrigeration 1A (TP516)

Principles of basic natural vapour compression cycles and actual vapour compression cycles.

Refrigeration 1B (TP517)

Study of refrigerants, pipes, fittings, in-line devices, basic systems, lubrication, instrumentation, testing, evacuating and charging.

Refrigeration 1T (TP349)

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 2A (TP533)

Study of compressors, condensers, evaporators and expansion devices.

Refrigeration 2B (TP534)

Study of packaged air-conditioning units, chiller sets and absorption refrigeration. Designing and sizing of refrigeration circuits.

Refrigeration 2T (TP449)

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.

Reticulated Services (TP550)

Study of services allied to the air-conditioning industry. Services include cold water, fire hydrant, fire sprinkler, domestic hot water, natural gas, oil, high temperature hot water, steam, compressed air, dust extraction, air-conditioning energy conservation, vacuum and gas furnace in-industrial space heating.

Reticulated Systems 1T (TP358)

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 (TP458)

Coveres control components, specialised material selection, Standards Association requirements and controlling authorities.

Role and Function of a Clerk of Works (TB520)

A study of terms of employment, ethics and duties of a clerk of works.
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ed that Specifications
organisation, clerical recording and employment considerations.

The general aim of this subject is to develop further, the student's ability
to administer the on-site activities that occur during the day to day ac-
ivities of a construction company.

Structural Practices. The subject is concerned with design drafting prac-
tice in a variety of realistic situations.

Further work in extension of Structural Design Drafting
Structural Design and Drafting 2C and 2D

Scaffolding Inspection A and B (TB435, TB439)
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 1T (TM170)
Two hours per week, day or evening over two semesters. Prerequisites:
Year 10 science or equivalent and adult entry. Assessment: Periodic
 tests and a final three hour examination in November. The course is aimed at teaching basic physics in SI units, vectors,
equilibrium, kinetics, Newton's three laws of motions, work power and
energy, heat, Ohm's law and basic electric circuits. References are sup-
plied notes. Students enrolled in TM170 normally study mathematics 1T
(TM130) concurrently, the two subjects are time-tabled in a four-hour block.

Science 2T (TM270)
Two hours per week evening over two semesters. Prerequisites: Science 2T, adult entry, or qualifications deemed equivalent by the
Mathematics and Science, Head of Department. Assessment: Class
work (40%) and one final examination (60%). An extension of Science 1T,
the topics include: electricity and magnetism, advanced units in electric
circuits, fluid statics, fluid dynamics, optics and wave motion, thermodynamics, notational dynamics.

Students enrolled in TM270 normally study mathematics 2T
(TM230) concurrently, the two subjects being time-tabled in a four-hour block.

References
Supplied notes.

Services in Buildings (TB241)
A study of services to, from and within a building or site, including elec-
trical, mechanical, hydraulic, civil and interior decoration services.

Site Organisation and Administration (TB160)
The general aim of this subject is to develop further, the student's ability
to administer the on-site activities that occur during the day to day ac-
"..."
Communication Studies 1B (TH116) 1 unit
Research and presentation of analytical reports, job briefs and specifications. Group communications skills meetings, discussions and interviews. Audio-visual techniques and presentations.

Detection and Suppression System (TB825) 2 units
To enable students to evaluate, design and interpret plans, designs and specifications of different types of fire detection and suppression systems

Fire-fighting Equipment and its Application (TB823) 2 units
Theory and application of fire-fighting media, vehicles and appliances, aerial equipment, special appliances and protective equipment. Students will be involved in practical use of appliances, and be required to do work placements to enable them to experience real fire situations

Fire Safety Management (TB824) 2 units
Community laws and regulations, psychology of individual or group behaviour in stress and fire drill situations, fire safety management planning

Material Science (TB829) 2 units
Material behaviour in fire conditions, structural behaviour under fire load. Visits to experimental testing stations are included in this subject

Principles of Fire Behaviour (TB822) 2 units
Combustion, process of burning and fire tests. Laboratory work and visits will be incorporated into this subject

Elective subject details
Basic Supervision (TS433)
This subject is designed to allow a student to gain an overview of business organisations, to understand a supervisor's role within an organisation and to develop and understand the principles, skills and attitudes necessary for supervisors to carry out their functions. The topics covered include — the supervisor's skills, functions and relationships with subordinates, organisation charts and how the supervisor fits into that structure, problem-solving techniques, the theories of Maslow and Hertzberg and how they can benefit productivity, leadership styles, delegation, appraisals, team building, grievances and managing stress.

This subject is part of a longer supervision certificate which consists of this unit and two other units.

Building Services (TB843) 2 units
Mechanical vertical and horizontal transportation, heating, ventilating and air-conditioning services, hydraulic services and specialist services.

Command and Communication (TB830) 2 units
Methods of communications, pre-planning, fire ground control and tactics, evacuation and rescue, safety of personnel and public, entry and ventilation, salvage and overhaul, other support and emergency services.

Detection and Suppression Design 1 (TB837) 2 units
Develops students' skills in designing fire sprinkler systems, fire alarm systems based on relevant Australian standards.

Detection and Suppression Design 2 (TB838) 2 units
Further develop students' skills in design of sprinklers, alarm systems and other specialised systems.

Fire Insurance (TS321) 1 unit
Risk assessment, rating principles, rating factors, previous factors, policy clauses, claims and reinsurance.

Fire Investigation (TB832) 1 unit
Designed to give the students an appreciation of the various agencies carrying out fire investigation; and to give an outline of the methods used in fire investigation by each agency.

Fire-related Law (TB840) 1 unit
The role of tests, standards and codes, acts and regulations, legal responsibility and liability of personnel involved in fire situations.

Introduction to Insurance (TS320) 1 unit
Insurance concepts, history, world and Australian markets, departments within an organisation, categories of principles, types of insurance policies

Introduction to Law 1A (TS243) 1 unit

Personnel Emergency Treatment (TB831) 1 unit
This subject equips the students with basic first-aid to enable them to assist in an emergency situation. The course follows the syllabus set out in the St John's Ambulance Association Fire-Aid Course.

Rural Fire Behaviour and Detection (TB833) 2 units
To enable the students to understand the principles and methods used for fire prevention and protection in grasslands and forest fires and covers fire behaviour, fire weather, fire prevention, fire protection, fire control.

Special Hazards (TB836) 2 units
Enables students to recognise the special fire hazards of various materials, and of various complex building structures and other installations covering hazardous materials and substances, high fire-risk situations, high-risk industries and high-risk activities.

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The section indicator denotes the general position in the book of each section.
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Business Studies Department

Head
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Business certificate courses

The following certificate courses are offered by the Business Studies Department:

- Accounting
- Office and Secretarial Studies
- Personnel
- Production
- Sales and Marketing
- Secretarial and Administrative Studies
- Supply
- Work Study

The Accounting Certificate is offered on a full-time basis over two years. The Office and Secretarial studies certificate is a full-time one year course.

Students pursuing other certificate courses may attend for one full year in common subjects followed by two years part-time evening studies in specialised subjects.

All of the above courses with the exception of Office and Secretarial Studies are also offered on a part-time evening basis involving four to five years’ study.

Specialist areas

In addition to the above areas of study a wide range of specialist units may be incorporated by attending other technical colleges for a few subjects.

These include:

- Advertising
- Banking
- Book trade
- Building societies
- Clothing
- Credit management
- Customs procedures
- Hospital procedures
- Insurance — general
- Insurance — life
- Law
- Materials handling
- Packaging
- Public relations
- Real estate
- Records administration
- Safety
- Timbers
- Travel
- Tourism

Any students interested in these specialist areas should also enquire for advice regarding a plan of study.

Entrance requirements

The usual entrance requirement is a pass at year 11, but mature-age students may be granted admission to the course without this qualification.

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.

Membership of associations

These courses are recognised for the purpose of admission to membership of a number of professional institutes, these are listed under the individual courses.
Applications for exemptions

Certificate of Business Studies (CBS) units passed at other colleges

If a Victorian Certificate of Business Studies unit has been passed at an institution other than Swinburne it is not necessary to apply for an exemption. The unit will count towards a certificate regardless of where it was studied. When applying for your certificate simply provide the awarding college (where you passed the last unit) with result statements from the colleges where you studied the other units.

Subjects other than CBS units

(a) Where less than twelve units are applied for:
these are granted by Swinburne and the application forms are available from student records. The Head of Business Studies Department should be consulted if the student requires advice.

(b) Where more than twelve units are applied for:
these applications can only be granted by the TAFE Board. Application forms are available from and must be submitted to the Head of Business Studies Department.

Practical experience

Students cannot be granted an exemption solely on the basis of practical experience.

Specialist units

Students will not be granted exemptions for all the specialist units in a particular course. They are required to pass at least two Certificate of Business Studies specialist units.

General rules for granting exemptions

(1) Credit will not be given for subjects which are below Australian university entrance standard, i.e. the equivalent of Higher School Certificate.

(2) Credit will be given only if there is a substantial overlap of topics, except where:
(a) A person has passed a general education subject and seeks exemption in an unrelated general education subject e.g. HSC Politics would give an exemption in Australian Social Structures.
No more than one of this type of exemption will be granted.

(b) If alternative subjects provide a suitable basis for study in an area of specialisation then exemptions may be granted for introductory specialist units even though the content of the alternative subject does not overlap.

Provision of additional information

If the alternative is not part of a well-known course such as HSC it may be necessary to provide details on the:
(a) subject matter covered by the syllabus
(b) length of the course
(c) assessment methods used.

Sighting of original documents

Photocopied documents supporting applications must be marked ‘original sighted’ by an officer of the college, therefore it is suggested that applications be submitted in person to Student Records so that original documents are not left at Swinburne.

Early application

It is advisable to apply for exemptions as soon as possible after enrolling. This will allow you to select subjects at re-enrolment knowing exactly which units are needed to complete the course; it also avoids problems caused by possible changes in the rules for granting exemptions.

Approval time

Applications are checked by heads of departments before being recommended to the Business Studies Division Board which meets monthly. Exemptions for Middle-Level English and Business Mathematics must be recommended by the heads of Humanities and Mathematics and Science respectively. After approval, letters of notification are prepared and rechecked, therefore students should expect this process to take approximately two months.

Further information

Additional details about these certificate courses are available from:
Mr R.W. Conn
Head of the Business Studies Department,
Telephone 819 8165

Changes in course structures

The course structures listed below are those applicable in 1985. From time to time the Certificate of Business Courses course structures are changed by the committees responsible for design. Students must obtain a current course structure when they enrol. This should be kept so that units can be selected each year when re-enrolling. Students must follow a particular course structure to complete their certificate.

If the course is altered, students may continue on their original course or elect to adopt the new course structure. The only acceptable course structures are, the one current in the year the student was first enrolled, or any subsequent structure. This rule ensures that students cannot be disadvantaged by structure changes.

No allowance will be made when awarding certificates for students who have not complied exactly with a prescribed course structure which was current during their enrolment.

General Certificate of Business Studies

A Certificate of Business Studies will be issued to any student who passes in at least 20 units or approved equivalents provided that these units include:

(1) A minimum of six units from Groups 1 and/or 3, including Middle Level English 1A and 1B.

(2) A minimum of eight Group 2 units, including at least four units from one specialisation chosen from Accounting, Personnel, Production, Sales and Marketing, Secretarial, Supply, Work Study, etc.

E.g. Accounting 1, 2, 4, 5 from the Accounting specialisation, Production Techniques 1A, 1B, 2A, 2B from the Production specialisation.

Please note that if students wish their certificates to be labelled with a specialist area of study, they must pass the subjects of the approved course of study as detailed on the following pages.

Units of the Certificate of Business Studies are divided into three groups:

Group 1 Business orientation — general units common to all certificates, e.g. Behavioural Studies 1A, Business Mathematics 1A.

Group 2 Business practice — specialist units pertaining to individual courses, e.g. Personnel 1A for the Personnel Certificate.

Group 3 Middle-management practices, e.g. Middle management Practices A.
A21DBA Certificate of Business Studies — Accounting

Career potential
The general aim of this certificate course is to provide a range of middle-level vocational courses designed to educate —
(1) support staff for professional officers and higher level management, including department supervisors, senior clerical staff and staff with important specialist areas of responsibility e.g. assistant accountants.
(2) smaller operators who need to be proficient in a variety of technical or business tasks as well as management decision-making.

Prerequisites
Students are eligible to enter this course of study if they have completed satisfactorily an approved course at Leaving level (Year 11) or an approved equivalent course or are considered to be sufficiently mature and experienced enough to undertake the course successfully.

Course structure

Compulsory units
TH126 Middle-level English 1A
TH127 Middle-level English 1B
TS101 Accounting 1 (Bookkeeping to trial balance)
TS102 Accounting 2 (Preparation of financial reports)
TS103 Accounting 3 (Accounting systems)
TS204 Accounting 4 (Partnership and company accounting)
TS205 Accounting 5 (Financial management)
TS120 Introduction to Business Data Processing
(two units)

Plus five of the following units
TS206 Accounting 6 (Costing elements)
TS207 Accounting 7 (Costing systems)
TS208 Accounting 8 (Internal control and auditing)
TS209 Accounting 9 (Budgeting procedures)
TS210 Accounting 10 (Accounting theory)
TS211 Accounting 11 (Introduction to taxation)
TS212 Accounting 12 (Income tax law and practice)
TS213 Accounting 13 (Government Finance and Accounting Part 1)
TS214 Accounting 14 (Government Finance and Accounting Part 2)

Plus four of the following units
TM110 Business Mathematics 1A
TM111 Business Mathematics 1B
TS238 Introduction to Economics 1A
TS239 Introduction to Economics 1B
TS243 Introduction to Law 1A
TS244 Introduction to Law 1B

Two elective units
Any of the above units not already selected.
Any other Certificate of Business Studies units except some units offered by other colleges but not offered by Swinburne e.g. Small Business Procedures 1A, 1B.

Note
Twenty units are required for the certificate, the groupings shown above must be observed.

Duration of course
This course is offered on either a two-year full-time or a four-year part-time basis.

Membership of associations
Students completing the course are academically qualified for admission as members of the Institute of Affiliate Accountants. Those who complete the course including Accounting 11 and Accounting 12 are academically qualified for registration as tax agents.
A21DCB Certificate of Business Studies — Personnel

Career potential
The general aim of this certificate course is to provide a range of middle-level vocational courses designed to educate —
(1) support staff for professional officers and higher level management, including department supervisors, senior clerical staff and staff with important specialist areas of responsibility, e.g., personnel officers.
(2) smaller operators who need to be proficient in a variety of technical or business tasks as well as management decision-making.

Prerequisites
Students are eligible to enter this course of study if they have completed satisfactorily an approved course at Leaving level (Year 11) or an approved equivalent course or are considered to be sufficiently mature and experienced enough to undertake the course successfully.

Course structure
Compulsory units
- TH126 Middle-level English 1A
- TH127 Middle-level English 1B
- TS130 Personnel 1A* (Recruitment selection and employment)
- TS131 Personnel 1B (Wages and salary administration)
- TS230 Personnel 2A (Safety and employee service)
- TS330 Personnel 3A (Personnel function)
- TS241 Industrial Relations B
- TS340 Training Manpower Planning
- TS255 Middle-management Practices B — Organisation
- TS213 Behavioural Studies 1A
- TS216 Behavioural Studies 1B

Plus two of the following units
- TS240 Industrial Relations A
- TS231 Industrial Relations C
- TS341 Training Techniques
- TS342 Training Practices

Plus seven elective units
Any of the above units not already selected or any of the following
- TS243 Introduction to Law 1A
- TS244 Introduction to Law 1B
- TS238 Introduction to Economics 1A
- TS239 Introduction to Economics 1B
- TF101 Work Study 1
- TF102 Work Study 2
- TS101 Accounting 1 (Bookkeeping to trial balance)
- TS102 Accounting 2 (Preparation of financial reports)
- TS129 Introduction to Business/Service Organisations
- TS128 Industry and Society
- TS224 Middle-management Practices A — Planning
- TS325 Middle-management Practices D — Leadership
- TS120 Introduction to Business Data Processing (2 units)

*Students may not include Middle-management Practice C — Staffing as a unit for this course.

Note
Twenty units are required for the certificate. The groupings shown above must be observed.

Duration of course
This course is offered on a part-time evening studies basis or the first half of the course can be completed in one year on a full-time basis with the second half on a part-time evening basis.

Membership of associations
Students who are undertaking this course are eligible to apply for student membership of the Institute of Personnel Management of Australia. To gain professional membership of the IMPA one must be employed in the personnel area and have completed the course by the end of 1986. Those completing after this date will be eligible for associate membership only. Details on progression from associate to full professional membership may be obtained from the Institute of Personnel Management of Australia.
A21DFA  Certificate of Business Studies — Production

Career potential
The general aim of this certificate course is to provide a range of middle-level vocational courses designed to educate —

(1) support staff for professional officers and higher-level management, including department supervisors, senior clerical staff and staff with important specialist areas of responsibility, e.g. production managers.

(2) smaller operators who need to be proficient in a variety of technical or business tasks as well as management decision-making.

Prerequisites
Students are eligible to enter this course of study if they have completed satisfactorily an approved course at Leaving level (Year 11) or an approved equivalent course or are considered to be sufficiently mature and experienced enough to undertake the course successfully.

Course structure
Compulsory units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>TH1126</td>
<td>Middle-level English 1A</td>
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<tr>
<td>TH1127</td>
<td>Middle-level English 1B</td>
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<tr>
<td>TM1110</td>
<td>Business Mathematics 1A</td>
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<tr>
<td>TM1111</td>
<td>Business Mathematics 1B</td>
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<tr>
<td>TS128</td>
<td>Industry and Society</td>
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<tr>
<td>TS129</td>
<td>Introduction to Business/Serve Organisations</td>
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<tr>
<td>TS215</td>
<td>Behavioural Studies 1A</td>
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<td>TS216</td>
<td>Behavioural Studies 1B</td>
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<td>TS250</td>
<td>Production Techniques 1A</td>
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<td>TS251</td>
<td>Production Techniques 1B</td>
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<td>TS250</td>
<td>Production Techniques 2A</td>
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<td>TS251</td>
<td>Production Techniques 2B</td>
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<td>TS270</td>
<td>Supply Procedures 1A</td>
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<td>TS271</td>
<td>Supply Procedures 1B</td>
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<td>TS270</td>
<td>Supply Procedures 2A</td>
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<tr>
<td>TS271</td>
<td>Supply Procedures 2B</td>
</tr>
</tbody>
</table>

Four elective units

Any other Certificate of Business Studies units.

Note
Twenty units are required for the certificate. The groupings shown above must be observed.

Duration of course
This course is offered on a part-time evening basis or the first half of the course can be completed on a full-time basis with the second half of the course on a part-time evening basis.

Membership of associations
Students completing the course are academically qualified for admission as Associate member of the Institute of Management.

A21DCA  Certificate of Business Studies — Sales and Marketing

Career potential
The general aim of this certificate course is to provide a range of middle-level vocational courses designed to educate —

(1) support staff for professional officers and higher-level management, including department supervisors, senior clerical staff and staff with important specialist areas of responsibility, e.g. sales supervisors, sales managers.

(2) smaller operators who need to be proficient in a variety of technical or business tasks as well as management decision-making.

Prerequisites
Students are eligible to enter this course of study if they have completed satisfactorily an approved course at Leaving level (Year 11) or an approved equivalent course or are considered to be sufficiently mature and experienced enough to undertake the course successfully.

Course detail
Compulsory units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>TH1126</td>
<td>Middle-level English 1A</td>
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<tr>
<td>TH1127</td>
<td>Middle-level English 1B</td>
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<tr>
<td>TM1110</td>
<td>Business Mathematics 1A</td>
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<tr>
<td>TM1111</td>
<td>Business Mathematics 1B</td>
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<td>Business Mathematics 1B</td>
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<tr>
<td>TS238</td>
<td>Introduction to Economics 1A</td>
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<td>TS239</td>
<td>Introduction to Economics 1B</td>
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<td>TS243</td>
<td>Introduction to Law 1A</td>
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<td>TS244</td>
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<tr>
<td>TS251</td>
<td>Behavioural Studies 1A</td>
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<td>TS252</td>
<td>Behavioural Studies 1B</td>
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<tr>
<td>TS250</td>
<td>Salesmanship (2 units)</td>
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<tr>
<td>TS260</td>
<td>Sales Management 1 (Previously Sales 2A)</td>
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<tr>
<td>TS261</td>
<td>Sales Management 2 (Previously Sales 2B)</td>
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<tr>
<td>TS227</td>
<td>Marketing Principles 1 (Previously Marketing Principles and Practice A)</td>
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<tr>
<td>TS228</td>
<td>Marketing Principles 2 (Previously Marketing Principles and Practice B)</td>
</tr>
<tr>
<td>TS107</td>
<td>Accounting for Managers</td>
</tr>
<tr>
<td>TS262</td>
<td>Promotional Techniques</td>
</tr>
</tbody>
</table>

Two elective units

Any Certificate of Business Studies units not already selected.

Note
Twenty units are required for the certificate. The groupings shown above must be observed.

Duration of course
This course is offered on a part-time evening basis or the first half of the course can be completed on a full-time basis with the second half of the course on a part-time evening basis.

Membership of associations
Students completing this course are academically qualified for:
— admission to the Australian Marketing Institute at Associate level provided age and experience requirements are met
— admission to the Professional Marketing Association, Australia
— admission as Associate members of the Australia Institute of Management.
A24DDS Office and Secretarial Studies Certificate

Career potential
The general aim of this certificate course is to provide a range of middle-level vocational courses designed for students who wish to become secretaries to middle-level/top management.

Students are admitted with or without a background of stenographic skills, additional time being allocated within the course for the development of these.

Prerequisites
Students are eligible to enter this course of study if they have completed satisfactorily an approved course at Leaving level (Year 11) or an approved equivalent course or are considered to be sufficiently mature and experienced enough to undertake the course successfully.

Course detail
Compulsory units
TH126 Communication Skills 1
TH127 Communication Skills 2
TS865 Administrative Procedures (2 unit value)
TS880 Typing Production 1 (2 unit value)
TS881 Typing Production 2 (2 unit value)
TS883 Word Processing 1
TS884 Word Processing 2
TS882 Transcription Skills
TS820 Office Computer Applications
TS800 Practical Placement

Students studying for the Office and Secretarial studies certificate have the option of selecting two specialist units from the accounting or shorthand areas. Successful completion of the thirteen core units and the two specialist units qualifies students for the upgraded award of the Certificate of Secretarial and Administrative Studies (A21DDS).

Duration of course
This course is offered on a one year full-time basis only.

A21DFC Certificate of Business Studies — Supply

Career potential
The general aim of this certificate course is to provide a range of middle-level vocational courses designed to educate —

(1) support staff for professional officers and higher-level management, including department supervisors, senior clerical staff and staff with important specialist areas of responsibility, e.g. purchasing and supply officers.

(2) smaller operators who need to be proficient in a variety of technical or business tasks as well as management decision-making.

Prerequisites
Students are eligible to enter this course of study if they have completed satisfactorily an approved course at Leaving level (Year 11) or an approved equivalent course or are considered to be sufficiently mature and experienced enough to undertake the course successfully.

Course detail
Compulsory units
TH126 Middle-level English 1A
TH127 Middle-level English 1B
TM110 Business Mathematics 1A
TM111 Business Mathematics 1B
TS243 Introduction to Law 1A
TS244 Introduction to Law 1B
TS170 Supply Procedures 1A
TS171 Supply Procedures 1B
TS270 Supply Procedures 2A
TS271 Supply Procedures 2B
TS129 Introduction to Business/Service Organisations

Plus one of the following units
TS224 Middle-management Practices A (Planning)
TS225 Middle-management Practices B (Organisation)

Plus four of the following units
TS150 Production Techniques 1A
TS151 Production Techniques 1B
TS101 Accounting 1 (Bookkeeping to trial balance)
TS206 Accounting 6 (Costing elements)
TS207 Accounting 7 (Costing systems)
TS120 Introduction to Business Data Processing (2 units)

Other Customs, Materials and Hospital units not available at Swinburne can be included in this category.

Four elective units
Any of the units above not already selected Any other approved business studies units

Note
Twenty units are required for the certificate. The groupings shown above must be observed.

Duration of course
This course is offered on a part-time evening basis or the first half of the course can be completed on a full-time basis with the second half of the course on a part-time evening basis.

Membership of associations
Students completing the course are academically qualified for admission as Associate members of the Institute of Purchasing and Supply Management.
A21DFF Certificate of Business Studies — Work Study

Career potential
The general aim of this certificate course is to provide a range of middle-level vocational courses designed to educate:

1. support staff for professional officers and higher-level management, including department supervisors, senior clerical staff and staff with important specialist areas of responsibility, e.g. work study practitioners.
2. smaller operators who need to be proficient in a variety of technical or business tasks as well as management decision-making.

Prerequisites
Students are eligible to enter this course of study if they have completed satisfactorily an approved course at Leaving level (Year 11) or an approved equivalent course or are considered to be sufficiently mature and experienced enough to undertake the course successfully.

Course detail

**Compulsory units**
- TH126 Middle-level English 1A
- TH127 Middle-level English 1B
- TM110 Business Mathematics 1A
- TM111 Business Mathematics 1B
- TS219 Introduction to Business/Service Organisations
- TF101 Work Study 1 (Method Study)
- TF102 Work Study 2 (Implementation)
- TF103 Work Study 3 (Time Study)
- TF104 Work Study 4 (Predetermined Motion Time Standards)
- TF105 Work Study 5 (Evaluating and Statistical Techniques)
- TF106 Work Study 6 (Financial Analysis and Labour Control)
- TF107 Work Study 7 (Ergonomic and Work Environment Design)
- TF108 Work Study 8 (Network Analysis)
- TF286 Work Methods Improvement 2C
- TF287 Work Methods Improvement 2D
- TF282 Work Measurement 3 (2 units)
- Plus three elective units

One Group I or Group 3 unit not listed above and two other Certificate of Business Studies units not listed above.

**Note**
Twenty units are required for the certificate. The groupings shown above must be observed.

**Duration of course**
This course is offered on a part-time evening basis or the first half of the course can be completed in one year on a full-time basis with the second half of the course on a part-time evening basis.

**Membership of associations**
Students completing the course are academically qualified for admission as Licentiate members of the Institute of Industrial Engineers.

**Accounting subject details**

**Accounting (TS5009) Tertiary Orientation Program subject**
Full year accounting course for students with limited or no prior knowledge of book-keeping or accounting.

Topics covered include: basic concepts and terminology; the accounting equation; recording methods; balance day adjustments; final reports; accounting procedure for control; accounting for multiple ownership and analysis and interpretation of final reports.

**Accounting 1 (TS101) (Previously Accounting IA) (1 unit)**
Book-keeping to trial balance — forms of business ownership and types of business activities. Basic outline of accounting conventions. Requirements for business records and basic business documents to maintain records. Complete manual book-keeping process for sole trader service and trading businesses (using physical inventory method only), including bank reconciliation statements, imprest petty cash system, and subsidiary ledgers for debtors and creditors.

**Accounting 2 (TS102) (1 unit)**
Preparation of financial reports. Summary of entire book-keeping process from source documents, including balance day adjustments, to final reports. Journal and ledger recording of balance day adjustments, closing entries and reversing entries. Classified revenue statement and balance sheet from trial balance with adjustments for a sole proprietor in both a service and trading organisation. Final accounting reports for a sole proprietor, using a single entry system of book-keeping, in both a trading and service organisation. Preparation of suitably classified manufacturing statements, and incorporating the cost of production in the revenue statement for a manufacturing organisation. Revenue statements showing department contributions and final profit and loss. Branch accounting, involving the setting up and maintenance of records between head office and a maximum of two branches with goods transferred at cost. Consolidated reports of head office and one branch incorporating the allocation of expenses. Records and accounting reports for clubs and societies.

**Accounting 3 (TS103) (Previously Accounting IB) (1 unit)**
Accounting systems. Relevance of and necessity for flow charting and coding of data within accounting systems. Essential features of equipment used to maintain systems using either manual, semi-automatic or electronic equipment. Essential features of control and recording for the following systems using either manual, semi-automatic or electronic equipment i.e. stock, payroll, debtors, creditors, cash receipts and payments and fixed assets. In this unit, the perpetual inventory system and the use of control accounts and subsidiary ledgers for stock, debtors, creditors and fixed assets. are considered in detail.

**Accounting 4 (TS204) (Previously Accounting 2A) (1 unit)**
Partnership and Company Accounting. Essential differences between partnership and company forms of business ownership. Reasons for converting an existing business into a partnership or company. Formation of partnerships and companies and basic contents of documentation involved. Journal and general ledger entries for the formation of a partnership and the admission of a partner to an existing business. Journal and general ledger entries in a company’s books for; the formation of a company, the issue of shares to the public by a public company, the acquisition of the assets and liabilities of another business and the settlement of the purchase consideration with the previous proprietor(s), Statutory and other registers and records relating to the shares of a company. Profit distribution for partnerships and companies including the following topics. Profit and loss appropriation statement and a balance sheet of a partnership. Legal obligations of reporting, preparation of a profit and loss statement (including appropriation of a profit) and a balance sheet for a company in accordance with the Ninth Schedule of the Companies Act and professional standards.

**Accounting 5 (TS205) (Previously Accounting 2B) (1 unit)**
Accounting 6 (TS206) (Previously Accounting 2C) (1 unit)
Costing elements. Detailed coverage of job cost systems. Introduction to cost accounting including position of cost department in organisation structure, cost terminology, manufacturing statements. Control procedures and documents for materials and labour. Accounting for material and labour using separate financial and factor ledgers. Factory overhead control, departmental overhead budgets and pre-determined overhead rates. Accounting for overhead costs. Overview of complete job cost system.

Accounting 7 (TS207) (Previously Accounting 2D) (1 unit)

Accounting 8 (TS208) (Previously Accounting 2E/2F) (1 unit)

Accounting 9 (TS209) (Previously Accounting 2C) (1 unit)
Budgeting procedures. Preparation of budgets for the annual profit plan. The course concentrates on operating and financial budgets for manufacturers but also deals with retail and service businesses. The control function of budgets is emphasised with the preparation of performance reports at all stages of the budgeting process.

Accounting 10 (TS210) (1 unit)
Accounting theory. The main object of this unit is to provide the student with an appreciation of the role of accounting in society; the history of accounting; professional accounting bodies; accounting postulates, principles, doctrines and conventions and accounting standards. In addition the course involves the study of the problems associated with historical cost accounting, and a number of methods of accounting for changing price levels including current purchasing power accounting, current cost accounting, relative price change accounting, and COCA. The unit also covers alternative accounting methods for leases, company taxation and intercorporate investments.

Accounting 11 (TS211) (Previously Accounting 2H) (1 unit)

Accounting 12 (TS212) (Previously Accounting 2J) (1 unit)
Income Tax Law and Practice. Preparation of returns for sole traders, partnerships, companies, trusts and superannuation funds. Role of the tax agent, assessments, objections and appeals, tax planning. A pass in this unit will provide an academic qualification for registration as a tax agent.

Accounting 13 (TS213) (1 unit)
Government Finance and Accounting Part 1. This unit is the first of two government accounting units which covers the history of general revenue collection; Commonwealth/State financial relations; the preparation, presentation and supporting documentation for the Government Master Budget; role and powers of the Auditor-General; the composition, powers, duties and procedures of the Public Accounts Committee and Executive Council; and financial control through accounting techniques, Audit Acts and Treasury regulations.

Accounting 14 (TS214) (1 unit)
Government Finance and Accounting Part 2. Accounting for trading organisations and non-trade service organisations; the funds system of accounting; department budgets; principles of government accounting including sources of revenue, expenditure constraints, recording methods and documents; final reports for trading and non-trading public utilities and the statutory requirements for the reports.

Accounting For Managers (TS107)
This course is designed to enable students in other than financial careers to understand the purpose and operation of accounting systems, understand the principles of financial management, apply techniques of financial analysis to basic business problems, to participate with professional accountants in planning and decision making related to their area of responsibility. Topics studied include the nature of accounting, accounting reports for sole proprietors, forms of business ownership, accounting reports for companies, limitation of accounting reports, cash management, cost volume profit relationship and budgeting.

Administrative Procedures (TS865) (2 units)
The purpose of this subject is to give the potential office worker an insight into the various facets of the office and the systems which determine the efficient flow of information.

Advanced Business Typewriting 1A (TS180) (1 unit)
To enable the student, given material in various forms (e.g. manuscript, typescript, etc.) and material involving a range of requirements (e.g. carbon copies, notations, etc.) to type accurate copies of various business communications (e.g. business letters, memoranda, business documents etc.) of normal syllabic intensity (1.35-1.44) at an average speed of 35 w.p.m. for at least ten minutes on a specific task.

Advanced Business Typewriting 1B (TS181) (1 unit)
To enable the student, given material in various forms (e.g. manuscript, typescript, etc.) and material involving a range of requirements (e.g. carbon copies, notations, etc.) to type accurate copies of various business communications (e.g. business letters, reports, financial statements etc.) of difficult syllabic intensity (over 1.45) at an average speed of 40 w.p.m. for at least ten minutes on a specific task.

Advanced Business Typewriting 11A (TS208) (1 unit)
To enable the student, given material in various forms (e.g. manuscript, unarranged material, annotated notes, etc.) and material involving a range of requirements (e.g. carbon copies, continuation sheets, etc.) to type accurate copies of various business communications (e.g. business letters, reports, financial statements, etc.) of difficult syllabic intensity (over 1.45) at an average speed of 40 w.p.m. for at least ten minutes on a specific task.

Australian Social Structures (TS108) (2 units)
The general purpose of this course is to add to our understanding of the society in which we live. Special emphasis is placed upon the working environment. Areas of special study include; aborigines, unemployment, alternative living styles, the work ethic, organised labour, business attitudes and expectations, income distribution and the lucky country syndrome, world poverty, sexual culture, women in the workforce, job satisfaction.

Behavioural Studies 1A & 1B (TS215, 216) (1 unit each)
Becoming aware of one’s potentialities, interpersonal relationships, conflicts, difficult problem solving, sociology and psychology, limitations in handling certain situations and problems.

Business Mathematics 1A (TM110) (1 unit)
Coping with situations involving business mathematics, more specified mathematics applicable to other subjects, acquiring skills to cope with statistical analysis.

Business Mathematics 1B (TM111) (1 unit)
Statistical processes used in business operations, related business and statistical vocabulary, solving business problems using statistical processes, using formulas and interpreting results.

Communication Skills 1 and 2 (TH126 and TH127) (1 unit each)
The general aim of this subject is to enable students to become more effective communicators within an Australian society by developing appropriate communication and interpersonal skills.
Introduction to Business Data Processing (TS120) (2 units)
Modern data processing techniques for the provision of information to management. Problems that exist in the operations of business systems, and methods to overcome these problems. How advanced business equipment operates. Data processing systems using manual, and fully automated procedures. The impact of computer technology on today’s society. Program writing using a structured approach to solve simple business applications. Specific areas covered include the preparation of suitable documentation for programs, system flow charts, the selection of appropriate input or output devices given particular problems and how they should be introduced. Where possible realistic business computer packages will be used by students.

Data Processing 2 (TS220) (2 units)
Preparation of modern data processing systems, analysis of systems, and implementation of new systems.

Data Processing 3 (TS221) (2 units)
Programming, using COBOL language.

Economics (TS96) Tertiary Orientation Program subject
Full year course for students with limited or no prior knowledge of economics. Topics covered include: scarcity and the problems of limited means; resource allocation and the price mechanism; aggregate economic behaviour, the role of government, trades and external policy, economic growth and welfare, income distribution and poverty.

Industrial Relations A (TS240) (1 unit)
The role and functions of the shop steward. Relationship between shop steward and union officials. The interrelationship between the shop steward and company personnel — supervisors, managers, etc. Employee and union-oriented rules (award, non-award; written, unwritten). Appreciation of written rules governing employer/management relationships at work. Function of, and knowledge of, main management and union rules.

Industrial Relations B (TS241) (1 unit)
How awards are formulated and interpreted. Similarities and differences between collective bargaining, arbitration and conciliation. Intervention techniques prior to and during negotiations. Role of conciliation and arbitration commissioners. Conciliation and Arbitration Act. Structure and functions of State Wages Board. Functions of various employers organisations in the industrial relations area. Functions of government departments and the Acts they administer in regard to industrial relations.

Industrial Relations C (Personnel 2B) (TS231) (1 unit)
The structure and function of the Australian Trade Union Movement. Employer organisations and the Conciliation and Arbitration Commission, the functions of government departments related to industrial relations, study experiments to improve the industrial environment.

Industrial Relations 1A and 1B (TS452) (1 unit)
A study of inter-relationship of management and the work force in the building industry.

Industry and Society (TS128) (1 unit)
The work ethic and the nature of work, the social responsibility for employers, growth of industrial enterprises and economic growth, primary, secondary and tertiary industry, consumerism, pricing, trade unions/employer organisations, population growth, the environment, the influence of government on industry and society.

Introduction to Business Service Organisations (TS129) (Formerly Principles of Organisations) (1 unit)
What is business? What does it do? Forms of ownership, non-profit organisations, internal organisation structure, functions of management, personal skills of managers, policy decision-making and documentation, general management tasks, basic business functions — financing, marketing, staffing production, sales and marketing, operating techniques and controls of above.

Introduction to Economics 1A (TS238) (1 unit)

Introduction to Economics 1B (TS239) (1 unit)
Four out of the following six topics to be studied: Economic role of government, economic measurement, economic systems, international trade, the finance market and the level of economic activity, the labour market.

Introduction to Law 1A (TS243) (1 unit)
History and development of Australian law and system of courts. The roles of court personnel. Acts of parliament, their purposes, procedures and interpretation; Case law and the doctrine of precedent. The application of the law, involving a detailed study of one or two areas such as negligence, absolute liability, Goods Act 1958, consumer protection, Environment Protection Control (Noise Control) 1978, Trade Practices Act 1974. Legal concepts of property and types of law.

Introduction to Law 1B (TS224) (1 unit)
Law of contract including, types of contracts, requirements for a valid contract, conditions under which contracts are voidable, remedies for breach of contract. Legal aspects of sole traders, partnerships and companies including rights and liabilities of owners, formation procedures etc. Advantages and disadvantages of forms of ownership. Consumer protection including a study of the strengths and weaknesses of the Consumer Goods Act 1968 and Hire Purchase Act 1969. Cheques, their legal status and the effects of different types of crossings.

Legal Studies (TS906) Tertiary Orientation Program Subject
Full year course for students with limited or no prior knowledge of legal studies. This course is designed to assist students in understanding the operations of law in our society. It should equip students with an understanding of how law affects our everyday lives, with particular regard to the rights and safeguards it bestows and the obligations and limitations it imposes. Topics covered include: the need for law, the structure and development of the Australian Legal System, the law-making bodies and legal processes, crime and criminal sanctions, the Law of Torts, consumer protection and the form of business organisation.

Middle-management Practice A (Planning) (TS224) (1 unit)
Management as an integrated process, planning — nature of the planning process; activities, forecasting objective, policies and procedures, programs and schedules, budgeting, application.

Middle-management Practice B (Organisation) (TS225) (1 unit)
Department organisation, analysis, designing and designing a departmental organisation structure, factors affecting organisation specialisation, values and problems; alternative structures, authority distribution, organisation charting, manpower requirements planning, job documentation, corporate organisation structure and relationship.

Middle-management Practice C (Staffing) (TS324) (1 unit)
The subject examines the main elements involved in the assessment of present and future manpower needs through; recruitment, selection, training and development, appraisal; retirement, retraining, separations.

Middle-management Practice D (Leadership) (TS325) (1 unit)
This subject enables the student to develop leadership skills, identify the framework within which decision-making is practical, communicate effectively and to understand the problems which arise in the communication process. Use committees to solve problems effectively, motivate people within an organisational framework and become aware of various leadership styles and their application.

Marketing Principles 1 (TS227) (1 unit)
The meaning of marketing in our Australian society: marketing philosophies and organisation; the marketing environment; market research; segmentation of markets and consumer behaviour.

Marketing Principles 2 (TS228) (1 unit)
The planning of product, price, place and promotion strategies; development of the strategic plan; marketing decision-making and the social implications.

Middle-level English 1A (TH1126) (1 unit)
A general course in basic communication skill for a variety of purposes. The emphasis is upon competence in written and spoken expression, reading and research, and critical evaluation of the language of argument, literature, film and drama.
Middle-level English 1B (TH127) (1 unit)
The consolidation and appreciation of communication skills in business and other organisational contexts: business writing (letters, memos, minutes, reports); speaking and listening (interviews, meetings, dictation); reading, research and critical interpretation of factual material (reports, newspaper and journal articles).

Office Computer Applications (TS820) (1 unit)
This subject aims to provide students with an appreciation of computer packages and programs in relation to business operations. Students will, therefore, be given the opportunity to develop their skills in the processing of information by using computer packages and to gain an understanding of the potential and importance of computer systems in the business environment.

In order to achieve these aims students will be introduced to data processing hardware and software, systems and sub-systems in the business world and the decision-making process needed to obtain information which suits the management structure of an organisation.

It is necessary, therefore, in meeting industry needs that students gain "hands-on" experience in utilizing some common business systems e.g. data base package, spread sheet, accounting package.

Office Practices 1A (TS117) (1 unit)
In this unit, the organisation principles required in an office are examined together with the changing role of the office supervisor, leadership style of supervisors, the motivation of office staff, evaluation and appraisal of office staff and the development of effective communication skills.

Office Practices 1B (TS118) (1 unit)
In this unit, the impact of technology on the office environment is examined, together with the use of computers and word processors to improve office efficiency, the changing roles of traditional office staff, space management in the office, effective document design and control and records management.

Personnel 1A (TS130) (1 unit)
Recruitment, selection and employment - responsibility of various parties, correct sequence of events in filling a vacancy, techniques and procedures involved.

Personnel 1B (TS131) (1 unit)
Understanding, interpreting and administering the active component of manual worker awards, identifying and handling non-award matters related to wages. Application of the National Award and other agreements to wage administration, especially where such agreements may interact with or supersede awards. Knowledge of approaches to wage setting - fixed single rates, experience grading, merit payment etc. Piece rate programs. Development and maintenance of salary system, white collar employees - award, non-award. How to determine up-to-date salary 'market' information. Application of Labour and Industry Act to non-award situations. Fringe benefits - advantages and disadvantages. Application of EDP to salary and wage systems.

Personnel 2A (TS230) (1 unit)
This unit is designed to provide a background in employee health, safety and welfare. The main topics include: responsibility for accident prevention and the legal obligations for industrial safety resulting from statutes and regulations; promotion of safety committees and programs within the company; basic eye protection and hearing conservation programs; basic plans for fire prevention; maintaining a system for safety reporting and the collection of statistics; workers' compensation administration; legal requirements for fixed aid equipment and medical centres; identification of job and health hazards and appropriate corrective and preventative action. The role of personnel officers in the area of welfare and the identification of services that should be sought from community specialists; counselling for induction; retirement and other purposes; other employee services in areas such as pensions, credit unions; recreation; housing; cafes, staff discounts and education.

Personnel 2B (TS231) (1 unit)
This unit has been re-named "Industrial Relations C". See details under that title.

Swinburne College of TAFE

Personnel 3A (TS330) (Previously Personnel 2D) (1 unit)
Outline of the historical development of the personnel function, evaluation of the various types of personnel structures and their role within organisations. Identify personnel policy development requirements and to formulate and administer appropriate policies in given situations. Evaluation of organisational development techniques, their application to an organisation and the personnel specialist's role in their application. To undertake a case study of a personnel area and apply the total knowledge from the course to that study.

Production Techniques 1A (TS150) (1 unit)
Introduces manufacturing industries and sub-systems. Traces the development of the production function. Looks at the problems and aims of the production function. Terminology used in production functions. Development and location of production control in various companies large and small. Types of production organizations examining the position of the production function in each.

An examination of the functions within the production department, a look at the need for and methods of forecasting.

Production Techniques 1B (TS151) (1 unit)
Examination of various production control procedures, to outline the advantages of each, and to determine why and when they are used. The function and scope of the estimating department, the various methods of estimating; use of associated estimating documents and the preparation of an estimate report: to prepare various schedules as required by management including rolling master schedules, production programs and machine load charts. An examination of the basic techniques of planning and control and scheduling, inventory control procedures including a definition of inventory control and showing the need for minimising the cost of inventories.

Production Techniques 2A (TS250) (1 unit)
More sophisticated examination of the production management roles in organisations, policies, forecasting, estimating and control to achieve economic operation of the company.

Production Techniques 2B (TS251)
This unit provides a background in production organisation and control systems. The main topics include: factory design and the layout of production plant and services; decision-making on automation and equipment selection; methods of materials handling; assurance of the original manufactured quality level in materials handling; evaluation of methods of production control and efficiency reporting. The use of group technology in the control process. Production scheduling; objectives, problems, guidelines and solutions to problems. Various scheduling techniques including PERT and CPM. Information systems including the design of documentation flows; the use of computer systems in production control and control.

Promotional Techniques (TS262) (1 unit)
Examine the interaction of research, merchandising, advertising and packaging with promotion of a product or image. Students will be required to produce a sales promotion plan from a case study from consumer, industrial, or service industries. Topics covered include the application of market research in promotion, merchandising techniques in various types of organisations and situations, the use of advertising and how to evaluate the effectiveness of a promotional plan.

Sales Management 1 (TS260)
Sales Management: responsibilities and duties of the sales manager; sales forecasting and budgets; marketing and sales territory organisation; sales force planning; merchandising and sales promotion.

Sales Management 2 (TS261)
Sales Management: how to establish and manage a sales team; recruitment and selection; sales training; methods of control and motivation; sales appraisal systems and staff development.

Salesmanship (TS162) (2 units)
A course designed to identify and develop the quality and skills required to be a successful sales person. Emphasis is on practical skills and role-plays. Topics covered include: the role of the salesman, understanding buyer psychology, selling and merchandising techniques, time management and sales planning; the production and conduct of a sales presentation. Students will be required to prepare and conduct a sales interview covering and demonstrating the following: the opening, the use of aids, selling and benefits, overcoming objections and closing the sale.

Secretarial Practice A and B (TS165) and (TS166) (1 unit each)
Understanding role of secretary as an assistant to management, apply secretarial procedures, promote good human relations, skills of shorthand and typing, basis for more advanced studies.
Secretarial Projects A (TS265) (2 units)
To enable students to receive an integrated course of training so that they can complete the duties of a secretary to intermediate level of management in regard to stenography, typing and general secretarial practice. To receive sufficient shorthand and typewriting practice to achieve a speed of 120 w.p.m. shorthand and 50 w.p.m. typing.

Secretarial Projects B (TS266) (2 units)
To enable students to receive an integrated course of training so that they can complete the non-stenographic duties and responsibilities of a secretary to intermediate level of management, this subject is concerned mainly with secretarial office tasks and assignments. To have sufficient typewriting practice to achieve a speed of 50 w.p.m. in typewriting.

Shorthand (TS190) (Full year non-credit subject)
Development of knowledge and skill in shorthand (Pitman’s) as a means of communication. The shorthand system will be studied with the aim that students will be able to transcribe shorthand notes fluently and accurately from both speech and office style dictation. This subject will be assessed internally by a theory test and transcription of business matter of average difficulty from the 700 common words list, of one and a half minutes at 50 wpm with 95% accuracy. The pass mark for the theory component is 60%.

Shorthand Speed Development (TS891) (1 unit)
This subject is aimed at further developing the skills learnt in Shorthand Theory. Assessment consists of two components:

- Speed — a final examination to be externally set and marked — 3 minutes at 80 wpm with 95% accuracy.
- Stenography — externally set, internally marked 2 hour examination to include office style dictation.

Supply Procedures 1A (TS170) (1 unit)
Topics covered include: the supply organisation — its role, responsibilities and place within an organisation, supply personnel and systems and the implications of EDP, ethics, the law and the responsibility to local industries.

Supply Procedures 1B (TS171) (1 unit)
Topics covered include: materials standardisation and simplification, tender procedure, selection of suppliers, economic ordering quantities, negotiation control of goods, sales tax.

Supply Procedures 2A (TS270) (1 unit)
Topics covered include: import and export payment, insurance, tariffs, customs and government policy, purchasing and market research, network analysis, methods of obtaining goods and the evaluation of the different methods.

Supply Procedures 2B (TS271) (1 unit)
Topics covered include: project buying and construction jobs, value analysis, selection of capital equipment and application, transport, stores and warehouse planning, personnel, procedures and handling, packaging and containerisation, raw materials.

Training Manpower Planning (TS340) (Previously Personnel 2C) (1 unit)
Organisational planning, management by objectives, relationship of manpower planning to organisational plans, assessing the organisation’s human resources, prediction of future manpower requirements, appraisal of management quality, analysing training needs and deficiencies, preparation of submission for training programs, systems approach to job analysis.

Training Techniques (TS341) (1 unit)
Characteristics of adults as learners, principles of learning, training aids, program summary and session plans, planning a training session, classification of training objectives, learner performance objectives, training methods, questioning skills, presentation of training session, dealing with problems arising in training session, need for evaluation, trainer effectiveness, planning and implementing trainer evaluation.

Training Practices (TS342) (1 unit)
Courses and programs available, resources for course design and presentation, reinforcement audio-visual operating skills, development and presentation of a training program, training administration, pre- and post-course testing, marketing of training services.

Transcription Skills (TS882) (1 unit)
This subject aims to develop the skill of audio-typing, and to develop the ability to spell, punctuate, capitalise, proofread, construct correct sentences, recognize and correct improper sentences, use appropriate vocabulary, listen and follow directions, take notes and compose correspondence.

Typewriting Production 1 and 2 (TS880 and TS881) (2 units each)
Typewriting Production is a vocational subject designed to meet the needs identified by industry. Students will acquire knowledge, attitudes and skills which will enable them to:

- attain a touch typewriting keyboard speed and accuracy rating that meets the needs of industry;
- produce typed work at a progressively increasing production rate and at a consistently mailable standard;
- produce typed tasks relevant to office work;
- proofread and edit work to mailable standard;
- develop their resourcefulness, efficiency and organisational abilities.

Word Processing 1 and 2 (TS883 and TS884) (1 unit each)
This subject is aimed for students to gain “hands-on” word processing training and an over-all understanding of word information technology. They will be able to:

- gain an awareness of different types of equipment and their capabilities;
- explain features and limitations of word processing systems;
- understand the importance of word processing in the handling of information and the role of the word processor operator within a business organisation;
- carry out specific functions and operations of word processing equipment by keying in a range of business documents.

Word processing theory is incorporated into the word processing practical classes to continually stress the importance of its application within an organisation.

Work Methods Improvements 2C, 2D (TF286, TF287) (1 unit each)
Value analysis, Product costing, Maintenance, Safety, CPM and PERT quality control, EDP and work improvement, Packaging, Materials control. Production planning.

Work Measurement 3 (TF382) (2 units)
Wage payment plans. Labour budgets and controls. Complete techniques project.

Work Study 1 — Method Study (TF101) (Previously Work Method Improvement 1A (TF184)) (1 unit each)
This subject is concerned with productivity and the application of method study techniques to improve it, the main topics are: definition and measurement of productivity, Methods of improving productivity, Union versus management conflict over productivity issues, the benefits of productivity increases for employees. Companies and the community, Setting priorities for tasks requiring method study, Cost benefit calculations, Assessment of human resource implications of changing work methods. The use of charting in method study, Selecting and drawing the most appropriate type of chart to record a particular job or process. Analysis of an existing method and the development of a new method. Preparation of submissions to management showing costs, sketches, phototypes and pilot runs.
The objective in this unit is to enable the student to apply work measurement techniques to any relevant task. The main topics are as follows: activity sampling, including its statistical principles and uses, advantages and disadvantages, procedures for application, forms design, confidence and accuracy calculations, control charts, standards setting and production study. Group timing technique which includes relationship to activity sampling, advantages and disadvantages, procedures for making a study, and statistical calculations for setting a standard time. Machine interference including the following topics, man and multi-machine workloads, cyclic and random interference, service time calculations, tables and formulae, application of allowances, the activity sampling approach to machine allowance and costs associated with allocating machines to operators. Estimating techniques including the analytical estimating method, estimator's qualifications, uses of analytical estimating. Estimates based on engineering performance standards.

This unit covers the following topics. The major components of a financial information system, data collection methods and types of reports. The need for financial information and how it is used. Analysis and interpretation of balance sheets, profit and loss statements, cash flow statements and manufacturing statements. Use of financial ratios to evaluate solvency, efficiency and profitability. Comparison of ratios with industry averages and prior periods. Standard costing systems and break-even analysis. Financial decision-making on capital expenditure and make or buy problems. Preparing cost/benefit analyses. Incentive wages plans including the main types, requirements, effects on output and industrial relations, limitations and wage calculations. Design of a complete incentive scheme including setting of standards, recording of output and the labour control system. Designing a group incentive scheme. The measured day work system including a comparison with incentive plans, setting performance standards and appropriate labour control. Design of a labour cost analysis system.

The general purpose in this unit is to enable students to understand the man-machine work environment relationships affecting human and equipment performance. The main topics are: ergonomicism/human factors including human senses, the nature of ergonomics and the man-machine relationship. The design of machines, equipment and the workplace. The effects of noise, illumination, heating and ventilation and the Australian standards relating to these. The effects of fatigue and stress. Benefits of good housekeeping. Risks associated with pollutants, control methods and legislative requirements. Plant layout including history and types of plant layout, approaches to plant layout, drawing standards, systematic layout planning and checklists for plant layouts. Materials handling systems and the selection of suitable equipment.

This unit provides an understanding of the factors affecting project planning and enables the student to apply network analysis techniques to planning tasks. The topics include, a brief outline of the origins of the CPM/PERT technique, comparison of networks with conventional bar charts and the applicability of networks and bar charts. Networking conventions and establishing logical relationships between activities. Preparation of networks for given projects. Forward and backward pass calculations and the identification of critical paths. Total, free and independent float. Designing a float table. Converting a network into a time-bar diagram. Resource allocation and the manipulation of float. The costing of projects including the increased costs of 'crashing' to reduce activity directions and probability of achieving deadlines and cost estimates. PERT and its relationship to CPM. Applicability of PERT and an appreciation of precedence diagrams.
HSC Evening Classes

The following subjects are taught by the Business Studies Department:

Accounting (TS901)
Economics (TS902)
Legal Studies (TS903)

For a complete description of all HSC subjects, see end of General Studies section.
Academic staff .................................................. CT50
Electrical and electronic courses ......................... CT50
  — Apprenticeship
    — Electrical Mechanics .................................. CT52
  — Certificate
    — Basic Electronics .................................. CT52
    — Technician Electrical: Industrial Electronics Stream .................................. CT53
    — Industrial Control Stream ................................. CT53
  — Post Trade Certificate
    — Industrial Electronics .................................. CT53
  — Certificate of Technology
    — Electrical ........................................ CT54
    — Electronics ........................................ CT54
  — Cooperative Certificate of Technology
    — Electrical or Electronics .................................. CT55
Subject details ............................................. CT59

Machines and materials courses ......................... CT62
  — Apprenticeships
    — Fitting and machining .................................. CT63
    — Boilermaking and structural steel fabrication .................................. CT64
  — Mechanical Technician Certificates
    — Refrigeration and air-conditioning ......................... CT64
    — Fluid power ........................................ CT64
    — Thermal plant ........................................ CT64
    — Drafting ........................................... CT64
    — Production ........................................... CT65
  — Certificate of Technology
    — Mechanical ........................................ CT65
    — Mechanical design drafting .............................. CT66
    — Production (Work study) .................................. CT67
    — Manufacturing engineering .............................. CT67
    — Production (Tooling design) .............................. CT68
  — Further Certificate of Technology
    — Quality Control ........................................ CT69
  — Post-trade courses
    — Toolmaking ........................................ CT69
    — Electric welding ...................................... CT70
    — Electric welding (special course) ...................... CT70
    — Introduction to welding .................................. CT70
    — Fitting and machining (other than apprentices) ............. CT70
Subject details ............................................. CT70
Electrical and Electronic courses

The following courses are offered by the Electrical and Electronics Department:

Apprenticeship course (Electrical Mechanics)

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 Technical and Further Education (TAFE) Board of Victoria.

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 may carry out electrical wiring work.

Certificate Course

E42ECE Basic Electronics Certificate

A basic vocational program incorporating the common core elements of Certificate of Technology — Electronics and the Technician Certificate-Electrical (Industrial Electronics Stream)

The program is designed to develop in students the range of skills and knowledge commonly required by all personnel in the various occupational classifications existing throughout the electronics and associated industries.

E34ECB Electrical — Industrial Electronics Strand

E34ECB Electrical — Electrical Industrial Control Strand.

The electrical technician courses provide valuable training in specialist 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. Exemptions are granted for relevant subjects at year 11 level.

Tradesmen who undertake a technician course will be required to attend classes on two evenings per week unless exemptions are granted for relevant subjects passed at year 11 level.

Post-trade Certificates

E33ECU Industrial Electronics Certificate course

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 as part of an electrical technician course.

An electrical tradesman can qualify for an electrical technician certificate by completing the outstanding subjects as listed under the electrical technician courses.
E33ECF  Electrical Industrial Control Certificate
(formerly Electric Motor Control)

Career potential
The course is designed to provide electrical tradesmen, techni-
cians and people employed in the electrical switchgear in-
dustry with the relevant knowledge to install and maintain
sophisticated electric motor control equipment in industrial
installations.

Subjects are normally available as evening classes or day
classes.

Certificate of Technology courses
Certificate of Technology (COT) courses are designed to train
engineering associates who are the immediate support staff for
professional engineers in industry.

The course consists of a number of compulsory core subjects
and a number of elective subjects to suit a student's needs or
interests. Each subject is allocated a value in course units. The
elective subjects cover specialist areas such as Digital Elec-
tronics, Microprocessors, and Electrical Design.

To complete a Certificate of Technology course successfully
the candidate must complete a minimum of 30 subject units
plus two years' relevant industrial experience.

The students could be involved in any of the following areas in
their employment: design development, installation, commis-
sioning, operations or maintenance of plant or equipment
associated with the electrical and electronics industry.

The courses offered are:
- E21ECD  Certificate of Technology (Electrical)
- E21ECW  Certificate of Technology (Electronic)
- E21ECC  Cooperative Certificate of Technology (Electrical
          and Electronics)

Membership of associations
Students completing the course are academically qualified for
admission as graduate members of the Australian institute of
Engineering Associates.

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.

Cooperative study
A feature of Swinburne engineering courses is their three year
cooperative education format. In a cooperative course the stu-
dent learns in both an academic and a work situation, where
these two phases of learning are related in an overall plan.

The work experience is arranged by Swinburne and under-
taken in two semesters, each of six months' duration, during
the second and third years of the course. While working, the
student is supervised both by the employer and a member of
the Swinburne academic staff who acts as the student's in-
dustrial tutor. Satisfactory completion of each work experience
period is a prerequisite for admission to the next academic
stage of the course.

Swinburne College of TAFE

Entrance requirements
Students must have year 11 standard in:
- English
- Mathematics A
- Mathematics B
- Physics or a satisfactory result in Technician Science (A)
- Technical Drawing (Graphics) for the Design Drafting course
(not essential), or approved equivalents — refer to head of the department.

Mature-age students without the above qualifications are in-
vited to discuss this with the head of the department.

Exemptions
Should be referred to the head of the department with suitable
written evidence to support the claim.

Enquiries
Mr. F. Gaunt 819 8493.
Apprenticeship Course

**E32ECG  Apprenticeship: Electrical Mechanics**

<table>
<thead>
<tr>
<th>Course structure</th>
<th>Hours week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st year</strong></td>
<td></td>
</tr>
<tr>
<td>TEL11</td>
<td></td>
</tr>
<tr>
<td>Safety Principles</td>
<td></td>
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<tr>
<td>TEL12</td>
<td></td>
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<tr>
<td>Hand and Power Tools</td>
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<tr>
<td>TEL13</td>
<td></td>
</tr>
<tr>
<td>Basic Connections</td>
<td></td>
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<tr>
<td>TEL14</td>
<td></td>
</tr>
<tr>
<td>Basic Wiring Techniques</td>
<td></td>
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<tr>
<td>TEL15</td>
<td></td>
</tr>
<tr>
<td>Introduction to Electrical Supply</td>
<td>8</td>
</tr>
<tr>
<td>TEL16</td>
<td></td>
</tr>
<tr>
<td>Use of Instruments</td>
<td></td>
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<tr>
<td>TEL17</td>
<td></td>
</tr>
<tr>
<td>Electrical units and Calculations</td>
<td></td>
</tr>
<tr>
<td>TEL18</td>
<td></td>
</tr>
<tr>
<td>Wiring Installation Requirements, Terminology</td>
<td></td>
</tr>
<tr>
<td>TEL19</td>
<td></td>
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<tr>
<td>Earthing Principles</td>
<td></td>
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<tr>
<td>TEL20</td>
<td></td>
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<tr>
<td>Wiring Installation Techniques</td>
<td></td>
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<tr>
<td><strong>2nd year</strong></td>
<td></td>
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<tr>
<td>TEL21</td>
<td></td>
</tr>
<tr>
<td>Circuit and Plan Reading</td>
<td></td>
</tr>
<tr>
<td>TEL22</td>
<td></td>
</tr>
<tr>
<td>AC Concepts and Effects</td>
<td></td>
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<tr>
<td>TEL23</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td></td>
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<tr>
<td>TEL24</td>
<td></td>
</tr>
<tr>
<td>Supply Authority Requirements</td>
<td></td>
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<tr>
<td>TEL25</td>
<td></td>
</tr>
<tr>
<td>Fabrication Skills</td>
<td></td>
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<tr>
<td>TEL26</td>
<td></td>
</tr>
<tr>
<td>Wiring Installation Techniques</td>
<td></td>
</tr>
<tr>
<td><strong>3rd year</strong></td>
<td></td>
</tr>
<tr>
<td>TEL31</td>
<td></td>
</tr>
<tr>
<td>AC Concepts and Effects</td>
<td></td>
</tr>
<tr>
<td>TEL32</td>
<td></td>
</tr>
<tr>
<td>Switchboards</td>
<td></td>
</tr>
<tr>
<td>TEL33</td>
<td></td>
</tr>
<tr>
<td>Motor Control</td>
<td></td>
</tr>
<tr>
<td>TEL34</td>
<td></td>
</tr>
<tr>
<td>Basic Solid State Devices</td>
<td></td>
</tr>
<tr>
<td>TEL35</td>
<td></td>
</tr>
<tr>
<td>Introduction to Special Equipment</td>
<td>8</td>
</tr>
<tr>
<td>TEL36</td>
<td></td>
</tr>
<tr>
<td>Supply Authority Requirements</td>
<td></td>
</tr>
<tr>
<td>TEL37</td>
<td></td>
</tr>
<tr>
<td>Electrical Applications</td>
<td></td>
</tr>
<tr>
<td>TEL38</td>
<td></td>
</tr>
<tr>
<td>Wiring Installation Techniques</td>
<td></td>
</tr>
</tbody>
</table>

**External examinations**

*(Education Department)*

<table>
<thead>
<tr>
<th>Subject examined</th>
<th>Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE301</td>
<td>'B' Cr. Th.</td>
</tr>
<tr>
<td>TE302</td>
<td>'B' Gr. Pr.</td>
</tr>
<tr>
<td>TE401</td>
<td>'A' Cr. Th.</td>
</tr>
<tr>
<td>TE402</td>
<td>'A' Gr. Pr.</td>
</tr>
</tbody>
</table>

Note:
- Before sitting for TE301 and/or TE302 Learning Units TEL11 to TEL34 inclusive must have been passed.
- Before sitting for TE401 and/or TE402 Learning Units TEL11 to TEL38 inclusive must have been passed.

Certificate Course

**E42ECE Basic Electronics Certificate**

The program leading to the award of Basic Electronics Certificate may be undertaken as:

(a) A terminal program in its own right
(b) The initial common core portion of the Certificate of Technology-Electronics
(c) The initial common core portion of the Industrial Electronics stream of the Technician Certificate-Electrical
(d) The initial common core portion of the Industrial Electronics Certificate.

At present, the above program is offered on a part-time basis only.

Part-time students will be able to complete the program through two years of part-time study either solely in the evenings or by a combination of day release and evening studies.

<table>
<thead>
<tr>
<th>Course structure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TE520</td>
<td>Basic DC Circuits</td>
</tr>
<tr>
<td>TE521</td>
<td>Inductance and Inductors</td>
</tr>
<tr>
<td>TE522</td>
<td>Capacitance and Capacitors</td>
</tr>
<tr>
<td>TE523</td>
<td>Basic AC Circuits</td>
</tr>
<tr>
<td>TE524</td>
<td>Semiconductor Fundamentals</td>
</tr>
<tr>
<td>TE525</td>
<td>Amplifier Principles</td>
</tr>
<tr>
<td>TE526</td>
<td>Amplifier Applications</td>
</tr>
<tr>
<td>TE527</td>
<td>Timing and Control Devices</td>
</tr>
<tr>
<td>TE528</td>
<td>DC Power Supplies</td>
</tr>
<tr>
<td>TE529</td>
<td>Digital Fundamentals</td>
</tr>
<tr>
<td>TE530</td>
<td>Digital Applications</td>
</tr>
<tr>
<td>TE531</td>
<td>Microprocessor Control Systems</td>
</tr>
<tr>
<td>TE532</td>
<td>Industrial Practices</td>
</tr>
<tr>
<td>TE533</td>
<td>Basic Test Equipment</td>
</tr>
<tr>
<td>TE534</td>
<td>Transducers</td>
</tr>
<tr>
<td>TE535</td>
<td>Humanities</td>
</tr>
</tbody>
</table>
Technician Certificate courses

E34ECB Technician Certificate — Electrical (Industrial Electronics Stream)

Entrance standard
These course 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 and Science at year 11 technical level. Minimum entry is satisfactory pass in year 10.

Course structure
Consists of a minimum of 50 units. The 24 basic learning units of the apprenticeship course (Basic Vocational) together with the 12 General Studies units are compulsory subjects. The remaining 14 units are Specialist Elective subjects and may be chosen from the listing below with a minimum of 4 units at Level E.

Compulsory core subjects (36 units)

<table>
<thead>
<tr>
<th>Level A — General Studies</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM130 Mathematics 1T</td>
<td>2</td>
</tr>
<tr>
<td>TM170 Science 1T</td>
<td>2</td>
</tr>
<tr>
<td>TH140 English 1T</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level B — General Studies</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM230 Mathematics 2T</td>
<td>2</td>
</tr>
<tr>
<td>TM270 Science 2T</td>
<td>2</td>
</tr>
<tr>
<td>TH240 English 2T</td>
<td>2</td>
</tr>
</tbody>
</table>

Specialist elective subjects (14 units with a minimum 4 units at Level E)

Level C
Basic Electronics Certificate — Part A
(for subjects see listing under Basic Electronics Certificate course)
TE150 Electrical Industrial Control 1T

Level D
Basic Electronics Certificate — Part B
TE440 Basic Programmable Controllers 6
TE650 Electronic Control Components 1
TE651 Electro-pneumatic/Hydraulic Control 2
TE652 Generating Plant Control 2

Level E (minimum of 4 units)
TE416 Microprocessors 1TA 2
TE417 Microprocessors 1TB 2
TE653 Electric Motor Speed Control 2
TE654 Advanced Programmable Controllers 1
TE655 Programmable Controller Applications 1
TE656 Crane and Conveyor Control 2
AC Electronic Motor Speed Control
DC Electronic Motor Speed Control
Eddy Current Electronic Speed Control
Analogue and Digital Sensors
Closed Loop Control Principles
Amplifiers and Control Elements

AC-DC Power Supplies
Industrial Heating
Induction Heating

Note: *Unit value to be determined.

Post-trade Certificates

E33ECU Industrial Electronics Certificate course

Entrance standard
Satisfactory completion of two years of an electrical trade course or an equivalent standard in any other approved course of study.

Course structure

<table>
<thead>
<tr>
<th>Stage 1 and 2</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>E42ECB Basic Electronics Certificate</td>
<td>4</td>
</tr>
</tbody>
</table>

Stage 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE413 Industrial Electronics 3T (General)</td>
<td>4</td>
</tr>
<tr>
<td>TE415 Industrial Electronics 3T (Digital)</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Microprocessor fundamentals
Students who have successfully completed TE415 (Digital), or E42ECB (BEC) are eligible to enrol in the following:

TE416 Microprocessors 1TA Semester 1 4
TE417 Microprocessors 1TB Semester 2 4

E33ECF Electrical Industrial Control (Formerly Electric Motor Control)

Entrance standard
Satisfactory completion of two years of an electrical trade course or an equivalent standard in any other approved course of study.

Course structure

<table>
<thead>
<tr>
<th>Level C</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE150 Electrical Industrial Control 11</td>
<td>4</td>
</tr>
</tbody>
</table>

Level D

<table>
<thead>
<tr>
<th>Course</th>
<th>Level C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE440 Basic Programmable Controllers</td>
<td>1</td>
</tr>
<tr>
<td>TE650 Electronic Control Components</td>
<td>1</td>
</tr>
<tr>
<td>TE651 Electro-pneumatic/Hydraulic Control</td>
<td>2</td>
</tr>
<tr>
<td>TE652 Generating Plant Control</td>
<td>2</td>
</tr>
</tbody>
</table>

Level E

<table>
<thead>
<tr>
<th>Course</th>
<th>Level C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE653 Electric Motor Speed Control</td>
<td>2</td>
</tr>
<tr>
<td>TE654 Advanced Programmable Controllers</td>
<td>1</td>
</tr>
<tr>
<td>TE655 Programmable Controller Applications</td>
<td>1</td>
</tr>
<tr>
<td>TE656 Crane and Conveyor Control</td>
<td>2</td>
</tr>
</tbody>
</table>

These subjects may be studied as post-trade subjects by anyone in the electrical industry, or they may be studied as an integral part of the electrical technician course by apprentices and electrical trades personnel.
Certificate of Technology courses

E21ECD Certificate of Technology - Electrical

Course structure
Consists of a minimum of 30 units as detailed below, together with a total equivalent of two years of relevant industrial experience.

Compulsory core subjects 17 units

Specialist elective subjects:
A minimum of 8 units at Level ‘C’ and/or ‘D’ including at least 4 units at Level ‘D’.

General elective subjects: maximum of 4 units.

Compulsory core subjects (17 units)

Level A

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE110</td>
<td>Applied Electricity 1H</td>
<td>2</td>
</tr>
<tr>
<td>TE123</td>
<td>Electronics 1H</td>
<td>1</td>
</tr>
<tr>
<td>TE140</td>
<td>Electrical Drafting Principles 1H</td>
<td>2</td>
</tr>
<tr>
<td>TH115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TH116</td>
<td>Communication Studies 1A, 1B</td>
<td>2</td>
</tr>
<tr>
<td>TM123</td>
<td>Mathematics 1E</td>
<td>2</td>
</tr>
</tbody>
</table>
| Level B

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE210</td>
<td>Applied Electricity 2H</td>
<td>2</td>
</tr>
<tr>
<td>TE223</td>
<td>Electronics 2H</td>
<td>2</td>
</tr>
<tr>
<td>TM223</td>
<td>Mathematics 2E</td>
<td>2</td>
</tr>
</tbody>
</table>
| Level C

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE310</td>
<td>Electrical Machines 1H</td>
</tr>
</tbody>
</table>

Specialist elective subjects

Level A

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF121</td>
<td>Applied Mechanics 1A and 1B</td>
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</tr>
</tbody>
</table>

Level B

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE233</td>
<td>Electrical Drafting 2H</td>
<td>2</td>
</tr>
<tr>
<td>TE236</td>
<td>Digital Electronics 1H</td>
<td>2</td>
</tr>
<tr>
<td>TF221</td>
<td>Applied Mechanics 2P, 3P, and 2B</td>
<td>2</td>
</tr>
</tbody>
</table>

Level C

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE323</td>
<td>Electronics 3H</td>
<td>2</td>
</tr>
<tr>
<td>TE361</td>
<td>Electrical Design 1H (Part A)</td>
<td>1</td>
</tr>
<tr>
<td>TE362</td>
<td>Electrical Design 1H (Part B)</td>
<td>1</td>
</tr>
<tr>
<td>TE320</td>
<td>Pulse and Digital Electronics 1H</td>
<td>2</td>
</tr>
<tr>
<td>TE338</td>
<td>Microprocessor Fundamentals</td>
<td>2</td>
</tr>
<tr>
<td>TE346</td>
<td>Digital Electronics 2H</td>
<td>2</td>
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</table>

Level D

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE460</td>
<td>Electrical Design 2H</td>
<td>2</td>
</tr>
<tr>
<td>TE420</td>
<td>Microprocessor Applications</td>
<td>2</td>
</tr>
<tr>
<td>TE419</td>
<td>Electrical Measurement 5</td>
<td>2</td>
</tr>
</tbody>
</table>

General elective subjects

Level A

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE125</td>
<td>Wiring and Assembly Methods 1H</td>
<td>2</td>
</tr>
<tr>
<td>TE235</td>
<td>Computer Studies 1H</td>
<td>2</td>
</tr>
<tr>
<td>TM160</td>
<td>Physics 1H</td>
<td>2</td>
</tr>
<tr>
<td>TH180</td>
<td>Social Science 1H</td>
<td>1</td>
</tr>
</tbody>
</table>

If a student is particularly interested in obtaining employment in the electrical drafting and design area, there are elective subjects which should be undertaken, i.e., Electrical Design 2, Electrical Drafting 2H.

E21ECW Certificate of Technology — Electronics

1981 Syllabus

Course structure
Consists of a minimum of 30 units as detailed below, together with a total equivalent of two years of relevant industrial experience.

Compulsory core subjects 15 units

Specialist elective subjects:
A minimum of 8 units at Level ‘C’ and/or ‘D’ including at least 4 units at level ‘D’.

General elective subjects: maximum of 4 units.

Compulsory core subjects (15 units)

Level A

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE119</td>
<td>Circuit Theory 1H</td>
<td>2</td>
</tr>
<tr>
<td>TE123</td>
<td>Electronics 1H</td>
<td>1</td>
</tr>
<tr>
<td>TH115, TH116</td>
<td>Communication Studies 1A, 1B</td>
<td>2</td>
</tr>
<tr>
<td>TM123</td>
<td>Mathematics 1E</td>
<td>2</td>
</tr>
</tbody>
</table>

Level B

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE219</td>
<td>Circuit Theory</td>
<td>2</td>
</tr>
<tr>
<td>TE223</td>
<td>Electronics 2H</td>
<td>2</td>
</tr>
<tr>
<td>TM223</td>
<td>Mathematics 2E</td>
<td>2</td>
</tr>
</tbody>
</table>

Level C

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE323</td>
<td>Electronics 3H</td>
</tr>
</tbody>
</table>

Specialist elective subjects

Level A

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE125</td>
<td>Wiring and Assembly Methods 1H</td>
<td>2</td>
</tr>
<tr>
<td>TE141</td>
<td>Electronic Drafting Principles</td>
<td>2</td>
</tr>
<tr>
<td>TE126</td>
<td>Electronic Circuits 1H</td>
<td>2</td>
</tr>
</tbody>
</table>

Level B

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE225</td>
<td>Wiring and Assembly Methods 2H</td>
<td>2</td>
</tr>
<tr>
<td>TE236</td>
<td>Digital Electronics 1H</td>
<td>2</td>
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</tbody>
</table>

Level C

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE319</td>
<td>Circuit Theory 1H</td>
<td>2</td>
</tr>
<tr>
<td>TE337</td>
<td>Pulse and Digital Electronics 1A</td>
<td>1</td>
</tr>
<tr>
<td>TE320</td>
<td>Pulse and Digital Electronics 1H</td>
<td>2</td>
</tr>
<tr>
<td>TE338</td>
<td>Microprocessor Fundamentals</td>
<td>2</td>
</tr>
<tr>
<td>TE436</td>
<td>Digital Electronics 2H</td>
<td>2</td>
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</tbody>
</table>

Level D

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE420</td>
<td>Communications Measurements 16 (A)</td>
<td>2</td>
</tr>
<tr>
<td>TE438</td>
<td>Microprocessor Applications</td>
<td>2</td>
</tr>
<tr>
<td>TE421</td>
<td>Communications Techniques</td>
<td>2</td>
</tr>
</tbody>
</table>

General elective subjects

Level A

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE355</td>
<td>Computer Studies 1H</td>
<td>2</td>
</tr>
<tr>
<td>TM160</td>
<td>Physics 1H</td>
<td>2</td>
</tr>
<tr>
<td>TH180</td>
<td>Social Science 1H</td>
<td>1</td>
</tr>
</tbody>
</table>

Level C

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM320</td>
<td>Mathematics 3H</td>
</tr>
</tbody>
</table>

CT54
**1985 Syllabus**

**Course structure**

Compulsory core subjects:
- Basic Electronics Certificate E42ECE 8 units
- Other core subjects 12 units

Specialist elective subjects:
- A minimum of 8 units at Level 'C' and/or 'D' including at least 4 units at level 'D'
- General Elective subjects: Maximum of 4 units

**Compulsory Core Subjects** (20 units)

<table>
<thead>
<tr>
<th>Level</th>
<th>Course Code</th>
<th>Course Name</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>E42ECE</td>
<td>Basic Electronics Certificate</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>TM123</td>
<td>Mathematics 1E</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>TH115/116</td>
<td>Communications Studies 1A/B</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>TE560</td>
<td>Circuit Theory 1B</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>TE570</td>
<td>Electronics 1B</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>TM223</td>
<td>Mathematics 2E</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TE323</td>
<td>Electronics 3H</td>
<td>2</td>
</tr>
</tbody>
</table>

**Specialist Elective Subjects**

<table>
<thead>
<tr>
<th>Level</th>
<th>Course Code</th>
<th>Course Name</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>TE141</td>
<td>Electronic Drafting Principles 1H</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>TE580</td>
<td>Analogue Communications 1</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>TE590</td>
<td>Data Communications 1</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>TE440</td>
<td>Basic Programmable Controllers</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>TE338</td>
<td>Microprocessor Fundamentals</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>TE581</td>
<td>Analogue Communications 2</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>TE591</td>
<td>Testing Techniques and Instruments</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>TE595</td>
<td>Electronic Systems</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>TE438</td>
<td>Microprocessor Applications</td>
<td>2</td>
</tr>
</tbody>
</table>

**21ECC  Cooperative Certificate of Technology – Electrical or Electronics**

**Course structure**

The academic portion of the cooperative certificate course is the same as the electrical or electronic courses but students must undertake electives as directed. The course structure is shown below:

- 1 year full-time study
- 6 months' work experience
- 6 months' full-time study
- 6 months' work experience
- 6 months' full-time study
- 1 year's work experience
- Certificate awarded

The first year of full-time study includes the Basic Electronics Certificate.

Students initially enrol in the Basic Electronics Certificate (E42ECE). After 6 months of study a cooperative selection exam is held. Successful students then change their course to the Cooperative Certificate of Technology – Electrical or Electronics (21ECC).
Swinburne College of TAFE
Certificate of Technology courses – Electrical

Notes:
* C.O.T. also awarded if Microprocessor and Power stream completed.
□ Core subject.
( ) Unit value.
G General elective
Swinburne College of TAFE
Certificate of Technology courses — Electronics
1987 Syllabus

LEVEL A

Specialist units

LEVEL B

PCAP

LEVEL C

APPROVED WORK

LEVEL D

Electronics Drafting

Physics

Electronic Troubleshooting

Notes: + Subject to student numbers.

Core subject.

1) Unit value.

General elective

2) Unit value.

General elective

Individual subjects have particular prerequisites
Swinburne College of TAFE
Certificate of Technology courses – Electronics
7985 Syllabus

Notes: + Subject to student numbers.
     □ Core subject.
     () Unit value.
     G General elective

B E C 8 core units
Electrical and Electronics subject details

Advanced Programmable Controllers (TE441)
Programming, NC contacts, data manipulation, input device scheduling, report generation safety. Design and editing of programs, control systems analysis, peripherals, analogue inputs and outputs, communication modes.
A more detailed syllabus is available on request.

Applied Electricity 1H (TE110)
This course provides the fundamentals for subsequent studies in the certificate courses of Electrical Design Drafting and Electrical Power. The main areas of study are electrical fundamentals, network analysis, magnetism, instruments and measurements, electromagnetism, electronics, EMF sources and AC fundamentals.

Applied Electricity 2H (TE210)
Topics include AC fundamentals, complex notation, network theorems, resonance, circuit Q, polyphase systems, circuit transients, complex wave forms and harmonic analysis, AC meters.

Basic Electronics Certificate (TE520-335)
Topics include basic DC circuits, conductors, insulators, voltage divider, constant current/voltage sources; inductance and inductors — magnetic flux, electric field, reluctance, permeability, inductance, basic AC circuits, capacitance and capacitors, semiconductor fundamentals, amplifier principles and application, timing and control devices, digital fundamentals, applications, microprocessor control systems, industrial practices, transducers, basic PC board manufacturing methods, rectifiers. More details available on request.

Basic Programmable Controllers (TE440)
Types of control, programmable controllers block diagram scanning, programming including timer and counters, fault finding, safety.

Circuit Theory 1H (TE119)
The purpose of this course is to provide the background knowledge of electrical fundamentals necessary for subsequent studies in the certificate courses concerned. The main areas of study are — basic electrical fundamentals, network analysis, magnetism, instruments and measurements, electromagnetism, electronics, AC fundamentals and rotating machines.

Circuit Theory 2H (TE219)
A course of study in AC fundamentals. Topics include — basic AC fundamentals, series circuits, parallel circuits, resonance, AC network analysis, power transformers, polyphase systems, rotating machines and instruments.

Circuit Theory 3H (TE319)
Topics include transfer functions, Z, Y and H parameters for two-port networks, coupled circuits, active filters — Butterworth, Tchebychev and Inverse and transmission line theory.

Communication Studies 1A, 1B (TH115, TH116)
The examination of methods of collecting, analysing and presenting factual information. Oral presentation, report writing, let- ters, memos and media analysis.

Communication Measurements 1H (TE420)
Practical meters, bridges, application of bridges, signal generators, cathode ray tube, cathode ray oscilloscope, time domain reflectometer, digital equipment, audio testing, group delay and system testing.

Communication Techniques (TE421)
Communication system, IF voltage amplifiers, IF oscillators, RF power amps, modulation, demodulation, superheterodyne receivers, transmission lines, antennae.

Computer Studies 1H (TE235)
To enable the student to become competent in writing programs in BASIC or another high level language. To solve problems in the electrical/electronic areas, and know how to use resident complex programs in the computer’s library.

Crane and Conveyor Control (TE655)
Crane principles, motor types, directional control, speed control, braking, conveyor types, eddy current coupling, cascading, conveyor stopp- ing devices, speed control, legal requirements, safety.

Digital Electronics 1H (TE236)
This subject has a theoretical and a practical base. The subject embraces topics such as: characteristics of waveforms, truth tables, Boolean algebra, Karnaugh maps, number systems and codes, logic families such as TTL and CMOS, MSI devices such as flip flops, shift registers, counters, adders etc., memory chips such as RAMS, visual display devices such as 7 segment LEDs, cold cathode display devices, hexadecimal displays etc.

Digital Electronics 2H (TE436)
Digital electronics is a subject that has a theoretical and practical base. The subject embraces topics such as: logic families, digital to analogue converters, analogue to digital converters, sequential logic control, synchronous and asynchronous counters, program logic controllers, memory devices such as ROMS, PROMS etc. Fast processing techniques such as ECL, Schottky TTL etc. Digital systems such as UARTS, USARTS, keyboard encoders etc.

Electrical Apparatus and Circuits (TE324)
Electrical components, DC and AC motor starters, automatic starters, speed control of motors, rectification, alarm systems, generating systems.

Electrical Design 1H (TE360)
Electrical contracting, electrical installations, lighting, electric motor selection, protection and control, estimating, projects.

Electrical Design 2H (TE460)
Elements of electrical design, conductors, insulation, magnetic circuits, elements of circuitry and systems.

Electrical Drafting 1T (TE227)
Standard symbols, switchboard layouts, electrical control gear, electric motors, dimensioning procedures.

Electrical Drafting 2T (TE325)
Pictorial sketching, circuit drawings (electrical and electronics), structures, installations, office practices.

Electrical Drafting 3T (TE425)
Advanced electrical and electronic circuit drawing, protective circuits, switchboard layouts, industrial installations, distribution.

Electrical Drafting Principles 1H (TE140)
The aim of the course is to provide an introduction to drafting conventions used in mechanical, electrical and civil engineering to develop the ability to interpret drawings and extract information from them.

Electrical Drafting 2H (TE233)
Types of electrical diagrams and drawings, electrical drafting symbols, presentation of circuit diagrams, drawing office practices, typical electrical drawings.

Electrical Industries Control 1T (TE150)
Study of component parts, full and reduced voltage starting, control of a wound rotor motor, braking, control circuit reading and design, safety.

Electrical Machines 1H (TE310)
Topics include machine operational principles, rotating machines, winding currents and EMFs, transformers, three-phase induction machines — starting, speed control, braking, single-phase motors, synchronous machines.

Electrical Measurements (TE419)
This subject is intended to provide the students with fundamental knowledge regarding the principles of electrical measurement and of the instruments used and their limitations and accuracy. Topics include standards, errors, analogue meters, digital meters, waveform errors, resistance measurement, AC bridge measurements, interference and screening, temperature measurements, inductance and capacitance measurement, cathode ray oscilloscope, magnetic measurements, instrument transformers, power circuit measurements, oscillographs, instrument selection and specifications.

Electro-pneumatics (TE651)
Principles, cylinders, valves, solenoids, timers, control circuit reading and design, safety.

Electronic Control Components (TE650)
Resistors, diodes, capacitors, Zener diodes, transistors, thyristors, test equipment, solid state contactors.

Generating Plant Control (TE652)
Alternators, excitation, metering, circuits, protection, paralleling, uninterruptible power supply systems.
Motor Speed Control (TE653)
D.C. control, 3-phase rotor control, pole changing, static frequency converters.

Programmable Controller Applications (TE654)
Programming NC contacts, data manipulation, input device scheduling, report generation safety, Design and editing of programs, control systems analysis, peripherals, analogue inputs and outputs, communication modes.
A more detailed syllabus is available on request.

Electrical Mechanics
Apprenticeship Course E32ECG

First Year Learning Units
TEL11 Safety Principles
Accident causeselevation, protective clothing/equipment, safety regulations and rules, first aid, fire safety.

TEL12 Hand and Power Tools
Files, saws, screwdrivers, pliers and cutters, hammers, drills, taps and dies, chisels, spanners, wrenches, power tools.

TEL13 Basic Conceptions
Flexible cord terminations, cable terminations

TEL14 Basic Wiring Techniques
Conductors and insulators, cable types, sizes, applications, cable colour standards, accessories.

TEL15 Introduction to Electrical Supply
Distribution system outline, voltage measuring and testing, introduction to earthing.

TEL16 Use of Instruments
Moving coil instrument, moving iron instrument, meter connections, dynamosmeter wattmeter, induction type energy meter, insulation and continuity tester.

TEL17 Electrical Units and Calculations
Current flow, effects of current flow, voltage, resistance and impedance, factors affecting resistance determination of resistor values, ohms law, power in resistive circuit, energy, series resistive circuits, parallel resistive circuits.

TEL18 Wiring Installation Requirements, Terminology
Regulations and rules, licensing requirements, terminology — building — installation.

TEL19 Earthing Principles
Earthing systems, equipment, conductors and electrodes.

TEL20 Wiring Installation Techniques
Communication skills, semi-enclosed rewirable fuses, HRC fuses, circuit breakers, fixing methods, wiring circuits, extension cord testing, appliance testing, installation testing.

Second Year Learning Units
TEL21 Circuit and Plan Reading
Construction materials and terminology, plans and symbols, electrical symbols for plans, circuit diagrams, mechanical diagrams and sketches.

TEL22 A.C. Concepts and Effects
Electromagnetic induction, Lenz's Law's effects, sine-wave generation, values and terminology, inductance principles, factors, effects, applications, capacitance principles, factors, effects, power in 3-phase balanceiunbalanced loads, more details available on request.

TEL23 Lighting
Terminology, units and symbols, construction, operation, features of light sources, principles of lighting layout, luminaire selection, lighting control (circuits, security/emergency lighting and lamp dimming controls) principles.

TEL24 Supply Authority Requirements
Licensing electrical mechanics, responsibilities of license holders, use and application of rulesregulations, testing of installations, fault recognition and location.

TEL25 Fabrication Skills
Use of hand and power tools, basic metal working, sheet metal and fabrication; rivet/fill techniques, soft/hard soldering, brazing, principles of arc welding, use of taps and dies.

TEL26 Wiring Installation Techniques
Selection of cable and applications, underground types, aerial types, voltage drop considerations, termination and joining cables, termination and application of MIMS cable, more details available on request.

Third Year Learning Units
TEL31 A.C. Concepts and Effects
Star/delta balanced/unbalanced loads, power and power factor, determining and Improving power factor, star/delta power relationships, current in neutral, phase/ (vector) representation

TEL32 Switchboards
Design/assembly of switchboards, regulatory requirements for switchboards

TEL33 Motor Control
Motor starting current requirements, operation features and application of starters. 3ph motor start connections, effects of under-voltage/overload — protection, reversing by 3ph motor control starters, types and applications of timers/relays More details available on request.

TEL34 Basic Solid State Devices
Principles, applications of common devices, principles of rectification, 1ph and 3ph rectifier circuits and applications, principles of filtering and regulation, DC output values of rectifiers.

TEL35 Introduction to Special Equipment
Function and application of electronic control of speed, heating and lighting, function and applications of — logic control, programmable control.

TEL36 Supply Authority Requirements
Licensing/responsibilities of LEM, use and application of rulesregulations, testing installations, fault recognition/locatiion, maximum demand determination, typesizes consumers mains, distribution boards/sub-mains.

TEL37 Electrical Applications
Covers DC machines, 3ph squirrel cage, 1ph motor, alternators, 1ph and 3ph transformers, construction, performance, features, protection. More details available on request.

TEL38 Electrical Applications
Covers DC machines, 3ph squirrel cage, 1ph motor, alternators, 1ph and 3ph transformers, construction, performance, features, protection. More details available on request.

TEL39 Wiring Installation Techniques
Selection of cable and accessories for installation or alteration, metering, location and applications, determination of material requirements.

Electrical Mechanical Qualifications
External Examinations (SEC Licensing)

Electrical Wiring Theory 3 (TE301)
Equivalent SEC 'B' Grade theory. This subject covers the theoretical content of the required electrical mechanics learning units.

Electrical Wiring Practical 2 and 3 (TE302)
Equivalent SEC 'B' Grade practice. This subject covers the practical content of the required electrical mechanics learning units.

Electrical Wiring Theory 4 (TE401)
Equivalent SEC 'A' Grade theory. This subject covers the theoretical content of the required electrical mechanics learning units.

Electrical wiring Practical 4 (TE402)
Equivalent SEC 'A' Grade theory. This subject covers the theoretical content of the required electrical mechanics learning units.

Electronic Fundamentals (TE170)
Safety principles, revision of electronic calculations, materials, registers, multimeters, AC and DC power, capacitors, inductors, transformers, semiconductor principles, semiconductor diodes, rectification and power supplies, multi-meters, cathode ray oscilloscope.

Electronics 1H (TE123)
A course designed to present an overview of modern electronics practice with emphasis on developing proficiency in measuring techniques and the basic understanding and limitations of test equipment.
Electronics 2H (TM223)
Introductory course dealing with the following topics — diode and zener diode applications, biasing and mid-frequency analysis of bipolar transistor amplifiers, field effect transistor amplifiers and vacuum tube amplifiers.

Electronics 3H (TE323)
Classification of amplifiers, feedback amplifiers, operational amplifiers, direct coupled amplifiers, differential amplifiers, frequency response of amplifiers, active filters, power amplifiers, harmonic distortion analysis in amplifiers, power and heat dissipation in amplifiers. Rectification and power supply specifications.

English 1T (TH140)
Development of ability to read with comprehension and appreciation. Practice in oral and written English. Preparation of clear, concise notes and summaries.

English 2T (TH240)

Industrial Electronics 3T (general) (TE413)

Industrial Electronics 3T (digital) (TE415)

Mathematics 1T (TM130)
Two hours per week daytime or evening, full year. Prerequisites: Year 10 mathematics or equivalent and adult entry. Assessment: Periodic tests and assignments and a final three-hour examination in November. This course teaches basic mathematics of algebra and trigonometry and assumes very limited pre-entry knowledge of those areas. Topics covered are fundamental operation of arithmetic and algebra, trigonometric graphs, trigonometry, factorisation, solution equations both linear and quadratic and logarithms.

References

Mathematics 2T (TM230)
Two hours per week, evening over two semesters. Prerequisites: Mathematics 1T, adult entry, or qualifications deemed equivalent by the Mathematics/Science head of department. Assessment: class work (forty per cent) and one final examination (sixty per cent). An extension of Mathematics 1T, the topics include: review of basic algebra, advanced units in algebra, graphs of special functions, analysis of experimental data, advanced units in trigonometry, arithmetic and geometric progressions, statistics.

References
Supplied notes; students enrolled in TM230 usually study Science 2T (TM270) concurrently, the two subjects being time-tabled in a four-hour block.

Mathematics 1E (TM123)
Full-time: Five hour per week (day) over one semester. Part-time: Two hours per week (day) over two semesters. Prerequisites: Completion of Year 11.
Assessment consists of two parts
1. Topic tests, one on each topic, contributing to thirty per cent of the final mark.
2. One three-hour examination held in mid-June (or in November) contributing to seventy per cent of the final mark.
Mathematics 1E is a service subject for a number of certificate qualifications offered. Topics covered are: numbers and the number line, equations and formulae, relations and functions, trigonometry and applications, number systems, complex numbers, Boolean algebra.

References

Mathematics 2E (TM223)
Five hours per week over one semester or two hours per week over two semesters, both day and evening. Prerequisites: Mathematics 1E, or qualifications deemed equivalent by the Mathematics/Science head of department. Assessment: Classwork (thirty per cent) and one final examination (seventy per cent).
An extension of Mathematics 1E (TM123) the topics include complex numbers, limits, differentiation and applications, integration, differential equations, Boolean algebra.

References

Microprocessors ITA (TE416)
Architecture, addressing modes, instructions, data sheets, basic processor system, address maps, fault-finding, write-edit and run programs using cross assembler, trouble shooting techniques.

Microprocessors ITB (TE417)
Keyboards, serial input/output, counter/timer, DMA techniques, floppy disks, audio cassette interface, microcomputer systems with emphasis on peripherals.

Microprocessor Fundamentals (TE438)
This subject develops a good understanding in the application of microprocessors and interfacing. The course consists of:
(a) the design and implementation of an interfacing problem.
(b) A project related to the interest of the student, or some area of the student's work.

Microprocessor Applications (TE439)
This subject gives a broad knowledge of microprocessors available in the market today. The areas covered are organisation of computers, memory types, memory organisation, MPU, operation of MPU with memory, addressing modes, instruction set, binary arithmetic, status register, programming techniques, minimal systems, interrupts, stacks, subroutines, PIA, AGIA, timing, DMA, programming aids, diagnostics.

Physics 1H (TM160)
Consists of seven compulsory units — systems of units, vectors, kinematics, dynamics 1, work power and energy, thermodynamics, electrostatics and two elective units selected from DC circuitry theory, electromagnetism, dynamics 11, light and acoustics, fluid mechanics, statics.

Power Systems (TE410)
This subject introduces concepts of generation, transmission, distribution, stability, fault calculations and protection schemes for electrical power systems.

Pulse and Digital Electronics 1A (TE337)
This subject gives a broad knowledge in the pulse techniques used in the interface of electronics circuits. Topics include compensated voltage dividers, low pass and high pass passive filters, clipping, clamping, timer, transistor switching, pulse devices.

Science 1T (TM170)
Two hours per week, day or evening over two semesters. Prerequisites. Year 10 science or equivalent and adult entry. Assessment. Periodic tests and assignments and a final three-hour examination in November. The course is aimed at teaching basic physics in SI units, vectors, equilibrium, kinematics, Newton's three laws of motions, work, power, and energy, heat, Ohm's law, and basic electric circuits.

Science 1T (TM170)
Two hours per week, day or evening over two semesters. Prerequisites. Year 10 science or equivalent and adult entry. Assessment. Periodic tests and assignments and a final three-hour examination in November. The course is aimed at teaching basic physics in SI units, vectors, equilibrium, kinematics, Newton's three laws of motions, work, power, and energy, heat, Ohm's law, and basic electric circuits.

References
Supplied notes. Students enrolled in TM170 usually study Mathematics 1T (TM130) concurrently, the two subjects being time-tabled in a four-hour block.

Science 2T (TM270)
Two hours per week, evening over two semesters. Prerequisites. Science 2T, adult entry, or qualifications deemed equivalent by the Mathematics/Science head of department. Assessment: Classwork (forty per cent) and one final examination (sixty per cent).
An extension of Science 1T, the topics include: electricity and magnetism, advanced units in electric circuits, fluid statics, fluid dynamics, optics and wave motion, thermodynamics, rotational kinematics, rotational dynamics.
Students enrolled in TM270 usually study Mathematics (TM230) concurrently, the two subjects being time-tabled in a four-hour block.

**Supervision (Electrical) (TE506)**


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### Machines and Materials courses

The following courses are offered by the Machines and Materials Department.

#### Apprenticeship courses

Part-time day apprenticeship courses in:

- **Fitting and Machining**
- **Boilermaking and Structural Steel Fabrication**

Both courses are structured according to the requirements of the Industrial Training Commission of Victoria.

#### Technician courses

**Mechanical**

Mechanical courses are divided into 4 streams:

- Refrigeration and Air-conditioning
- Fluid Power, Thermal Plant, Drafting

**Production**

This course has a set of core subjects and a selection of specialists elective subjects.

These courses provide training in the mechanical and production fields. Several courses are available within each field, and they provide valuable training for apprentices and tradesmen who wish to further their studies.

Apprentices, who are taking a technician course concurrently with their trade training, will be required to attend evening classes in addition to daytime trade training. Tradesmen who undertake a technician course will be required, as a general rule, to attend classes on two evenings per week. Some subjects are available in the day-time for students who can arrange release from work. The usual duration of a technician course is four years.

#### Certificate of Technology and Further Certificate of Technology courses

**Certificate of Technology**

Courses are based on a lore of basic mechanical subjects and a wide range of elective subjects, which provide the diverse needs of aides to professional mechanical engineers.

**Production**

Three streams are available in the field of production engineering. Tooling design, manufacturing and work study, are areas covered in these streams.

**Design Drafting**

Production, mechanical.

Students who are employed or seeking employment in drawing offices and possess the necessary qualifications may enter these courses.

**Further Certificate of Technology — Quality Control**

A part-time course for those employed in and/or seeking a qualification in quality control.
Post-apprentice and special courses

Fitting and Machining
This is an evening course in basic machine shop practice to provide engineering draftsmen, tradesmen's assistants and others with the opportunity to complement their own areas of occupation.

It also provides younger students seeking apprenticeships, an insight into the type of work they would be engaged in.

Toolmaking (Certificate)
Toolmaking is a post-apprenticeship (fitting and machining) course designed to provide advanced training for tradesmen. Classes are available during day and evening.

This course involves three years' study and includes practical training in jig boring, tool and gauge manufacture and thread grinding. A certificate is awarded on completion of the course.

Welding
The welding courses cover the syllabus prescribed by the Education Department of Victoria to give instruction in all branches of electric arc welding.

An education department certificate is granted to students who pass the final examination in grade three with fifty per cent in both theory and practice, and 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 DLI 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 SAA CB 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 degree students, technicians and second year metal fabrication apprentices.

Enquiries 819 8529

Apprenticeship courses

M32EFF  Apprenticeship, Fitting and Machining

Career potential
A part-time day course of three years' duration, or an accelerated course of sixteen hours per week first year and eight hours per week second year, designed to meet the requirements of the Industrial Training Commission of Victoria.

To qualify for the certificate of proficiency, an apprentice must attain the standard shown below:

Fitting and machining: a pass in basic modules 1 to 20 and any four alternative modules.

Course structure

Modular training
A module consists of the theory and practice together with the related knowledge required to perform a specified group of trade skills.

Eight hours each week for three years or sixteen hours per week first year and eight hours per week second year.

Course detail

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<th>Module</th>
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</table>

Swinburne College of TAFE
M32EJB  Boilermaking and Structural Steel Fabrication

General
This course is designed to train apprentices in the many practical skills required to carry out their trade.

Course structure
The complete course consists of 3 years of schooling.

The course is studied on a modular basis, each module dealing with a particular skill together with the necessary Theory and Developmental Drawing.

Course detail

<table>
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<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>Hours per week</th>
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<tr>
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<td>TF602</td>
<td>Module 2 – Theory and Practice</td>
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<tr>
<td>TF607</td>
<td>Module 7 – Related Instruction</td>
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<td>TF608</td>
<td>Module 8 – Related Instruction</td>
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<td>Module 9 – Theory and Practice</td>
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<td>TF611</td>
<td>Module 11 – Related Instruction</td>
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<td>TF619</td>
<td>Module 19 – Theory and Practice</td>
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<td>TF621</td>
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<td>TF622</td>
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<td>TF624</td>
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<tr>
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<td>Module 24B – Pressure Vessel</td>
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</table>

Technician courses

Entrance standard
These courses are available to apprentices who are prepared to undertake more study than is provided in the apprenticeship course. Students are usually required to complete English, Mathematics, Science and Technician Drawing at Leaving technical level at an early stage of the course. Minimum entry is satisfactory completion of a suitable year 10 course.

Career potential
Technician courses are essentially extensions of apprenticeship training designed so that more able apprentices or tradesmen may undertake advanced trade training in order to equip themselves for positions such as detail draftsmen, technical assistants or to qualify for entrance to higher courses such as the Certificate of Technology.

Entrance requirements
To gain admission to a course an applicant must:
(a) studying an apprenticeship course or be a qualified tradesman;
(b) have approved prerequisite qualifications.

Minimum entry level is satisfactory completion of a suitable year 10 course and the technician course is designed to take four years on this basis. However for students with a higher entry level and for apprentices released for additional hours by their employers this time is reduced.

Mechanical technicians

Course structure for students with approved year 10 English, Mathematics, Science.

(i) Eight (8) basic units as below.
(ii) Specialist practices as shown under specific courses.

Basic units

<table>
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<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
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<tr>
<td>TM130</td>
<td>Mathematics 1T</td>
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<tr>
<td>TM170</td>
<td>Science 1T</td>
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<tr>
<td>TF226</td>
<td>Technician Drawing 1</td>
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<td>TF240</td>
<td>English 2T</td>
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<tr>
<td>TF227</td>
<td>Metallurgy 1T</td>
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Specific courses

M34EHA  Technician – Mechanical (Refrigeration and Air-conditioning)

(i) Eight (8) basic units as above.
(ii) Specialist practices as below.

Basics

<table>
<thead>
<tr>
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<th>Subject</th>
<th>Hours per week</th>
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<td>TF338</td>
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<td>TP348</td>
<td>Air-conditioning 1T</td>
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<td>TP349</td>
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<td>TP449</td>
<td>Refrigeration 2T</td>
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M34EJB  Technician – Mechanical (Fluid Power)

(i) Eight (8) basic units as above.
(ii) Specialist practices and related studies as below.

Related studies

<table>
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<th>Hours per week</th>
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<td>TF119</td>
<td>Mechanics 1T</td>
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<td>TF339</td>
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<tr>
<td>TF358</td>
<td>Drafting Practice</td>
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M34EEC  Technician – Mechanical (Thermal Plant)

(i) Eight (8) basic units as above.
(ii) Specialist practices and related studies as below.

Related Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF319</td>
<td>Mechanics 1T</td>
<td>2</td>
</tr>
<tr>
<td>TF419</td>
<td>Mechanics 2T</td>
<td>2</td>
</tr>
<tr>
<td>TF339</td>
<td>Instrumentation</td>
<td></td>
</tr>
<tr>
<td>TF358</td>
<td>Drafting Practice</td>
<td></td>
</tr>
</tbody>
</table>

M34ENA  Technician – Mechanical (Drafting)

(i) Eight (8) basic units as above.
(ii) Specialist practices and related studies as below.
M21EEA  Certificate of Technology — Mechanical

Career potential
Graduates with a Certificate of Technology — Mechanical are employed as technical assistants, technical officers and works engineers. They are generally concerned with the maintenance of manufacturing equipment in order to maintain a smooth production flow, or with the development and manufacture of new ideas and products. Their field of application covers most industries including metal trades, clothing, food, mining and electrical.

Entrance requirements
The standard entry requirements for admission to the course are:
(a) Satisfactory completion of a year 11 course, including passes in English, Mathematics, Science and Technical Drawing/Engineering Graphics, to a standard approved by the college.
(b) Experience and maturity, sufficient to undertake the course.

Note
As the entrance requirements are flexible, prospective students who do not fit exactly into the categories as shown should not be deterred from applying.

Students should be prepared to devote four years of part-time study to complete the course, although it is possible to complete two years (stages) of part-time study in one year of full-time study.

Course structure
The course consists of thirty units taken from the areas below. Each area specifies the number of units to be taken. Each unit consists of two to three hours per week of study for a semester (three hours applies where practical work is involved).

Membership of Associations
Students completing the course are academically qualified for admission as graduate members of the Australian Institute of Engineering Associates.

<table>
<thead>
<tr>
<th>Year</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
<td></td>
</tr>
<tr>
<td>TM128</td>
<td>Mathematics 1P</td>
</tr>
<tr>
<td>TF116</td>
<td>Engineering Principles (Technician)</td>
</tr>
<tr>
<td>TH110</td>
<td>Technician Communications 1</td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td></td>
</tr>
<tr>
<td>TF119</td>
<td>Engineering Materials</td>
</tr>
<tr>
<td>TH210</td>
<td>Technician Communications 2</td>
</tr>
<tr>
<td>TF126</td>
<td>Technician Drafting 1T</td>
</tr>
<tr>
<td><strong>Year 3</strong></td>
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</tr>
<tr>
<td>TF359</td>
<td>Jig and Tool Drafting 1T</td>
</tr>
<tr>
<td>TF348</td>
<td>Metrology 1T</td>
</tr>
<tr>
<td>TF417</td>
<td>Production Processes and Development 1T</td>
</tr>
<tr>
<td>TH385</td>
<td>Communications for Supervisor5</td>
</tr>
<tr>
<td><strong>Year 4</strong></td>
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</tr>
<tr>
<td>TF501</td>
<td>Toolmaking 1 Theory</td>
</tr>
<tr>
<td>TF502</td>
<td>Toolmaking 1 Practice</td>
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<tr>
<td>Three (3) approved electives</td>
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<td>Electives</td>
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<tr>
<td>TF459</td>
<td>Jig and Tool Drafting 2T</td>
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<td>TF420</td>
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<tr>
<td>TF101</td>
<td>Work Study 1</td>
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<tr>
<td>TF102</td>
<td>Work Study 2</td>
</tr>
<tr>
<td>TF370</td>
<td>Tooling and Inspection</td>
</tr>
<tr>
<td>TF376</td>
<td>Fluid Power 1T</td>
</tr>
<tr>
<td>TF120</td>
<td>Ergonomics</td>
</tr>
<tr>
<td>TF230</td>
<td>Materials and Processes 1A</td>
</tr>
<tr>
<td>TF330</td>
<td>Materials and Processes 2A</td>
</tr>
<tr>
<td>TF503</td>
<td>Toolmaking 2 Theory</td>
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<tr>
<td>TF504</td>
<td>Toolmaking 2 Practice</td>
</tr>
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<td>TF518</td>
<td>Production Processes and Development 2T</td>
</tr>
<tr>
<td>TH385</td>
<td>Communications for Supervisor5</td>
</tr>
</tbody>
</table>

Note
The Technician Certificate is awarded on completion of thirty of the above units.
**Specialist area subjects**

1. Building and Mechanical Services 1AD, 1BD
   - Building and Mechanical Services 2AD, 2BD
   - Building and Mechanical Services 3AD, 3BD
   - Building and Mechanical Services 4AD, 4BD
   - Total 8

2. Fluid Power 1A, 1B
   - Applied Fluid Power 1A, 1B
   - Fluid Power 2A, 2B
   - Applied Fluid Power 2A, 2B
   - Total 8

3. Applied Mechanics 1AD, 1BD
   - Applied Mechanics 2AD, 2BD
   - Mechanical Design 3AD, 3BD
   - Applied Mechanics 3AM, 3BM
   - Total 8

4. Electrical Plant Operation 1A, 1B
   - Instrumentation and Controls 1A, 1B
   - Maintenance Management 1A, 1B
   - Plant Materials and Corrosion 1A, 1B
   - Total 8

**A final project in the specialist area that has been chosen, will provide one unit.**

---

**M21ENA Certificate of Technology — Mechanical Design Drafting**

**(1981 Syllabus)**

**Career potential**

Graduates with a Mechanical Design Drafting Certificate are employed as draftsmen, technical assistants, technical officers and project engineers.

They work on the design of equipment for the many and varied fields of mechanical and production engineering.

These fields are diverse and include the aircraft and motor car industries, food processing, clothing, footwear, air-conditioning, earth-moving and road construction equipment.

**Entrance requirements**

The standard entry requirements for admission to the course are:

(a) Satisfactory completion of a year 11 course, including passes in English, Mathematics, Science and Technical Drawing/Engineering Graphics to a standard approved by the college.

(b) Experience and maturity, sufficient to undertake the course.

**Note**

As the entry requirements are flexible, prospective students who do not fit exactly into the categories as shown should not be deterred from applying.

Students should be prepared to devote four years of part-time study to complete the course, although it is possible to complete two years (stages) of part-time study in one year of full-time study.

**Membership of associations**

Students completing the course are academically qualified for admission as graduate members of the Australian Institute of Engineering Associates.

**Course structure**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tr>
<tr>
<td>TF455</td>
<td>Introduction to Design 1AD</td>
</tr>
<tr>
<td>TF561</td>
<td>Introduction to Design and Drafting 1ABD</td>
</tr>
<tr>
<td>TF310</td>
<td>Engineering Materials and Processes 1AD</td>
</tr>
<tr>
<td>TF311</td>
<td>Engineering Materials and Processes 1BD</td>
</tr>
<tr>
<td>TM118</td>
<td>Mathematics 1AM</td>
</tr>
<tr>
<td>TF315</td>
<td>Engineering Principles 1AD</td>
</tr>
<tr>
<td>TF316</td>
<td>Engineering Principles 1BD</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TF453</td>
<td>Design for Economic Manufacture 1AD</td>
</tr>
<tr>
<td>TF242</td>
<td>Mechanical Design and Drafting 1ABD</td>
</tr>
<tr>
<td>TF225</td>
<td>Mechanical Design 1BD</td>
</tr>
<tr>
<td>TF235</td>
<td>Applied Mechanics 1AD</td>
</tr>
<tr>
<td>TF236</td>
<td>Applied Mechanics 1BD</td>
</tr>
<tr>
<td>TF232</td>
<td>Properties of Materials 1AD</td>
</tr>
<tr>
<td>TF410</td>
<td>Electrical Machine Applications 1AD</td>
</tr>
<tr>
<td>TF412</td>
<td>Thermodynamics and Heat Transfer 1AD</td>
</tr>
<tr>
<td>3</td>
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<tr>
<td>TF454</td>
<td>Design for Economic Manufacture 2AD</td>
</tr>
<tr>
<td>TF468</td>
<td>Mechanical Design 2AD</td>
</tr>
<tr>
<td>TF449</td>
<td>Mechanical Design 3AD</td>
</tr>
<tr>
<td>TF469</td>
<td>Mechanical Design 3BD</td>
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<td>TF375</td>
<td>Fluid Machinery and Applications 1AD</td>
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<tr>
<td>TF320</td>
<td>Applied Mechanics 2AD</td>
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<tr>
<td>TF322</td>
<td>Applied Mechanics 3BD</td>
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<tr>
<td>TF412</td>
<td>Thermodynamics and Heat Transfer 1AD</td>
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<tr>
<td>4</td>
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<tr>
<td>TF449</td>
<td>Design for Economic Manufactures 3AD</td>
</tr>
<tr>
<td>TF481</td>
<td>Mechanical Design 3AD</td>
</tr>
</tbody>
</table>

*Student to select ONE of:*

(a) Products and Mechanical Plant | 3
(b) Structures | 3
(c) Process Plant and Pipe Work | 3

Total 30

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**Stage l**

<table>
<thead>
<tr>
<th>Course</th>
<th>Unit value</th>
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</thead>
<tbody>
<tr>
<td>TF455</td>
<td>Introduction to Design 1AD</td>
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<tr>
<td>TF561</td>
<td>Introduction to Design and Drafting 1ABD</td>
</tr>
<tr>
<td>TF310</td>
<td>Engineering Materials and Processes 1AD</td>
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<tr>
<td>TF311</td>
<td>Engineering Materials and Processes 1BD</td>
</tr>
<tr>
<td>TM118</td>
<td>Mathematics 1AM</td>
</tr>
<tr>
<td>TF315</td>
<td>Engineering Principles 1AD</td>
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<tr>
<td>TF316</td>
<td>Engineering Principles 1BD</td>
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**Stage 2**

<table>
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<th>Unit value</th>
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<tr>
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<td>Design for Economic Manufacture 1AD</td>
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<tr>
<td>TF242</td>
<td>Mechanical Design and Drafting 1ABD</td>
</tr>
<tr>
<td>TF225</td>
<td>Mechanical Design 1BD</td>
</tr>
<tr>
<td>TF235</td>
<td>Applied Mechanics 1AD</td>
</tr>
<tr>
<td>TF236</td>
<td>Applied Mechanics 1BD</td>
</tr>
<tr>
<td>TF232</td>
<td>Properties of Materials 1AD</td>
</tr>
<tr>
<td>TF410</td>
<td>Electrical Machine Applications 1AD</td>
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**Stage 3**

<table>
<thead>
<tr>
<th>Course</th>
<th>Unit value</th>
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<tbody>
<tr>
<td>TF454</td>
<td>Design for Economic Manufacture 2AD</td>
</tr>
<tr>
<td>TF468</td>
<td>Mechanical Design 2AD</td>
</tr>
<tr>
<td>TF449</td>
<td>Mechanical Design 3AD</td>
</tr>
<tr>
<td>TF375</td>
<td>Fluid Machinery and Applications 1AD</td>
</tr>
<tr>
<td>TF320</td>
<td>Applied Mechanics 2AD</td>
</tr>
<tr>
<td>TF322</td>
<td>Applied Mechanics 3BD</td>
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<tr>
<td>TF412</td>
<td>Thermodynamics and Heat Transfer 1AD</td>
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</table>

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**Stage 4**

<table>
<thead>
<tr>
<th>Course</th>
<th>Unit value</th>
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<tbody>
<tr>
<td>TF449</td>
<td>Design for Economic Manufactures 3AD</td>
</tr>
<tr>
<td>TF481</td>
<td>Mechanical Design 3AD</td>
</tr>
</tbody>
</table>

*Student to select ONE of:*

(a) Products and Mechanical Plant | 3
(b) Structures | 3
(c) Process Plant and Pipe Work | 3

Total 30
M21EFC Certificate of Technology — Production (Work Study)

Career potential
The work study certificate course is designed specifically to develop the special skills needed to become a work study officer.

Particular attention is given to work measurement, methods improvement, production planning, tooling and inspection methods; the ways and means of increasing manufacturing productivity, of making maximum use of staff and equipment, guarding against accidents and observing the laws of the land especially if the manufacturing process involves toxic materials, obnoxious effluents and other safety hazards. Some time is also devoted to behavioural sciences, communication and report writing, the basic principles of organisation and on the business side of things, an introduction to economics and data processing. The certificate course has a bias towards engineering to meet the requirement of industry, but areas of special interest to the student can be incorporated. It is also considered to be a sound basis for more advanced courses leading to higher qualifications in several fields.

Entrance requirements
The standard entry requirements for admission to the course are:

(a) Satisfactory completion of a trade technical course.
(b) Satisfactory completion of an approved course at year 11 level which has included English, Social Studies and Mathematics.
(c) Evidence of sufficient managerial potential to warrant undertaking further education.

Note
Students should be prepared to devote four years of part-time study to complete the course.

Students completing the course are academically qualified for admission as graduate members of the Australian Institute of Industrial Engineers.

Course structure
The course consists of twenty-two core units and a minimum of eight elective units of which four must be from engineering practice and related studies.

Core units

<table>
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<tr>
<th>Basic</th>
<th>Unit value</th>
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<tbody>
<tr>
<td>TM120</td>
<td>Mathematics 1A and 1B</td>
</tr>
<tr>
<td>TM160</td>
<td>Physics 1A and 1B</td>
</tr>
<tr>
<td>TH115</td>
<td>Communication Studies 1A</td>
</tr>
<tr>
<td>TH116</td>
<td>Communication Studies 1B</td>
</tr>
<tr>
<td>TS215</td>
<td>Behavioural Studies 1A</td>
</tr>
<tr>
<td>TS216</td>
<td>Behavioural Studies 1B</td>
</tr>
<tr>
<td>TF101</td>
<td>Work Study 1</td>
</tr>
<tr>
<td>TF102</td>
<td>Work Study 2</td>
</tr>
<tr>
<td>TF103</td>
<td>Work Study 3</td>
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<tr>
<td>TF104</td>
<td>Work Study 4</td>
</tr>
<tr>
<td>TF370</td>
<td>Tooling and Inspection Methods</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Advanced</th>
<th>Unit value</th>
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<tbody>
<tr>
<td>TF105</td>
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<td>TF106</td>
<td>Work Study 6</td>
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<td>TF107</td>
<td>Work Study 7</td>
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<td>TF108</td>
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<td>TF286</td>
<td>Work Methods Improvement 2C</td>
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<td>TF287</td>
<td>Work Methods Improvement 2D</td>
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<td>TF382</td>
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Elective units

<table>
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<th>Engineering practice and related studies</th>
<th>Unit value</th>
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<tr>
<td>TF230</td>
<td>Materials and Processes 1A</td>
</tr>
<tr>
<td>TF271</td>
<td>Applied Mechanics 1A and 1B</td>
</tr>
<tr>
<td>TF327</td>
<td>Applied Heat 1A and 1B</td>
</tr>
<tr>
<td>TF417</td>
<td>Production Processes and Development 1A and 1B</td>
</tr>
<tr>
<td>TS128</td>
<td>Industry and Society</td>
</tr>
<tr>
<td>TS129</td>
<td>Introduction to Business/Service Organisations</td>
</tr>
<tr>
<td>TS230</td>
<td>Introduction to Economics 1A</td>
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<tr>
<td>TS239</td>
<td>Introduction to Economics 1B</td>
</tr>
<tr>
<td>TS243</td>
<td>Introduction to Law 1A</td>
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<tr>
<td>TS246</td>
<td>Introduction to Law 1B</td>
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<tr>
<td>TS120</td>
<td>Data processing</td>
</tr>
<tr>
<td>TS150</td>
<td>Production Techniques</td>
</tr>
<tr>
<td>TS151</td>
<td>Production Techniques 1B</td>
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</table>

M21EFR Certificate of Technology — Manufacturing Engineering

Core subjects

<table>
<thead>
<tr>
<th>Core subjects</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>TM128</td>
<td>Mathematics 1P</td>
</tr>
<tr>
<td>TH115/116</td>
<td>Communication Studies 1A and 1B</td>
</tr>
<tr>
<td>TF126</td>
<td>Technician Drafting</td>
</tr>
<tr>
<td>TF310/311</td>
<td>Engineering Materials and Processes 1A and 1B</td>
</tr>
<tr>
<td>TF359</td>
<td>Jig and Tool Drafting 1</td>
</tr>
<tr>
<td>TS318</td>
<td>Metrology 1T</td>
</tr>
<tr>
<td>TS453</td>
<td>Industrial Supervision</td>
</tr>
<tr>
<td>TS383</td>
<td>Modern Metal Cutting</td>
</tr>
<tr>
<td>TS391</td>
<td>Materials Handling 1B</td>
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<tr>
<td>TS531</td>
<td>Computer Aided Design/Computer Aided Manufacture — Basic</td>
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Electives

<table>
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<th>Electives</th>
<th>Units</th>
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<tbody>
<tr>
<td>TF304</td>
<td>Specialised Machine Tools</td>
</tr>
<tr>
<td>TF312/313</td>
<td>Engineering Materials 2A and 2B</td>
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<tr>
<td>TF332/333</td>
<td>Engineering Processes 2A and 2B</td>
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<td>TF901</td>
<td>Welding and Fabricating</td>
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<tr>
<td>TF451</td>
<td>Computer Aided Design/Computer Aided Manufacture — Advanced Robotics</td>
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<tr>
<td>TF452</td>
<td>Robotics</td>
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<td>TF491</td>
<td>Materials Handling 2AB</td>
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<tr>
<td>TF462</td>
<td>Reliability and Prototype Testing</td>
</tr>
<tr>
<td>TF195/196</td>
<td>Organisation and Management for Quality A and B</td>
</tr>
<tr>
<td>TF464</td>
<td>Product Liability and Product Recall</td>
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<tr>
<td>TF463</td>
<td>Quality Costs and Budgeting</td>
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<td>Electrical Manufacturing Techniques</td>
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<td>TF485</td>
<td>Hydraulics and Pneumatics</td>
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<td>Finishing Processes</td>
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<tr>
<td>TS385</td>
<td>Job Instruction and Presentation</td>
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Certificate to be awarded on completion of 30 units.
**Course structure**

<table>
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<th>Year</th>
<th>Course</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TM120 Mathematics 1A &amp; 1B</td>
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<td>TF154 Mechanical Drafting (Prod)</td>
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<td>TH115 Communication Studies 1A</td>
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<td>TF17b Communication Studies 18</td>
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<td>TF120 Ergonomics</td>
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<td>2</td>
<td>TF128 Machine Tools and Processes</td>
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<td>TF381 Metal Cutting 1</td>
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<td>TF228 Advanced Machine Tools</td>
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<td>3.2 Press Tools</td>
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<td>TF290 Die Drafting</td>
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<td></td>
<td>and Special Processes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TF489 Moulding and Drafting and Design</td>
<td>4</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

**Note**

Where Principals vary the prerequisite academic qualifications, students admitted without having reached the required standard in Engineering Graphics or Workshop Practice, will be required to undertake a preliminary course of study in these subjects.
**M22EFA**  Further Certificate of Technology — Quality Control

**Career potential**

In a highly technological and scientific world almost everything we come in contact with in everyday life is manufactured to a specific level of acceptance, whether it is on a ‘one-off’, batch or an assembly line basis.

The work of the quality control technologist is to ascertain to what extent the goods produced conform to suitable levels of accuracy and other criteria; thus maintaining the levels of interchangeability, quality, safety and economic feasibility so vital to our manufacturing industries.

The far-reaching effect of tasks performed by quality control technologists include:

a) protecting the consumer against the purchase of faulty manufactured goods,

b) Maintenance and promotion of the company’s image and reputation.

The field of application of quality control covers most industries including clothing, metal trades, electrical and food industries. Career opportunities are equally varied.

**Entrance requirements**

The standard entrance requirements for admission to the course are:

a) satisfactory completion of a Certificate of Technology or a Certificate of Applied Science with 2 years of relevant industrial experience.

b) experience and maturity, sufficient to undertake the course, and to be employed in some function of quality control.

Prospective students who do not fit exactly into the category (a) as shown should not be deterred from applying, as the course is designed to enable students from various fields involved in quality control to complete the Further Certificate.

**Duration of course**

2 Years

**Course structure**

The Further Certificate course is structured around 5 units of core subjects and a choice of 3 units of elective subjects.

### Core subjects

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM127</td>
<td>Statistics</td>
<td>1</td>
</tr>
<tr>
<td>TF197</td>
<td>Statistical Quality Control 1</td>
<td>2</td>
</tr>
<tr>
<td>TF195</td>
<td>Organisation and Management for Quality A</td>
<td>1</td>
</tr>
<tr>
<td>TF196</td>
<td>Organisation and Management for Quality B</td>
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</table>

### Elective subjects

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>TF297</td>
<td>Statistical Quality Control 2</td>
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</tr>
<tr>
<td>TF340</td>
<td>Principles of Measurement</td>
<td>1</td>
</tr>
<tr>
<td>TF317</td>
<td>Dimensional Metrology</td>
<td>1</td>
</tr>
<tr>
<td>TF253</td>
<td>Computer Appreciation and Applications to Quality Control</td>
<td>1</td>
</tr>
<tr>
<td>TF462</td>
<td>Reliability and Prototype Testing</td>
<td>1</td>
</tr>
<tr>
<td>TF463</td>
<td>Quality Costs and Budgeting</td>
<td>1</td>
</tr>
<tr>
<td>TF464</td>
<td>Product Liability and Product Recall Management</td>
<td>1</td>
</tr>
<tr>
<td>TF465</td>
<td>Quality Control Systems and their Assessment</td>
<td>1</td>
</tr>
<tr>
<td>TF467</td>
<td>Human Factors</td>
<td>1</td>
</tr>
</tbody>
</table>

**Post-trade courses**

**M33EFE**  Post-trade Certificate — Toolmaking

**Career potential**

Students who have already completed a Fitting and Machining apprenticeship course will develop a higher level of ability in the theory and practice of tools, gauges and development work which will enable them to enter more highly skilled and lucrative positions such as foremen and leading hands in a very wide variety of manufacturing industries.

This tool and gaugemaking course is of three years’ duration and available both day and evening i.e. one half-day or two evenings per week.

**Prerequisites**

Completion of a fitting and machining apprenticeship course in the basic twenty modules, plus four alternative modules from certain streams (C, H and I).

**Course structure**

### Area of study

**1st year**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF501</td>
<td>Toolmaking Theory 1</td>
</tr>
<tr>
<td>TF502</td>
<td>Toolmaking Practice 1</td>
</tr>
</tbody>
</table>

**Unit 1**

**Principal and basic applications**

Precision turning, precision boring, vertical spindle milling, precision grinding

**Unit 2**

**Associated studies, measurement and calculations**

Micrometers and indicators, verifiers, instruments, application of toolmaking formulae, trigonometry, gauge blocks, measurement of angles, straightness and squareness testing, measurement by optical projection

**Unit 3**

**Workshop and laboratory activities**

Turning operations, positioning of holes, milling operations, grinding operations.

**2nd year**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>TF503</td>
<td>Toolmaking Theory 2</td>
</tr>
<tr>
<td>TF504</td>
<td>Toolmaking Practice 2</td>
</tr>
</tbody>
</table>

**Unit 1**

Relief turning, jig boring, thread grinding, form tools, milled type cutters, tapping, precision grinding.

**Unit 2**

Calculations, thread measurement, surface finish, measurement of taper and form gauges

**Unit 3**

Relieved cutters, jig boring, thread gauges, form tools, taper reamer, taper gauges

**3rd year**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF505</td>
<td>Toolmaking Theory 3</td>
</tr>
<tr>
<td>TF506</td>
<td>Toolmaking Practice 3</td>
</tr>
</tbody>
</table>

**Unit 1**

Thread grinding 2, relief turning 2, cams, cutting tools, tool materials, jig boring 2, electro-machining, precision grinding.

**Unit 2**

Screw thread measurement, calculations, single and compound angles, optical measuring methods.

**Unit 3**

Thread grinding 2, cam manufacture, cutting tool manufacture, jig or bush plate, electrode manufacture, surface grinding.
M42EJB Electric Welding — Post-trade

General
The courses have been designed to meet the increasing demand for general instruction in welding processes. All courses cover both theory and practice.

To complete a course successfully, a student must obtain a pass in all grades of theory and practice and obtain at least fifty per cent of the marks allotted for each grade of welding.

Entrance requirements
There are no prerequisite qualifications for these courses. However, preference will be given to those students who are seeking welding qualifications in connection with their employment.

Certificates
The Victorian Department of Labour and Industry may grant Government Welding Certificates in accordance with Australian Standard 1796-1975, to applicants who have obtained a minimum of sixty-five per cent of marks for both Theory and Practice in Grade III Electric Welding examinations. Documentary evidence, satisfactory to the examination authority, of acceptable training and/or industrial experience is necessary.

Course structure
Each course consists of three years part-time study. Both courses are run separately. Time allocations for both theory and practice in each course are identical.

Subject | Hours
---|---
TF710 Electric Welding Theory | 2
TF711 Electric Welding Practice | 4
TF810 Electric Welding Theory | 2
TF811 Electric Welding Practice | 4
TF910 Electric Welding Theory | 2
TF911 Electric Welding Practice | 4

Electric Welding (Special Course)
A short course to enable qualified tradesmen to improve knowledge and skills in order to pass special government welding examinations.
TF415 Electric Welding Special

Introduction to Welding
A semester course designed to introduce tradesmen and others, working in allied trades to welding skills and to facilitate their entry into general welding courses.
TF708 Introduction to Welding

M42EJB Fitting and Machining — Other Than Apprentices

Career potential
This is an evening course in basic machine shop practice to provide engineering craftsmen and others working in allied trades an opportunity to study subjects parallel with those covered during apprenticeship.

The course is undertaken on a part-time basis of at least five hours per week. Students proceed at their own pace to complete the nineteen basic modules and the module 20 craft examination and four alternative modules.

Prerequisite
Applicants should have some work association with the fitting and machining trade and a genuine desire to become a skilled fitter and machinist.

Course structure
Modules 1-2A — See Machines and Materials subject details.

Machines and materials subject details

Air-conditioning 1T (TF348)
The study of air, temperature, humidity, the gas laws and how to use them. Change of state from liquid to vapour; superheated steam, condensation and the use of steam tables. Psychrometry, covering humidity, dew point, wet and dry bulb temperatures and measurement of air condition and instruments used.

Air-conditioning 2T (TF468)
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 Heat 1T and 1A and 1B (TF329)
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 2T and 2A and 2B (TF430 and TF427)
Extension of Applied Heat 1T. Steady flow energy equation, power cycles, boiler plant, condensers, turbines, refrigeration, combustion, heat transfer.

Applied Mechanics 1A and 1B (TF211)

Applied Mechanics 2A and 2B (TF221)

Applied Mechanics 1AD and 1BD (TF235 and TF236) (2 units)
Strength of materials, basic beam design, use of commercial steel codes, principles of stress, cam operation and profile.

Applied Mechanics 2AD and 2BD (TF320 and TF332) (2 units)
The application of principles of mechanics to multi-element systems, analysis of positive and non-positive drive systems.

Applied Mechanics 3A and 3B (TF328)

Applied Mechanics 3AM/BM (TF422/423)
Machines and mechanisms, vibrations, design components, machine frames and structures, balancing of reciprocating masses, variable speed and differential drives and couplings.

Basic Supervision (TS433)
This is the syllabus used in the Business Studies Supervision Certificate. It gives a basic understanding of the duties of a supervisor, types of behaviour encountered in people, the development of organisational programs, operation of a filing system, ways of improving efficiency and principles of delegation.

Behavioural Studies 1A and 1B (IS215 and TS216)
Becoming aware of one’s potentialities, interpersonal relationships, conflicts, difficult problem solving, sociology and psychology, limitations in handling certain situations and problems.
Boilermaking

Module 1 (TF601)
Introduction to the trade, recognition and identification of materials, selection and method of Slinging, crane hand signals.

Module 2 (TF602)
Calculations of circumferences and diameters of circles, marking out constructions, identification and use of fire extinguishers, oxy-acetylene welding and cutting. Safety precautions for confined spaces, hazardous locations and containers.

Module 3 (TF603)
Identification of rolled steel sections, proper use of hand tools, Hand straightening and bevelling, pins straightening, shearing, cropping and punching. Use of power hacksaw, Drilling, sharpening hand tools and drills.

Module 4 (TF604)
Flame-cutting, bevelling and piercing by hand, flame-cutting various sections and welding preparations. Straight line flame-cutting machine, profile flame-cutting machine, flame-cutting processes, machines and applications.

Module 5 (TF605)
Protective clothing and accessories for electric welding. Selection of electrodes by classification, electric welding techniques and exercises. Electrical terms associated with MIG welding, type of welded joints. Weld defects.

Module 6 (TF606)
General terms associated with gas welding and brazing. Types of joints, weld defects. Low temperature brazing, Hardfacing and corner gas welds. Flat brazing and braze-rod.

Module 7 (TF607)

Module 8 (TF608)

Module 9 (TF609)
Drilling, selection and use of portable grinders, dressing grinding wheels, distortion control, straightening by heat of metal.

Module 10 (TF610)
Flame-gouging, flame cutting anti piercing heavy plate, flame-cuttingprose patterns, safety precautions when using compressed gases.

Module 11 (TF611)
Fabrication pressed channel, calculations, forming of cylinders and sections, hopper fabrication.

Module 12 (TF612)
Layout and fabrication of pipe handrail, fabrication of steel panel point, layout and fabrication of pump pipe branch.

Module 13 (TF613)
Marking out cutting and fabrication of columns, fabrication and assembly of flange beams.

Module 14 (TF614)
Characteristics of electric welding current, electrode selection and characteristics. Electric welding techniques, fillet, multipass, horizontal plate, butt, plate to sections.

Module 15 (TF615)
Cases for MIG and TIG welding. Arc welding techniques on MIG, TIG and submerged arc. MIG/flux and TIG welding, outside, submerged arc butt weld, Arc gouging.

Module 16 (TF616)
Development of flat and curved surfaces. Exercises in develop-ment of oblique cylinders, pipe bends, cone angles, curved hoppers, rectangular to round transition piece, flange-to-back bend and pipe branch templates.

Module 17 (TF617)

Module 18 (TF618)
Heat treatment, heating and temperature measurement. Trade materials, properties and uses. Steel for pressure vessels and structural purposes.

Module 19 (TF619)

Module 20 (TF620)
Use of numerical control machines in the metal fabrication industry. High strength structural bolting, Fabrication of bolted splice joint.

Alternative Modules — General Fabrication

Module C21 (TF621)
Fabrication of lightweight hand-manufactured parts, layout, development and fabrication of 30° set-on pressure pipe branch.

Module C22 (TF622)
Module C23 (TF623) still in development stage

Module C24 (TF624)
CAD/CAM Basic (TF351)
CAD/CAM Advanced (TF451)

Covers: CAD/CAM Basic in more depth.

Communications for Supervisors (TH385)

This is an existing syllabus from the Business Studies Supervision Certificate.

Computing for Supervisors Studies 1A, 1B.

The examination of methods of collecting, organizing, evaluating and presenting factual information. Oral presentation, report writing, letter, memos and media analysis.

Computer Appreciation and Applications to Quality Control (TF253)

This subject provides an appreciation of the range of uses and methods of application of computers in Quality Control work, including concepts of computer, Basic, FORTRAN and COBOL programming, microprocessors, computer graphics, use of computer packages, quality control.

Costing and Estimating 

IAD (TF129)

Cost estimation from bills of materials. Budgeting of capital expenditure on maintenance projects. Economy of design. Calculations relating to engineering costs, profit, percentages, overheads, etc. Expenditure trends analysis. Project feasibility studies and management.

Financial Management.

Data Processing 1 (TS120)

Modern data processing techniques for the provision of information to managers. Problems that exist in the operations of business systems, and the methods to overcome these problems. How advanced business equipment operates. Data processing systems using manual, semi-automated and fully automated procedures. Program writing to solve simple problems. Specific areas covered include the preparation of suitable documentation for programs, system flow charts, the selection of appropriate input or output devices given particular problems and how they should be introduced.

Design for Economic Manufacture 1AD (TF453)

Capabilities of workshop tools, tools, gauging, casting and fabrication, welding, cutting methods, design for testing, value analysis, value engineering, NC machines, cost effects of tolerances.

Design for Economic Manufacture 2AD (TF454)

Consideration of economic factors in plant construction, fabrication and manufacturing processes.

Design for Economic Manufacture 3AD (TF449)

Designs for life cycle costs and quality control. Cost structures of typical businesses with batch and economical order quantities.
Dimensional Metrology (TF317)

Precision measuring techniques and application of principles of measurement. Length metrology (standards and gauges), flatness assessment, auto-calibrator and alignment telescope, surface texture, roundness, squareness and parallelism, co-ordinate measurement.

Drafting Practice 1T (TF358)

Geometric constructions relative to the interpretation of pipes, and ducting. Construction of involutes, cycloids and loci of points of mechanisms. Detail drafting relative to dies, forging, and fabricated parts.

Drafting Practice 2T (TF456)


Electrical Drafting 1H (TE133)

The aim of the course is to provide an appreciation of drafting convention used in mechanical, electrical and civil engineering and to develop an ability to interpret drawings and extract information from them.

Electrical Drafting 2H (TE233)

Types of electrical diagrams and drawings, electrical drafting symbols, presentation of circuit diagrams, drafting office practices, typical electrical drawings.

Electrical Machine Applications 1A (TE410)

Basic electronics, AC and DC generation, AC and DC motors, motor starting and protection, motor characteristics and selection.

Electrical Manufacturing Techniques (TF411)

This subject offers a general appraisal of electrical circuit diagrams and electrical control of pneumatic/hydraulic systems. It covers SAA symbols, identification and designation of components, printed circuit techniques, solenoid valves, control circuits and practical circuit examples.

Engineering Materials (TF119)

This syllabus is designed to give a basic knowledge of the properties and uses of common engineering materials, heat treatment, surface treatment, testing and corrosion. Practical work forms an important part of this program.

Engineering Materials and Processes 1AD and 1BD (TF310 and TF311)

A general appreciation of the following areas: properties of materials, characteristics of non-ferrous metals, plain carbon steels, alloying elements, cast iron, heat treatment, hearing materials, timber and concrete, use of machine tools, metal working processes, lubricants.

Engineering Materials 2A and 2B (TF312 and TF313)

A detailed study of plastics and steels in relation to properties, applications, chemical make-up and structure, testing methods. Non-ferrous metals are also studied in less detail, together with destructive and non-destructive testing.

Engineering Principles 1AD and 1BD (TF315 and TF316)

Study of moments, force systems, friction, optics, linear and circular motion, energy, basic electronics and sound.

Engineering Principles (Technician) (TF116)

This syllabus is designed to broaden the students' understanding of how the laws of physics apply in practical engineering. Students should therefore be able to reason, solve problems, and suggest modifications to improve existing procedures.

Engineering Processes 2A and 2B (TF332 and TF333)

A general appraisal of processes of forming plastic products. Other topics include composite materials, adhesives, powder metallurgy, EDM, investment casting, chemical milling and creep feed, and abrasive belt grinding.

English 1T (TH140)

Development of ability to read with comprehension and appreciation. Practice in oral and written English. Preparation of clear, concise notes and summaries.

English 2T (TH240)


Ergonomics (TF120)

This is the same syllabus as is used in the Certificate of Technology - Production Tooling Design. It gives students a basic understanding of what ergonomics is, and how it may be applied in all walks of life to improve efficiency and reduce fatigue and accidents.

Finishing Processes (TF352)

This unit is an introduction to the various types of finishing processes and the factors influencing the choice of coating and/or finish.

Fitting and Machining (Apprentices)

Module 1 (TF001)


Module 2 (TF002)

Lathe work. Safety. Operational planning.

Module 3 (TF003)


Module 4 (TF004)

Turning operations. Cutting fluids. Equipment used for setting up. Science and materials.

Module 5 (TF005)


Module 6 (TF006)

Turning operations. The shaping machine.

Module 7 (TF007)

Screwcutting. Grinding

Module 8 (TF008)


Module 9 (TF009)

Lathe operations, cemented carbide cutting tools, economical use of machine tools, indicators.

Module 10 (TF010)

Revision of addition, subtraction, multiplication and division of decimals, simple and compound ratios, economical use of machine tools, revolved and removed sections, dimensioning and tolerances, sketching, assembly and detail drawings. Bearing metals, copper and nickel alloys, joining of metals.

Module 11 (TF011)

Screw cutting, form turning. Turret and capstan lathes.

Module 12 (TF012)

Calculation of minor diameters, gear ratios, revision of trigonometry. Aligned and pictorial views, geometric tolerancing bearings, assembly and detail drawings, sketching. Systems of limits and fits, limit gauges, metric measurement.

Module 13 (TF013)

Fitting, checking a lathe for accuracy, setting up and marking out, scraping, lubricants, bearings and clutches.

Module 14 (TF014)

Revision of trigonometry, transportation, and substitution of formulae. Third angle projection, scale drawings, adjacent parts, assembly and detail drawings, sketching. Material testing methods and machines hydraulics.

Module 15 (TF015)

Millling machine and operations, types and uses of cutters, arbors and adaptors, speeds and feeds, attachments.

Module 16 (TF016)

Materials and heat treatment, pyrometry, plain carbon and alloy steels, surface hardening, nitriding.

Module 17 (TF017)

Multiple start threads, locating methods, cutting and checking, gear ratios, revision of trigonometry, calculations, tool sharpening.
Module 18 (TF018)
Operational planning and production tooling. Uses of jigs and fixtures, consideration of machining operations, technical sketching and detail drawing, surface finish symbols.

Module 19 (TF019)
Precision cylindrical and surface grinding, plain and universal cylindrical grinding machines, parallel grinding and grinding to a shoulder, lapping work centres, surface grinding plain and angular surfaces, work holding methods.

Module 20 (TF020)
Revision and craft examinations

**Fitting and Machining — Alternative Modules**

**General Fitting A51/A52/A53 (Industrial Hydraulics)**

Basic principles of hydraulics, a simple hydraulic system, pumps, directional control valves, actuators, pressure control, filters, seals, pipe lines, trouble-shooting, speed control, reservoirs, miscellaneous components, hydraulic liquids, transmissions, servo mechanisms and trouble-shooting of systems.

**General Fitting A54/A55 (Industrial Pneumatics)**

Gas laws, basic principles, a basic system, actuators, directional control valves, air service units, speed control, compressors. Miscellaneous components, air lines, moisture control, circuits, seals, air motors, maintenance, standards, air gauging units and air lubrication of bearings.

**General Fitting A56**
Portable power tools, press fits, preparation for welding, plastics, adhesives and glues.

**General Fitting A57**
Installation of equipment, safety precautions, uses of plant equipment, testing of machines.

**General Fitting A58**
Power transmission, clutches, brakes, bearings. Special tools, prevention maintenance.

**Welding B51/B52/B53/B54 (Oxy-acetylene)**

Oxy-acetylene process, personal aspects, care of equipment, safety, pre-weld preparation, welding techniques, hard surfacing, welding of mild steel, welding of thermoplastics, heat treatments, identification of metals, fusion welding of cast irons, bronze weldings, welding of aluminium.

**Welding B55/B56/B58 (Electric arc welding)**
Electric arc process, safety, care of equipment, welding procedures, power sources, electrodes, fillet welding, types of welded joints. Faults, effects of heat, iron and steel welding, heat treatment resistance welding, weld testing, pre-heating and post-heating procedures.

**Gear Cutting F51, F52, F53, F54**


**Tool and Gaugemaking H51, H52, H53, H54**

Precision measurement — standards of accuracy, sources of error in workshop measurement, direct versus comparative measurement, gauging, measuring instruments, measuring with precision instruments. Helical milling, tool and cutter grinding. Explanations of toolroom functions, press tool-making, die-making for plastic and die casting, tool and gaugemaking.

**Construction Equipment C51/C52/C53 (Industrial Hydraulics)**

Basic principles of hydraulics, a simple hydraulic system, pumps, directional control valves, actuators, pressure control, filters, seals, pipe lines, trouble-shooting, speed control, reservoirs, miscellaneous components, hydraulic liquids, transmissions, servo mechanisms and trouble shooting of systems.

**Construction Equipment C54 (Industrial Pneumatics)**

Compressors, miscellaneous components, air lines, moisture control, circuits, seals, air motors, maintenance, standards, air gauging units and air lubrication of bearings.

**Fitting and Machining (other than Apprentices)**

Module 1
Theory and practice. Safety principles, Principles of marking out. Hand-tools, files and filing, measuring and testing tools, the lathe, lathe operations, planning.

Module 3
Theory and practice. Files and filing, chisels and chipping, screw threads, drills and drilling, turning operations, equipment used for setting up and holding plain work on machines, cutting fluids.

Module 5
Theory and practice. Files and filing, drills and drilling, turning operations, the shaping machine, machine cutting tools.

Module 7
Theory and practice. Files and filing, drilling, grinding practice, simple screw cutting, the slotting machine and planning machine.

Module 9

Module 11
Theory and practice. Single start vee and square threads, form turning, turret and capstan lathe

Module 13
Theory and practice. Accurate fitting and maintenance of pumps, clutches and bearings, checking a lathe for accuracy, marking out, scrapers and scraping, lubricants.

Module 15
Theory and practice. Milling operations, the milling machine indexing, tooth forms of milling cutters.

Module 17
Theory and practice. Multi-start threads

Module 19
Theory and practice. Precision cylindrical grinding, surface grinding.

Module 20
Theoretical and practical revision of modules 1-19 inclusive. Theoretical (three hours) and practical examination (five hours) of work covered in modules 1-19.

**Modules 21-24 inclusive**

Four (4) alternative modules to be chosen from the following areas:


**Fluid Machinery Applications 1AD**

Fluid fundamentals, dynamics of fluids, venturi orifices and weirs. Pumps, their operation and applications.

**Fluid Power 1T**

Fluid fundamentals, dynamics of fluids, venturi orifices and weirs. Pumps, their operation and applications.

**Fluid Power 2T**

Knowledge of hydraulic and pneumatic systems is assumed. Emphasis of this course is on the analysis and design of power and logic circuits.

**Heat Treatment TF414 (special course)**

Practical heat treatment involving selection of tool and die steels, carburising steels. Furnaces and furnace equipment. Temperature measurement and recording, quenchants, quenching methods. Heat treatment, operations of annealing, normalising, hardening and tempering, isothermal treatments, surface hardening treatments, including carburising, carbonitriding, nitriding and induction heating. Metallography, preparation of specimens, micro-examination of both heat-treated and heat-treated steels. Hardness testing, mechanical testing of steels.
Human Factors (TF467)
A study of the relationship between human factors and quality control. Ergonomics, motivation programs, job design and job quality, planning for people.

Hydraulics and Pneumatics (TF485)
There are three main areas covered in these units: (i) terminology and graphic symbols (ii) transmission mediums and (iii) operating principles.

Industrial Supervision (TS453)
This subject covers the topics: job analysis and description, industrial relations, methods improvement, plant layout, estimating and planning, production control, materials handling and control, quality control, equipment and maintenance, factory records, personnel department, accident prevention program, first aid.

industry and Society (TS128)
The work ethic and the nature of work, the social responsibility employers, growth of industrial enterprises and economic growth, primary, secondary and tertiary industry, consumerism, pricing, trade unions/employers organisations, population growth, the environment, the influence of Government on industry and society.

Instrumentation H (TE338)
Extension of metrology and machine tools, where principles, construction, calibration and evaluation of more common instrumentation procedures are developed. Emphasis is placed on understanding of the functional test equipment. Pneumatic circuit elements. Measurement of basic qualities, measuring circuits, read-out systems, automatic control, equipment evaluations, non-destructive testing methods.

Instrumentation 1T (TF339)
Extension of metrology and machining tools, where principles, construction, calibration and evaluation of more common instrumentation procedures are developed. Emphasis is placed on understanding of the functional test equipment. Pneumatic circuit elements. Measurement of basic qualities, measuring circuits, read-out systems, automatic control, equipment evaluations, non-destructive testing methods.

Introduction to Business Service Organisations (TS129)
What is business? What does it do? Forms of ownership, non-profit organisations, international organisation structure, functions of management, personal skills of managers, policy-making and documentation, general management tasks, basic business functions -- financing, purchasing, staffing production, sales and marketing, operating techniques and controls of above.

Introduction to Design 1AD (TF455)
Written and oral communication, job brief, design influencing factors, calculations from reference material and economics.

Introduction to Design and Drafting 1ABD (TF561)
Basic mechanisms and their application. Simple drafting techniques. Orthographic projection, sectioning and solid geometry. The drawing of standard components, together with tolerancing and surface texture.

The introduction to Economics 1A (TS238)

Introduction to Economics 1B (TS239)
Four out of the following six topics to be studied. Economic role of government, economic measurement, economic systems, international trade, the financial market and the level of economic activity, the labour market.

Introduction to Law 1A (TS243) (1 unit)
History and development of Australian Law and system of courts. The roles of court personnel. Acts of parliament, their purposes, procedure and interpretation. Case law and the doctrine of precedent. The application of the law, involving a detailed study of one or two areas such as negligence, absolute liability, Goods Act, consumer protection, Noise Pollution Act, Workers compensation Act, Restrictive Trade Practices Act, legal concepts of property and types of law.

Introduction to Law 1B (TS244) (1 unit)
Law of contract, including types of contracts, requirements for a valid contract, conditions under which contracts are voidable, remedies for breach of contract. Legal aspects of sole traders, partnerships and companies including rights and liabilities of owners, formation procedures etc. Advantages and disadvantages of forms of ownership. Consumer protection including a study of the strengths and weaknesses of the Goods Act and Hire Purchase Act. Cheques, their legal status and the effects of different types of crossings.

Jig and Tool Drafting 1T and 2T (TF339 and TF459)
Jig and Tool Drafting 1T covers the basic principles of location and clamping, guiding and location of cutting tools, and general jig and figure construction. 2T is an elective which builds on the work done in 1T, and also includes the design features of cutting tools, as broaches, form tools, drills, reamers and press tools. A good proportion of the time in both 1T and 2T is spent in producing working drawings.

Jig and Tool Drafting 2H (TF260)
The subject covers basic jig and tool drafting and design procedures, but concentrates more on the design of cutting tools and gauges and gauging principles. Mechanical elements such as brakes and pneumatics as applied to tooling are also covered. Drawings and sketches are prepared on tracing paper and are drawn to AS1100 drawing standard.

Job instruction and Presentation (TF365)
Introduction to training aids, methods and presentation examining questioning techniques, training situations and the evaluation of training.

Logic Approach to System Design 1AD (TF130) and TF131)
Programmable logic controllers and the use of logic diagrams in both system design and the trouble-shooting of systems. The interface between hydraulic, pneumatic, electrical and electronic systems. The theory of process control. The reading of control and pneumatic diagrams.

Materials and Processes 1A (TF230)

Materials and Processes 2A (TF330)

Materials Handling 1B (TF391)
The acts and regulations governing materials-handling equipment, types and functions of various materials-handling equipment and product layout and flow patterns.

Materials Handling 2AB (TF491)
Contains material related to manufacturing, warehousing and distribution of products and materials, selection to equipment, packaging and unit loads, transport systems, acts and regulations and involves preparing a detailed specification and tender for materials-handling equipment and installation.

Mathematics 1A and 1B (1H) (TM120)
Five hours per week, daytime for one semester or two hours per week, evening for two nights. Assessment consists of class work (thirty per cent) and a final examination (seventy per cent). This unit deals with the following areas of mathematics: equations and inequalities; relations and functions, trigonometry and an introduction to calculus. It is designed as a preparatory mathematics course leading to the mathematics 2H unit.
Mathematics 1A (TM118)
Basic algebra, linear, quadratic and simultaneous equations. Simple trigonometrical calculations. Use of the calculator and introduction to computer usage.

References

Mathematics 1T (TM130)
Two hours per week daytime or evening, full year. Prerequisites: Year 10 mathematics or equivalent and adult entry. Assessment. Periodic tests and assignments and a final three-hour examination in November. This course teaches basic mathematics of algebra and trigonometry and assumes very limited pre-entry knowledge of those areas. Topics covered are fundamental operation of arithmetic and algebra, transpositions, graphs, trigonometry, factorisation, solution equations both linear and quadratic and logarithms.

References
Supplied notes.

Mathematics 2T (TM230)
Two hours per week, daytime or evening over two semesters. Prerequisites: Mathematics 1T, adult entry, or qualifications deemed equivalent by the Mathematics/Science head of department. An extension of Mathematics 1T, the topics include: review of basic algebra, advanced units in algebra, graphs of special functions, analysis of experimental data, advanced units in trigonometry, arithmetic and geometric progressions, statistics.

References
Supplied notes; students enrolled in TM230 usually study Science 2T (TM270) concurrently, the two subjects being time-tabled in a four-hour block.

Mathematics 1P (TM125)
Relates to practical applications in production, tooling and design fields. Covers the use of calculators, algebraic manipulation, i.e., transposition of formulae, equations, logarithms, trigonometry, Pythagoras's theorem, as related to right angle triangles, graphs, introduction to nomograms, parameters, area and volume.

Mechanical Design 1A and 1B (TF458)

Mechanical Design 1BD (TF225)
Bearing, belt drives, chain drives, clutches, brackets, riveted joints, modes of failure, bolts and locking devices, welded joints, frames, bearing selection, machine frames, pipe and pipe design, technical report writing, meeting procedure, hydraulic fluid power systems, ergonomics, safety, lifting and hoisting equipment.

Mechanical Design 2A, 2B, 2C, 2D (TF457)

Mechanical Design 2AD and 2BD (TF468 and TF469)
The application of engineering principles and applied mechanics to the analysis of design problems in machine elements, structural work and basic pipe work and associated equipment.

Mechanical Design and Drafting 1ABDK (TF241)
Drafting practices and the use of bearings, their lubrication and application. Belt and chain drives, clutches and gears. Joining methods including fasteners and welds. Piping arrangements, valves.

Mechanical Design and Drafting 1ABD (TF242)
Drafting practices and the use of bearings, their lubrication and application. Belt and chain drives, clutches and gears. Joining methods including fasteners and welds. Piping arrangements, valves.

Mechanical Design 2BD (TF482, TF483 and TF484)
Select one of the following:
(a) Products of Mechanical Plant
Further analytical design and selection of multi-element systems together with material selection, manufacturing methods and design costing.
(b) Structures
Additional principles of design of structures and structural projects. Use of AS1250 (the structures code) and the application of production and costing techniques of steel structure design.
(c) Process Plant and Pipe Work
The design principles used in process plant and pipe work, costing and selection techniques and the principles of plant layout.

Mechanical Drafting 1AD (TF150)
Furniture and equipment, use of ASCZI, sectioning, assembly and detail drawings, developments (solid geometry).

Mechanical Drafting 2AK and 2BK (TF258)
This is an extension of the mechanical drafting subject and follows the same format as 1AK and 1BK, with the additional emphasis placed on drawing power transmission elements, such as gearboxes, etc. Both Mechanical Drafting 1AK and 1BK and 2AK and 2BK form a combined two-year subject. This subject is internally assessed.

Mechanical Drafting (Production)
This subject is concerned wholly with the development of basic theory and drafting skills relating to elements used in Production Tooling and Design. Specific subjects include, fasteners, springs, limits and fits, ball bearings, plain and rolling contact bearings, levers. All drafting, comprising both sketching and formal drawing, is done on tracing paper.

Mechanics 1T (TF319)
Vectors, rectilinear and angular motion, acceleration, inertia and momentum. Friction, work power and energy, machines, mechanical advantage, velocity ratio and efficiency. Behaviour of materials under load.

Mechanics 2T (TF419)
States, kinematics, dynamics, stress and strain, shells and joints, beams, torsion, hydrostatics and fluids in motion. Laboratory work.

Metallurgy 1T (TF227)

Metrology 1A and 1B (TF318)
Introduction to length metrology. Materials for standards and gauges. Slip gauges. Sources of error in work shop measuring, measuring equipment, lengths, angles, flatness, surfaces at right angles. Optional project. Introduction to surface texture.

Metrology 2T (TF318 and TF420)
Metrology 1T is concerned with the basic principles, correct procedures and methods, associated with accurate measurement. It covers diameter, length, squareness and angular measurement, use of slip gauges, comparators, sine bars and tables. 2T is an elective and looks into the more specialised areas of metrology; thread and surface texture measurement, and the use of optical instruments and precision levels. In both years a significant proportion of the available time is spent on practical work.

Modern Metal Cutting (TF383)
A theoretical approach to aspects of cutting materials, chip control, turning tool wear, cutting efficiency and economics, chatter, milling lead angles, cutter diameter and number of teeth, power requirements, vibration and surface finish, drilling -- performance comparison, laser drills.

Organisation and Management for Quality A and B (TF195 and TF196)
Introduction to the concept of quality control as a system. Quality control systems Standards AS1057, AS1821-3, AS2000, quality manuals, policy and planning, standardisation specification, quality of design, conformance and performance, laboratory management, quality review and audit.
Physics 1H (TM160)

Five hours per week (full-time) during the day for one semester or two hours per week (part-time) during the day or evening for two semesters.

Prerequisites: Students must have completed year 11 Physics. Assessment consists of assignments and tests for each individual core topic and assignment and test on one elective assignment and an elective test. This subject deals with a treatment of basic physical principles in topics which have been broken up into cores and electives. The core topics include: systems of units and dimension, vector kinematics, dynamics, work-power-energy-momentum and electro-statics. The electives include topics such as: thermodynamics, electricity, statics, acoustics, fluid mechanics and electro-magnetism. Students are expected to complete each of the core units at a mastery level of sixty-five per cent.

References
The material required for the successful completion of the course is provided by the college in the course of study. However, reading is required the texts most suitable are those with the 'basic physics' titles or 'introduction to physics', provided they deal in SI units.

Principles of Measurement (TF340)
This covers the basic scientific principles of measurement. Standards for engineering quantities, SI derived units, nature of light and optical concepts, mechanical concepts in design and measuring instruments, thermometers, electrical measurement, calibration of instruments and standards.

Process Heating (TP237)

Product Liability and Product Recall Management (TF464)
Provides a general appreciation of the legal responsibilities associated with quality control and methods adopted to meet these responsibilities. Current legislation, protection procedures, Australian design rules and standards, recall process, documentation systems.

Production Processes and Development 1T and 2T (TF417 and TF518)
The IT syllabus is intended to broaden the knowledge and understanding of the manufacturing processes. The subject covers metal cutting, efficiency and economics, various types of machines and methods associated with mass and batch production. The original syllabus is being updated to include an introduction to numerical control. The 2T syllabus continues the mind-broadening process, introducing new areas such as plastics, precision casting, joining processes, ultrasonic, electron beam and laser machining, explosive forming and friction welding. Production Processes and Development 2T is an elective.

Production Processes and Development 2A and 2B (TF450)
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 Machine Shop IT/II and FITTING and Machining 5 or Toolmaking 1 and Production Processes and Development 1T, H, or approved electives.

Product Techniques 1A (TS150)
Introduction to manufacturing industries and sub-systems. Types of production organisations. Processes and controls applied in quantitative and graphic form enabling the conversion of market requirements into saleable inventory.

Production Techniques 1B (TS151)
Advanced in detail on 1A. Examining in detail manufacturing planning. Various scheduling and estimating techniques including effects of change.

Production Techniques 2A (TS250)
More sophisticated examination of the production management roles in organisation, policies, forecasting, estimating and control to achieve economic operation of the company.

Production Techniques 2B (TS251)
Examine the practical methods of project management through use of network planning, efficiency controls and problem-solving techniques.

Properties of Materials 1AD (TF232)
Die penetrant, magnetic particle, X-ray, ultrasonic, eddy current, tensile, compression, impact and fatigue testing. Metal failure, corrosion, polymers and fabrics, shaping of plastics, adhesives, electrical materials.

Quality Control Systems and their Assessment (TF465)
The concepts and techniques of quality system audit, calibration system requirements, quality concepts of system assessment - concepts, contractor/supplier quality requirements, customer/supplier agreement of quality control assessment AS2000, quality control system and product audits.

Quality Costs and Budgeting (TF463)
The economic aspects of production quality and quality control systems. Collection and analysis of quality cost data, quality cost indices, quality improvement and cost reduction, budgeting process, planning and operating the budget.

Refrigeration 1T (TP349)
The theory of heating and cooling of liquids and vapours. The study of vapour compression cycle using ammonia. R12 and R22 refrigerants.

Refrigeration and Air-conditioning 1AM and 1BM (TF448)
The course of study provides the student with an appreciation of the principles and practice of refrigeration and air-conditioning. The course amounts to three hours per week for the whole year. The syllabus outline is as follows — properties of refrigeration, analysis of the vapour compression cycle, some operating characteristics of the whole cycle, descriptive work in the principle components, description and reason for major auxiliary components, descriptive treatment of absorption systems, common fault diagnosis and correction, psychometric properties of the air-water mixture, psychometric processes, heat transfer processes related to building heating and cooling loads, methods of heating, cooling, humidification and dehumidification of spaces, air cleaning methods, ventilation requirements, duct sizing methods.

Reliability and Prototype Testing (TF462)
Introduces the concepts and techniques of reliability and looks at the application of basic reliability analysis techniques to technical, administration and managerial areas of quality control. Also covers aspects relating to timing in application of reliability methods and the reporting of results.

Robotics (TF452)
At the time of going to press, the details of this subject had not been finalised.

Science 1T (TM170)
Two hours per week, day or evening over two semesters. Prerequisites: Year 10 science or equivalent and adult entry. Assessment: Periodic tests and assignments and a final three-hour examination in November. The course is aimed at teaching basic physics in S.I. units, vectors equilibrium, kinematics, Newton’s three laws of motions, work, power, and energy, heat, Ohm’s law, and basic electric circuits.

References
Supplied notes. Students enrolled in TM170 usually study Mathematics 1T (TM130) concurrently, the two subjects being time-tabled in a four-hour block.

Science 2T (TM270)
Two hours per week, evening over two semesters. Prerequisites: Science 2T, adult entry, or qualifications deemed equivalent by the Mathematics/Science head of department. Assessment: Class work (forty per cent) and one final examination (sixty per cent).

An extension of Science 1T, the topics include: electricity and magnetism, advanced units in electric circuits, fluid statics, fluid dynamics, optics and wave motion, thermodynamics, notational kinematics, notational dynamics.
References
Supplied notes.

Students enrolled in TM270 usually study Mathematics (TM230) concurrently, the two subjects being time-tabled in a four-hour block.

Specialised Machine Tools (TF384)
The various aspects of special production machine tools such as automatic lathes, centreless grinding and specialist machine tools related to laser technology, are examined.

Statistics (TM4127)
Introduction to basic statistical techniques, including arithmetic and geometric progressions, histograms, normal, binomial, Poisson and hypergeometric distributions, standard deviation, regression and correlation.

Statistical Quality Control 1 (TF197)
Application of principles of statistics to production quality control, process control, control of 20 and 30 limits, charting systems, sampling inspection, operating characteristic curves, inspection levels and severity.

Statistical Quality Control 2 (TF297)
Study of methods applied in measuring and assessing variance in quality, continuous and acceptance sampling, design of experiments, failure modes, verification of statistical sampling results, cumulative seen techniques, detects analysis.

Technician Communications 1 and 2 (TH110 and TH210)
The first year covers the basic functional skills of oral and written communication particularly at the student’s personal and work situation. Year 2 broadens the work covered in Year 1 and also includes the writing of simple technical reports and practise in clear and critical thinking.

Technician Drafting (TF126)
This subject provides a basic understanding in projection, arrangement and detail drawings. Methods of fastening, transmission, introduction to steel framework, dimensioning.

Thermodynamics and Heat Transfer 1AD (TF412)
The concepts of temperature and heat, thermal expansion and heat transfer, Heat measurement. The properties of steam, its generation and usage. Air compressors, internal combustion engines and the use of fuels.

Toolmaking (other than Apprentices)
TF501/2 First year Theory and Practice

TF503/4 Second year Theory and Practice

TF505/6 Third year Theory and Practice

Tooling and Inspection Methods (TF370)
The first two sections of this established syllabus cover the fundamentals of jig and fixture design and basic measurement. The third section is on quality control. The fundamentals of the distribution of process errors, frequency charts, histograms, distribution, control charts and their applications in industry are covered.

Welding
Electric Welding. Theory 1 (TF710)

Electric Welding Practice 1 (TF711)

Electric Welding Theory 2 (TF810)

Welding procedures: methods, reason for, effects of. Introduction to mechanical testing, destructive and non-destructive methods. Heat treatment, types, effects, functions, applications. Fixtures and positioners, function, requirements, applications. Flame cutting and allied processes. Appreciation of other welding processes, TIG and MIG, resistance, submerged arc, electro-slag, etc. Welding CONS, factors involved, examples.

Electric Welding Practice 2 (TF811)
Building up of worn surfaces. Fillet welds: all welds to gauge size, using a wide selection of electrode types and sizes. Flat and H/I/V position up to 12 mm, multiple pass. Vertical up and down, overhead, horizontal positions, up to 100 mm. Joining of RSS to CCS plate in vertical position, single and multiple pass.

Butt welds: electrode requirements as for fillet welds. Prepared single and double VU, flat, vertical up and down, horizontal. Prepared structural sections solid and hollow, flat position. Demonstrations of other welding processes e.g. TIG, MIG, resistance, submerged arc, etc. Operation experience on an engineering unit as possible.
Electric Welding Theory 3 (TF10)  
General knowledge of SAA codes relating to welding.  
Safeguarding requirements, welding, cutting, general, personal and operational requirements related to various applications.  
Elementary first aid requirements.  
Quality control, inspection and quality of welding, destructive and non-destructive methods, internal and external weld defects and methods of correction.  
Alloy steels, corrosion, creep and heat resistant, clad, manganese and cast. Knowledge of composition, properties, weldability and procedures.  
Cast iron, types, composition, properties, weldability, applications, welding requirements.  
Introduction to non-ferrous metals, common types, properties, applications, welding requirements.  
Surfacing, types of wear, electrodes, applications, techniques.  
The welding of pressure vessels and structure, appreciation, joint types, workmanship, testing as per code.  
Outline of special welding processes, electron beam, laser, plasma, friction.

Electric Welding Practice 3 (TF11)  
Fillet welds, all positions, full range of sizes and types, 6 mm and smaller. Welding of 1.6 mm LCS sheet. Butt welds, square and prepared, all positions, 1.6 mm and thicker sections. Pad welds.  
Corner, edge and lap welds.  
Test plates, preparation, welding, testing in accordance with SAA codes. Fillet and butt welds.  
Preparation, setting up and welding of small structures and weldments. Demonstrations of welding and cutting of special steels, ferrous and non-ferrous, with as many processes as possible.

Welding and Fabricating (TF90)  
The object of these units is to provide a general knowledge of: general fabrication techniques, jigs and fixtures, methods of joining, welding processes, testing techniques, standards and codes, metallurgical effects of welding and plant layout and work flow.

Work Measurement 2A, 2B (TF282, TF283)  
Frequency studies, interference to production. General data system.  
Statistical work sampling. Non-repetitive work measurement. Master clerical data.  
EPS resources contributing to capacity. Filing systems.

Work Measurement 3 (TF382)  
Wage payment plans. Labour budgets and controls. Complete techniques project.

Work Methods Improvement 1A and 1B (TF184 and TF185)  
This is an established syllabus used in other courses which looks at productivity and the factors that affect it. The syllabus covers the techniques of work study, report writing, charting, recording, questioning techniques, clerical systems, work breakdown sheets, installation of new methods and ongoing programs.

Work Methods Improvement 2A, 2B (TF284, TF285)  
Layouts and their characteristics. Engineering drawings and sketching.  
Cost reduction. Philosophy of work study.

Work Methods Improvement 2C, 2D (TF286, TF287)  

Work Study 1H (TF337)  

Work Study 1 — Method Study (TF101)  
(Previously Work Method Improvement 1A (TF184))  
This unit is concerned with productivity and the application of method study techniques to improve it. The main topics are: definition and measurement of productivity. Methods of improving productivity.  
The use of charting in method study. Selecting and drawing the most appropriate type of chart to record a particular job or process. Analysis of an existing method and the development of a new method.  
Preparation of submissions to management showing costs, sketches, photographs and pilot runs.

Work Study 2 — Implementation (TF102)  
(Previously Work Method Improvement 1B (TF185))  
This unit is concerned with the factors affecting the application of methods. Improvement, the main topics are: analysing and comparing initial expenditure, operating costs and times needed to recover investment of alternative job methods. Preparation of written and verbal reports on method improvement proposals. Reasons for resistance to change and developing the acceptance of new methods.  
Introduction to new methods. Selecting the most appropriate type of chart to record a particular job or process. Analysis of an existing method and the development of a new method.  
Preparation of submissions to management showing costs, sketches, photographs and pilot runs.

Work Study 3 — Time Study (TF103)  
(Previously Work Measurement 1B (TF183))  
The relationship of work measurement to method study. The uses of and procedures for establishing standard times. Different types of training methods and the steps involved in making a time study. The forms and equipment used in time study. Obtaining and recording all the necessary information about a job. Accurate recording of elemental times using the snap back timing method with a decimal minute stop watch.  
Determining the absolute error per set as the number of cycles required for a particular time study. Rating the performance of operators with different rating scales. Normalisation time calculations. Calculation of appropriate allowances for establishing standard time.  
Different types of allowances, including relaxation, contingency, policy and special. Establishing standard times for operations restricted by machine control and unrestricted operations. Calculation of allowances for restricted work. Carrying out a proof study or production study.

Work Study 4 — Predetermined Motion Time Standards (TF104)  
(Previously Work Measurement 1A (TF182))  
Advantages and disadvantages of predetermined motion time standard systems. Different levels and types of PMTS systems. The principles and application of methods time measurement. Factors influencing the performance of simultaneous motions. The advantages and limitations of master standard data. The elements of MSD and their derivation from MTTM elements. The concepts of low conscious and high conscious control.  
Identifying distances used in MSD. Running MSD to establish standard times for a job. The application of MODAPTS for establishing standard times including the advantages and limitations of MODAPTS. The identification of movement classes, terminal activities, simultaneous activities, indeterminate moves and other activities. The distinction between low and high conscious controls. Designing a standard data system. The principles of coding data and the construction of an alpha-numeric coding system.
Work Study 5 — Estimating and Statistical Techniques (TF105) (Previously Work Measurement 11A)
The objective in this unit is to enable the student to apply work measurement techniques to any relevant task. The main topics are as follows. Activity sampling including its statistical principles and uses, advantages and disadvantages, procedures for application, forms design, confidence and accuracy calculations, control charts, standards setting and production study. Group timing techniques which includes relations to activity sampling, advantages and disadvantages, procedures for making a study, and statistical calculations for setting a standard time. Machine interference including the following topics, man and multi-machine workloads, cyclic and random interference, service time calculations, tables and formulae, application of allowances, the activity sampling approach to machine allowance and costs associated with allocating machines to operators. Estimating techniques including the analytical estimating method, estimator’s qualifications, uses of analytical estimating. Estimates based on engineering performance standards.

Work Study 6 — Financial Analysis and Labour Control (TF106)
This unit covers the following topics. The major components of a financial information system, data collection methods and types of reports. The need for financial information and how it is used. Analysis and interpretation of balance sheets, profit and loss statements, cash flow statements and manufacturing statements. Use of financial ratios to evaluate solvency, efficiency and profitability. Comparison of ratios with industry averages and prior periods. Standard costing systems and break-even analysis. Financial decision making on capital expenditure and make or buy problems. Preparing cost-benefit analyses. Incentive wages plans including the main types, requirements, effects on output and industrial relations, limitations and wage calculations. Design of a complete incentive scheme including setting of standards, recording of output and the labour control system. Designing a group incentive scheme. The measured day work system including a comparison with incentive plans, setting performance standards and appropriate labour control. Design of a labour cost analysis system.

Work Study 7 — Ergonomics and Work Environment Design (TF107) (Previously Work Methods Improvements 11A)
The general aim of this unit is to enable students to understand the man-machine work environment relationships affecting human and equipment performance. The main topics are: ergonomics/human factors including human senses, the nature of ergonomics and the man-machine relationship. The design of machines, equipment and the workplace. The effects of noise, illumination, heating and ventilation and the Australian standards relating to these. The effects of fatigue and stress. Benefits of good housekeeping. Risks associated with pollutants, control methods and legislative requirements. Plant layout including, history and types of plant layout, approaches to plant layout, drawing standards, systematic layout planning and checklists for plant layouts. Materials handling systems and the selection of suitable equipment.

Work Study 8 — Network Analysis (TF108)
This unit provides an understanding of the factors affecting project planning and enables the student to apply network analysis techniques to planning tasks. The topics include, a brief outline of the origins of the CPM/PERT technique, comparison of networks with conventional bar charts and the applicability of networks and bar charts. Networking conventions and establishing logical relationships between activities. Preparation of networks for given projects. Forward and backward pass calculations and the identification of critical paths. Total, free and independent float. Designing a float table. Converting a network into a time-bar diagram. Resource allocation and the manipulation of float. The costing of projects including the increased costs of ‘crashing’ to reduce activity durations and probability of achieving deadlines and cost estimates. PERT and its relationship to CPM. Applicability of PERT and an appreciation of precedence diagrams.
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general information

swinburne institute of technology

applied science

art

arts

business

engineering

swinburne college of TAFE

building division

business division

engineering division

general studies division

The section indicator denotes the general position in the book of each section.
General Studies Division
Head
G.A. Harrison, BSc, DipMechE, TTTC

Humanities Department
Head
D. Bennett, BA, BEd

Academic staff
G. Arnott, BEd, BEc, GradDipBusAdmin
R.M. Carmichael, BA, BEd
P.D. Caven, BA(Hons), DipEd
S. Chakman, BA, DipEd
J.A. Chandler, BA(Hons), DipEd
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M. Sharp, BA, DipEd
M. Taylor, BA, BEd, DipEd
D. Vivian, BA, TPTC
K. Wiltshire, BA, MEd(Studies)

Compensatory and Community Access Unit
D. Boyle, BA, DipEd, GradDip Inter Ethnic Studies in Education
J.R. Learmont, BA(Hons), MEd, MACE
J. Miller, DipT
A. Newton, BSc, DipEd
T. Nolan, BSc, DipEd
M. Sutherland, BA, DipSocWork
R. Thomas, BA, DipEd

Mathematics and Science Department
Head
R. Gullan, BSc(Hons), MEd, MACE

Academic staff
P. Atkins, BSc, DipEd
J.P. Berry, BSc, DipEd
C. Burgess, BSc, DipEd
J. Cashion, BSc, DipEd, DipCompSci, GradAlP
M. Cleary, BSc, BEd
C. Davis, BA, DipEd
C. DeMartinis, MSc, BEd
B. Falcone, BA, DipEd
W. Glover, BSc, DipEd
C. Grayson, BSc(Hons), DipEd
J.A. Johnston, BSc(Ed)
W.V. Kaliviotis, BAppSc, BSc, GAIE
M. Lawrence, BSc, ACTT
G. Lewison, BA, TSTC
B. Lim, BAppSc, BEd
P. Lim, FRMIT, BAppSc, TTEC, GAIE
G.A. Lisowski, PhD, DipEd
R. Marar, PhD, MSc, MEd, MACE
D. Maynard BAppSc, TTEC
A. Newton, BSc, DipEd
C. O’Connor, BSc, DipEd
K.J. Robinson, DipAppSci(Chem), TTechlC
N.A. Speel, BAppSc, DipEd
G. Tonkin, ARMIT, TTTC
B. Tyrer, BSc, DipEd
C. Underwood, MSc, DipEd
The course offers a bridging program to tertiary education for students with a variety of backgrounds. The program is based on needs for secondary student transition to tertiary study, it also provides a most suitable preparation for tertiary study for more mature people.

The General Studies Division consists of two departments and a unit as follows:

**Compensatory and Community Access Unit**

The unit provides help to students enrolled in all courses in the college who are experiencing difficulty with the English and mathematics components of their courses. It also provides tuition in basic mathematics and English for members of the local community. Tuition is available on an individual or small group basis.

**Humanities Department**

The department has responsibility for the humanities and business TOP courses. In addition it offers a bridging humanities program and a number of short courses.

**Mathematics and Science Department**

The department has responsibility for the science and engineering TOP courses. In addition it offers certificates of applied science (science laboratory and biology), bridging science program and a number of short courses.

The following courses are offered:

**Tertiary Orientation Programs**

H54LZF  Humanities/Business — full-time
H54LZP  Humanities/Business — part-time
S54LZF  Science/Engineering — full-time
S54LZP  Science/Engineering — part-time

**Applied Science Programs**

S21ABC  Certificate of Applied Science (Science Laboratory)
S21ABG  Certificate of Applied Science (Biology)
S31ABC  Certificate Bridging Program
S45ABS  Laboratory Safety
S45ABP  Introduction to School Laboratory Practices

**Bridging and Community Access Programs**

S51LZC  Bridging Science
H51LZA  Bridging General Studies
S51LZN  Special Bridging Program
H51LDN  Reading, Writing & Study Skills
C45LDB  Volunteer Tutor Training
C31LDB  Basic Studies Program

**Programs for Mildly Intellectually Disabled Students**

C53LZA  Work Education Program
C52LZT  Transition Program
C52LZE  Vocationally Oriented Evening Classes

**Tertiary Orientation Program**

The Tertiary Orientation Program at Swinburne is designed to meet the needs of students who intend to proceed to tertiary education, in particular to the diploma and degree courses offered by the faculties of arts, art, applied science, business and engineering of Swinburne Institute of Technology.

The program offers a bridging program to tertiary education for students with a variety of backgrounds. While the program is based on needs for secondary student transition to tertiary study, it provides a most suitable preparation for tertiary study for more mature people.

The program is studied in a tertiary environment. First class educational facilities are available; these include library, audio-visual, computer, student amenities and counselling. Experienced teaching staff maintain a close liaison with staff in the tertiary division.

**Course structure**

Sixteen subjects are offered. Students usually take five subjects and are required to pass a minimum of four including English, to meet tertiary entrance requirements. A restricted range of subjects is available for part-time day and evening students.

Students who intend to proceed to tertiary science and engineering courses are encouraged to take English, Chemistry, Physics, Mathematics and Concepts of Mathematics.

Before choosing subjects, students, especially part-time, are advised to check the entrance requirements for tertiary courses in which they may be interested.

Various assessment procedures are used. Assessment is regarded as a continuous function and is not based solely on performance in formal examination.

**Subjects**

Accounting (TS009)
Art in Society (TH003)
Biology (TM004)
Chemistry (TM005)
Concepts of Mathematics (TM027)
Economics (TS008)
English (TH010)
History of Western Civilisation (TH015)
Introduction to Modern Government (TH020)
Italian Studies (TH050)
Legal Studies (TS006)
Mathematics (Science) (TM026)
Mathematics (General) (TM030)
Media Studies (TH032)
Physics (TM040)
Society, Technology and Change (TH055)
Study of Ideas — Philosophy (TH045)
Themes in Australian History (TH001)
Subject to be offered in 1985 pending approval
Computer Studies (TM028)

**Prerequisites and entrance requirements**

The standard qualification for entry is a pass (non-terminal) at year 11. Applications from early school-leavers and others without the formal qualifications will be considered.

Although preference is given to students from Eastern Metropolitan and Maroondah region technical schools and to people who have had a break from formal secondary schooling and now wish to return, there are usually a number of places available for other applicants.

**Closing dates for applications:**

TOP Science/Engineering 11 December 1984
TOP Humanities 30 November 1984
TOP Business 30 November 1984

**Enquiries**

Information Office, 819 8444
Humanities/Business, 819 8370
Science/Engineering, 819 8378
Tertiary Orientation Program subject details

Students are advised not to purchase en text books or references until classes commence.

Accounting (TS009)

Full year accounting course for students with limited or no prior knowledge of book-keeping or accounting. Topics covered include: basic concepts and terminology; the accounting equation; recording methods; balance day adjustments; final reports; accounting procedures for control; accounting for multiple ownership; analysis and interpretation of final reports and funds statements.

Art (TH003)

This subject is equally divided between a historical and theoretical study of art (particularly modern art) and practical art (five hours per week).

Theory

The syllabus is designed to introduce students to the study of art in its social context, to encourage an understanding of art on a broader scale, and to encourage the interest and abilities of each individual (two hours per week).

Practical

Painting and drawing are developed through exercises, individual projects, and class discussion. Elective media are approached through individual projects decided on by consultation between teacher and student (three hours per week).

Biology (TM004)

The intention in this course is to investigate 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.

A previous study of biology is recommended but not compulsory.

Topics

- The scientific process
- Plant and animal diversity
- Internal organisation of higher plants and animals
- Cells
- Reproduction and genetics
- Evolution

Emphasis on practical work in biology using both first-hand and second-hand data.

Questions and answers assignments on text material. Films and other audio-visual aids. Excursions.

Students are required to submit written reports on practical work. Class questions-answer assignments Assignments on films and excursions. Unit (topic) tests will be administered. Major assignment on student's own topic. Final end-of-year examination

References

- Biological Science — The Web of Life, Canb., ACT, Australian Academy of Science, 3rd edn, 1981

Chemistry (TM005)

Prerequisite: Year 11 applied science standard chemistry. This subject comprises five hours per week, three hours of theory and a two-hour practical session in the laboratory.

Topics

- Stoichiometry
- Atomic structure
- Periodic classification
- Bonding
- Thermodynamics
- Organic chemistry
- Equilibria, acid base, solubility, redox
- Electrochemistry

Practical (25% of overall assessment)

Students are required to submit written reports on all practical work.

Theory (75% of overall assessment)

- Topics tests
- Class assignments 15%
- Final semester examinations 60% (30% each)

A pass in this subject requires a satisfactory attendance record and satisfactory results in both the theory and practical components.

Students are expected to wear sensible clothing in the laboratory including covered-in shoes. A laboratory coat and safety spectacles must also be worn at all times during the practical session.

References


Students will be provided with a practical manual and a set of theory notes to be used in conjunction with the prescribed text.

Concepts of Mathematics (TM027)

Prerequisite: Year 11 applied science standard mathematics

The topics studied include logic, computers, sets, combinations and permutations, binomial theorem, probability, vectors and matrices, systems of linear equations and inequalities, Markov chains and game theory.

A major emphasis in this course is a development of insight into concepts of modern mathematics through an examination of applications of mathematics arising in the working world of the engineer and technologist, and the economist.

The main approach to theoretical material is through considering possible methods of solving problems. The history of the original discovery of this solution is given to extend the student insight into the development of mathematics and to general ideas about mathematics. Instruction is, therefore, mainly the traditional class type for some topics but in some areas considerable use is made of interactive computer facilities, audio-visual aids, student talks, projects and library facilities.

Overall, course-related activities in total or are equivalent to a total of five class hours each week excluding class exercises, assignments, computer work, library work, etc. One hour per week of the five hours is spent on work with computer programming.

Assessment is made on a continuous basis; the final grade achieved by each student being based upon performance in the assessable tests and exercises which will be set at approximately three-weekly intervals. Students are expected to achieve 75% at each test or a subsequent retest. Credits are given on the basis of a credit examination given at the end of semester two. Students who have still not passed any unit are given a final test on that unit at the end of semester two but are not eligible for the credit examination.

The following topics are given:

1. Boolean Algebra
2. Counting and probability
3. Statistics
4. Systems of linear equations and matrices
5. Linear programming
6. Game theory
7. Markov chains
8. Computer programming

References

- L.G. Gilligan and RB. Nenno. Finite Mathematics with Applications to Life, 2nd edn, Santa Monica, Calif., 1975
Economics (TS008)
The aim of this course is to introduce students to the economic aspects of human behaviour with emphasis upon the application of theories and principles to economic problems and social issues within the framework of the Australian economy. The underlying theme for this introductory course in economics is the impact of economic activity upon human welfare. The course may be attempted by students who have not studied economics previously.

English (TH010)
A general course which requires the student to read widely, research topics and form judgements. Developing the skills of comprehension, thinking and writing, form the basis of the course. A wide range of written work is covered including essay, original writing and critical evaluation. 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, literature, writing and aspects of Australian society.

History of Western Civilisation (TH015)
A survey of major developments in western civilisation from ancient times to the present. Emphasis is on the study and methodology of history, including an introductory unit on the nature of history. The scope of the course is broad but particular emphasis is given to Greece and Rome in the ancient world and the major problems confronting the western world in the twentieth century.

Introduction to Italian (TH050)
This subject covers an introduction to the Italian language, idioms, simple sentences and conversation, as well as a study of Italian culture, customs, way of life, economy, political system, history, geography and the contribution of the Italian migrants to our way of life.

Introduction to Politics (TH020)
The course is designed to allow students to make a study of certain aspects of Australian politics. The emphases are on political forces, procedures and machinery. Questioning of politics such as — its nature, elements and interaction, comparisons are made with the United States.

Legal Studies (TS006)
Full year course for students with limited or no prior knowledge of Legal Studies. This course is designed to assist students in understanding the operations of law in our society. It should equip students with an understanding of how law affects our everyday lives, with particular regard to the rights and safeguards it bestows and the obligations and limitations it imposes. Topics covered include: the need for law, the structure and development of the Australian Legal System, the law-making bodies and legal process, crime and criminal sanctions, the Law of Torts, Consumer protection and the form of business organisations.

Mathematics (Science) (TM026)
Prerequisite: Year 11 applied science standard mathematics
This subject is desirable for all science/engineering TOP students, and intends to provide participants with mathematical skills prerequisite to their enrolment in engineering and applied science courses at tertiary institutions.

Teacher-centred classroom work forms the basis of this subject; audio-visual aids, library work, student projects and a regulated program of assignments and tests supplement this class-work where appropriate.

Course work for the subject entails five hours class-work each week, together with a total of about five hours each week spent in private study.

The final grade achieved by a student in this subject depends both on scores obtained in the compulsory tests; assignments set from time to time and upon marks in two major semester examinations:

- 40% of final score
- 25% of final score
- 35% of final score

The following topics are covered:
1. Review of fundamental concepts
2. Differentiation
3. Curve sketching
4. Exponentials and logarithms
5. Circular functions
6. Applications of differentiation
7. Statistics
8. Complex numbers
9. Integration
10. Applications of integration
11. Matrices
12. Differential equations
13. Vectors
14. Kinematics

Assessment is made on a continuous basis, the final grade attained by each student will be based upon performance in regular topic tests, assignments and a final examination.

8 topic tests 60% of the final score
2 assignment units 15% of the final score
1 three hour examination 25% of the final score

Course work will entail 6 hours of class time each week, which includes one hour of computing.

The following topics are covered:
1. A Review
   (a) Basic Computational Skills
   (b) Equations and Formulae
   (c) Relations and Functions
2. Linear Algebra
   (a) Matrix Theory
   (b) Linear Systems
   (c) Linear Programming
3. The Mathematics of Uncertainty
   (a) Probability
   (b) Statistics
4. Incremental Mathematics
   (a) Sequences and Limits
   (b) Differential Calculus
   (c) Integral Calculus

References

A scientific calculator is essential.

Mathematics (General) (TM030)
Prerequisite: A pass in Year 11 mathematics
The objective in this subject is to present fundamental mathematical concepts necessary for students who intend to pursue courses in business studies, the social sciences, physical education, nursing and physiotherapy. The intention is for students to learn the mathematical terms necessary to facilitate the concept of ideas, and develop application skills related to those ideas.

The course is designed to simplify individualised learning by
(i) clearly stating specific learning objectives
(ii) presenting a clear and concise explanation of basic concepts
(iii) referring to a range of text books, class notes and audio-visual materials
(iv) presenting diagnostic problem-solving exercises and tests
(v) encouraging expertise in basic concepts and methods
(vi) involving students in computer programming and the use of interactive computer facilities.

Assessment is made on a continuous basis, the final grade attained by each student will be based upon performance in regular topic tests, assignments and a final examination.

35% of final score
40% of final score
25% of final score
Assignment 1
Computing
An introduction to the computer language BASIC with applications.

Assignment 2
One topic to be chosen from trigonometry, algebra, complex numbers, symbolic logic, number systems, finance and computing.

References
Many references are suitable for this course. Some useful ones are:
Smith, K.J. Finite Mathematics. Glenview, Ill., Scott Foresman, 1975

Students will be provided with a set of booklets covering the course. A scientific calculator is essential.

Media Studies (TH032)
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. There is a small component of practical film work in the course.

Physics (TM040)
Prerequisite: Year 11 applied science standard physics

The subject is designed:
(a) to give students a thorough grounding in the basic principles, formulae and theories of physics
(b) to give students practice in basic problem-solving techniques to assist in further studies
(c) to develop an appreciation of the scientific method.

Five hours per week consisting of two hours formal instruction, two hours laboratory work, and one hour tutorials and/or tests.

(a) Two (2) unit tests and assignments 30 Marks
(b) Practical work (compulsory) 50 Marks
(c) End of semester examination 70 Marks

A pass in practical work is necessary for a pass in the subject as a whole.

<table>
<thead>
<tr>
<th>Topic number</th>
<th>Semester one</th>
<th>Semester two</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geometric Optics</td>
<td>Simple Harmonic Motion</td>
</tr>
<tr>
<td>2</td>
<td>Vectors</td>
<td>Electrodynamics</td>
</tr>
<tr>
<td>3</td>
<td>Kinematics</td>
<td>Electromagnetism</td>
</tr>
<tr>
<td>4</td>
<td>Dynamics</td>
<td>Electric Currents</td>
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<tr>
<td>5</td>
<td>Equilibrium</td>
<td>Light</td>
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<tr>
<td>6</td>
<td>Circular Motion</td>
<td>Atomic Physics</td>
</tr>
<tr>
<td>7</td>
<td>Gravitation</td>
<td>Project (Electronics)</td>
</tr>
<tr>
<td>8</td>
<td>Units and Dimensions</td>
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<tr>
<td>9</td>
<td>Treatment of Errors</td>
<td></td>
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<tr>
<td>10</td>
<td></td>
<td>11 Electrostatics</td>
</tr>
<tr>
<td>12</td>
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<td>12 Electromagnetism</td>
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<td></td>
<td>13 Electric Currents</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>14 Light</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>16 Atomic Physics</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>16 Project (Electronics)</td>
</tr>
</tbody>
</table>

Many references are suitable for this course. Some useful ones are:
Gardiner, E.D. Problems in Physics. SI edn

A scientific calculator is essential.
Applied Science Programs

S21ABC Certificate of Applied Science (Science Laboratory)

Career potential
Many diversified career prospects are available for students undertaking the course. Laboratory personnel may be classified as Technical Assistants, Laboratory Assistants, Laboratory Technicians and Technical Officers. Industrial, educational and governmental laboratories are seeking trained technical staff.

The purpose of this course is to produce graduates who, skilled in modern laboratory techniques and methods, are capable of providing immediate technical support to professional scientists, engineers and teachers.

This certificate course is designed to meet the needs of people who intend to make their career in a laboratory environment.

The certificate course
The course is offered as part-time study, requiring usually, two evenings and one afternoon of attendance weekly over a period of four years. The first two years are common years, with students undertaking Physics, Chemistry, Mathematics and Communications. In the latter two years, students select from a wide range of subjects to meet their own interests or the demands of their work environment. An approved course comprises 24 units.

Generally students obtain a half-day release from their employers who, in return, gain benefit from their employees' increased awareness and competence in modern technology.

Although the vast majority of students undertake the course on a part-time basis, a full-time study program for the earlier units, can be arranged for students experiencing difficulty in obtaining employment.

The training provided, deliberately encompasses a wide range of skills, techniques and processes (as shown in the course details), so that graduates can meet the increasing technological and administrative demands being placed upon them.

In some cases, students involved with this course have been able to further their knowledge by gaining entry to degree and diploma courses in applied science.

Entrance requirements
The usual requirement is that the students are employed in a laboratory and have completed a course of study at the fifth form level. A background of chemistry, mathematics and physics is recommended, but such knowledge will not be assumed.

Applicants with some years of laboratory work experience may, however, be admitted with less than full entry requirements if they can demonstrate their capacity to succeed in the course.

Course structure

<table>
<thead>
<tr>
<th>Category 1 (Common units)</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>First year</td>
<td></td>
</tr>
<tr>
<td>TA108 Chemistry Practices I</td>
<td>1</td>
</tr>
<tr>
<td>TA109 Chemistry Practices II</td>
<td>1</td>
</tr>
<tr>
<td>TA111 Physics Practices I</td>
<td>1</td>
</tr>
<tr>
<td>TA112 Physics Practices II</td>
<td>1</td>
</tr>
<tr>
<td>TA143 Computations</td>
<td>1</td>
</tr>
<tr>
<td>Second year</td>
<td></td>
</tr>
<tr>
<td>TA201 Chemistry Practices 3</td>
<td>1</td>
</tr>
<tr>
<td>TA202 Chemistry Practices 4</td>
<td>1</td>
</tr>
<tr>
<td>TA203 Physics Practices 3</td>
<td>1</td>
</tr>
<tr>
<td>TA204 Physics Practices 4</td>
<td>1</td>
</tr>
<tr>
<td>TH115/116 Communication Studies 1A and 1B</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category 2A (Technicians in industrial, college and governmental laboratories)</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA144 Statistics</td>
<td>1</td>
</tr>
<tr>
<td>TA321 Methods of Separation 1</td>
<td>1</td>
</tr>
<tr>
<td>TA322 Methods of Separation 2</td>
<td>1</td>
</tr>
<tr>
<td>TA431 Optical Methods 1</td>
<td>1</td>
</tr>
<tr>
<td>TA432 Optical Methods 2</td>
<td>1</td>
</tr>
<tr>
<td>TA436 Radioactive Methods</td>
<td>1</td>
</tr>
<tr>
<td>TA463 Electrochemical Methods 1</td>
<td>1</td>
</tr>
<tr>
<td>TA466 Electrochemical Methods 2</td>
<td>1</td>
</tr>
<tr>
<td>TA458 Vacuum Techniques</td>
<td>1</td>
</tr>
<tr>
<td>TA480 Scientific Photography 1</td>
<td>1</td>
</tr>
<tr>
<td>TA481 Scientific Photography 2</td>
<td>1</td>
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</table>

<table>
<thead>
<tr>
<th>Category 2B (To be taken by school laboratory technicians)</th>
<th>Unit value</th>
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</thead>
<tbody>
<tr>
<td>TA151 Biology Practices I</td>
<td>1</td>
</tr>
<tr>
<td>TA152 Biology Practices II</td>
<td>1</td>
</tr>
<tr>
<td>TA210 Laboratory Workshop Practice 1A</td>
<td>1</td>
</tr>
<tr>
<td>TA211 Laboratory Workshop Practice 1B</td>
<td>1</td>
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<tr>
<td>TA312 Laboratory Management</td>
<td>1</td>
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</table>

<table>
<thead>
<tr>
<th>Category 3 (Elective units)</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA301 Biochemistry 1S</td>
<td>2</td>
</tr>
<tr>
<td>TA331 Organic Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>TA332 Oil and Polymer Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>TA460 Microbiology 1S</td>
<td>2</td>
</tr>
<tr>
<td>TA450 Introduction to Electronics</td>
<td>2</td>
</tr>
<tr>
<td>TA453 Glassworking</td>
<td>1</td>
</tr>
<tr>
<td>TA461 Microbiology 2S</td>
<td>2</td>
</tr>
<tr>
<td>TA441 Computer Applications</td>
<td>1</td>
</tr>
<tr>
<td>TA251 *Biology 2A</td>
<td>1</td>
</tr>
<tr>
<td>TA305 *Educational Aid Techniques 1A</td>
<td>1</td>
</tr>
<tr>
<td>TA306 *Educational Aid Techniques 1B</td>
<td>1</td>
</tr>
<tr>
<td>TA307 *Educational Aid Techniques 1C</td>
<td>1</td>
</tr>
<tr>
<td>TA308 *Educational Aid Techniques 1D</td>
<td>1</td>
</tr>
<tr>
<td>TA470 hProject</td>
<td>2</td>
</tr>
</tbody>
</table>

*These subjects are not recommended for Industrial Laboratory Technicians but will be offered for school Laboratory Technicians when demand warrants.
1The project is carried out in the students' place of employment by special arrangement between the employer and the college staff.

Dates for enrolments
Students may enrol for the course during the last week of the previous year (i.e., mid-December), the first three weeks of February of each year and for second semester subjects in the last two weeks of June of each year.

Exemptions may be granted to students who have completed equivalent level studies, e.g., subjects offered by other technical colleges.

Entry to degree and diploma studies in Applied Science is possible after completion of this certificate course.

Further information
Course Co-ordinator, Mr C. DeMartinis, 819 8805
Mathematics/Science Department Secretary, 819 8378
S21ABG  Certificate of Applied Science (Biology)

Venue
The course is conducted at Burnley Horticultural College, Swinburne College of TAFE and Box Hill College of TAFE (Whitehorse Campus) on a multi-campus basis.

Objectives
The great variety of work carried out under the mantle of biology results in technical staff needing both general training and development of specialised skills in particular areas.

This course, therefore, has been designed:
- to provide a solid foundation in general biology and a highly developed degree of skill in specialised areas, by provision of a large number of elective units;
- to service the specific needs of industry in the area of biology by providing complementary training to that gained on the job for technical staff working in the laboratory or in the field;
- to enable students to exercise practical skills essential for a technician within the field of biology and to understand the theory pertaining to those skills so that they are able to make sound judgements in their application;
- to emphasise the rational basis of biology and encourage the development of rational thought and clear expression in students, to enable them to perform effectively, the duties of a laboratory and field technician;
- to give students a sense of achievement and a recognisable qualification by the issue of a certificate and to ensure that a biology technician has equivalent sub-professional standing to that of technicians working in other areas of applied science.

Course structure
The course consists of 24 units: 10 of which are compulsory and development of specialised skills in particular areas.

These units are best studied in combination. These are indicated by unit numbers in brackets.

Entrance requirements
Applicants to the course must have completed Year 11 or equivalent and will be expected to demonstrate concurrent employment in an appropriate work such as work in a biology laboratory. Applicants with several years previous work experience may also be admitted to the course.

Qualification for the certificate and exemptions
Students who have completed a Certificate of Applied Science (Biology) a student must complete those units which characterise the course and have at least two years concurrent work experience associated with study, while completing the certificate. Biology Practices 1 and 2. Biology Laboratory Hygiene and those units denoted with an asterisk, are considered to be characteristic of the course.

Course duration
The course is usually completed by part-time study over a period of four years.

Elective units

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit No.</th>
<th>Core units</th>
<th>Unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA336*</td>
<td>11*</td>
<td>Biology Practices 1 and 2</td>
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<tr>
<td>TA256*/257*</td>
<td>12* 13*</td>
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<tr>
<td>TA339*</td>
<td>14*</td>
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<td>TA340*</td>
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<td>TA411*</td>
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<tr>
<td>TA413*/414*</td>
<td>19* 20*</td>
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<td>TA309/310</td>
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<tr>
<td>TA418*</td>
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<td>TA316</td>
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<td>TA453</td>
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<td>TA421*</td>
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<td>TA425*</td>
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<td>TA219*</td>
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<td>TA312</td>
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<td>TA324</td>
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<tr>
<td>TA321/322</td>
<td>33, 34</td>
<td>Methods of Separation 1 and 2</td>
<td>2</td>
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<tr>
<td>TA225*</td>
<td>35*</td>
<td>Methods of Specimen Preservation</td>
<td>1*</td>
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<tr>
<td>TA450*/461*</td>
<td>36* 37*</td>
<td>Microbiology 15 and 2S</td>
<td>4*</td>
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<tr>
<td>TA327</td>
<td>38*</td>
<td>Microprocessors</td>
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<tr>
<td>TA480/481</td>
<td>39*</td>
<td>Scientific Photography 1 and 2</td>
<td>2</td>
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<tr>
<td>TA433*/434*</td>
<td>40* 41*</td>
<td>Native Fauna 1 and 2</td>
<td>2</td>
</tr>
<tr>
<td>TA431/432</td>
<td>42* 43*</td>
<td>Optical Methods 1 &amp; 2</td>
<td>2</td>
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<td>44* 45*</td>
<td>Pharmacological Methods 1 &amp; 2</td>
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<td>46* 47*</td>
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<td>TA481</td>
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<td>53*</td>
<td>Tissue Culture</td>
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<td>TA448*</td>
<td>54*</td>
<td>Vertebrate Zoology</td>
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</table>

To gain a Certificate of Applied Science (Biology) a student must complete the units which characterise the course and have at least two years concurrent work experience associated with study, while completing the certificate, Biology Practices 1 and 2. Biology Laboratory Hygiene and those units denoted with an asterisk, are considered to be characteristic of the course.
S51ABC Certificate Bridging Program

The course is offered for students who have passes in one or more of Biology, Chemistry and Physics at year 12 level or higher, and who wish to qualify for exemption from the relevant first-year subjects of the Certificate of Applied Science.

Subjects are
- Biology C (TA1001)
- Chemistry C (TA1002)
- Physics C (TA1003)

S45ABP Laboratory Safety

This course, of approximately 30 hours duration, is designed to promote safe laboratory practices in industrial, research and school laboratories. Topics covered include: role of laboratory personnel, safety procedures, radiation hazards, biological hazards, chemical hazards, mechanical hazards, fire prevention and protection, accident investigation and reporting.

S45ABP Introduction to School Laboratory Practices

This course offers a program of elementary laboratory skills for prospective school laboratory assistants. The course is of approximately 70 hours duration.

Further information
Course Co-ordinator Mr C. DeMartinis, 819 9805
Mathematics and Science Department Secretary, 819 8378

Applied Science subject details

Students are advised not to purchase text books or references until classes commence.

Notes
1. Unless otherwise stated, 1 unit involves 3 hours per week for one semester.
2. Subjects marked thus (*) are not recommended for industrial laboratory.

*Agricultural and Field Techniques (TA336) (1 unit)
Aims of agriculture, use of equipment, experiment design, soil testing, pasture and crop preparation, basic meteorology, harvesting, animal care, forest care.

*Anatomy and Physiology I and II (TA256/257) (1 unit each)
The structure and function of the vertebrate organism with emphasis on mammals and birds.

*Animal Nursing (Anaesthesia and Surgical Practice) (TA339) (1 unit)
Anaesthetic agents, their applications and practice in their use. Post-operative care of laboratory animals. Aseptic techniques.

*Animal Reproduction (TA330) (1 unit)
Breeding of laboratory animals, colony selection and development, recognition of ovulation and pregnancy, gestation, record keeping.

Biology Practices 1 (TA130) (1 unit)
Three hours per week for one semester.
Assessment: tests, assignments and practical work.
Scientific methodology, specimen collection and display, specimen identification and classification, biology and the law.

References

Biology Practices 2 (TA131) (1 unit)
Three hours per week for one semester.
Assessment: tests, assignments and practical work.
Evolution, cell structure, anatomy and physiology, ecology, genetics and reproduction.

References
(As per Biology Practices 1)

Biochemistry 1S (TA301) (2 units)
Three hours per week for two semesters.
Assessment is based on assignments, unit tests and practical work.
Prerequisite: Chemistry Practices 3 and 4. Background in biology an advantage.
A study of 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.

Reference
- Routh, R Introduction to Biochemistry, Philadelphia, Saunders, 1978

Biochemistry 2S (TA401) (2 units)
Three hours per week for two semesters.
Assessment: see teacher in charge.
Prerequisite: Biochemistry 1S

Reference
- See teacher in charge.

*Biology 2A (TA251) (1 unit)
Prerequisite: Biology Practices 1 and 2
Maintenance of microbiological cultures in secondary school situations. Preservation of macroscopic and microscopic specimens.

*Botany (TA245) (1 unit)
History; plant classification and detailed identification; plant ecology; crop plants, pasture plants and weeds; native plants, plant anatomy.

*Care and Breeding of Farm Animals (TA410) (1 unit)
The experimental and farm use of sheep, cattle, pigs, horses and goats. Nutrition, breeding, housing, disease prevention and general management.
Chemistry Practices 1 (TA101) (1 unit)
Three hours per week for one semester.
Assessment: satisfactory performance of student objectives will be assessed by tests, assignments and practical work.
A study of atomic structure, bonding, stoichiometry, safety and laboratory skills. Heavy emphasis is placed on safe laboratory practices and analytical procedures.

References
Chernin, S.M., Chemistry for Laboratory Technicians. Phil., Saunders, 1971
Hawk, M.D., Technician Safety and Laboratory Practice. Lond., Cipoll, 1980

Chemistry Practices 2 (TA102) (1 unit)
Three hours per week for one semester.
Assessment: satisfactory performance of student objectives will be assessed by tests, assignments and practical work.
Volumetric analysis, acids and bases, electrochemistry and organic chemistry.

References
As for Chemistry Practices 1

Chemistry 3 (TA201) (1 unit)
Three hours per week for one semester.
Assessment: unit tests, practical work and assignments throughout the semester.
Prerequisites: Chemistry Practices 1 and 2 Organic Chemistry and analytical techniques centering around titrimetric, complexometric and colour metric analysis.

References
Morrison, R.T. and Boyd R.N. Organic Chemistry, Allyn and Bacon, Boston, 1983

Chemistry Practices 4 (TA202) (1 unit)
Three hours per week for one semester.
Assessment: units tests, practical work and assignments throughout the semester.
Prerequisites: Chemistry Practices 1 and 2. Sampling and spot-testing, solubilities and gravimetric analysis, electrochemistry and introduction to instrumental techniques.

References

Communication Studies 1A and 1B (TH115, TH116) (1 unit each)
Two hours per week for two semesters.
Assessment: based on set tasks including class work and group participation.
Methods of collecting, organising, evaluating and presenting factual information. Oral presentation, report writing, letters, memos, media analysis. Core studies plus specialised options.

References
A class text and printed notes

Computations (TA143) (1 unit)
Two hours per week — evening only, one semester.
Assessment consists of six unit tests and two assignments.

References

Computer Applications (TA441) (1 unit)
Two hours per week for one semester.
Assessment is by programs and programming assignments given throughout the course.
Interpretations of printouts. Simple programming — Basic, Fortran, program development. Applications — sales, production control, stock control, etc.

References
FACOM and DEC Manuals. Penguin.

*Ecological Methods 1 (TA413) (1 unit)
Terms, experiment design, data collection, map reading, camping and survival, maintenance and use of field equipment, meteorological calculations.

*Ecological Methods 2 (TA414) (1 unit)
Field notes, data presentation, surveys, trapping and tracking (units taken together).

*Educational Aids Techniques 1A, 1B, 1C, 1D (TA305, TA306, TA307, TA308) (1 unit each)
Operation and maintenance of a wide range of educational aid equipment. Production of simple educational aid materials.

References
See teacher in charge

Electrochemical Methods 1 (TA465) (1 unit)
Three hours per week for two semesters.
Assessment: unit tests, assignments and practical work.
Prerequisites: Chemistry Practices 3 and 4.
Theory and practices of instrumental chemical analysis using potentiometry, polarography and related techniques.

References
See teacher in charge

Electrochemical Methods 2 (TA466) (1 unit)
Three hours per week for one semester.
Assessment: unit tests, assignments and practical work.
Prerequisites: Chemistry Practices 3 and 4.
Theory and practice of instrumental chemical analysis using conductivity, electrogravimetry, coulometry and related techniques.

References
See teacher in charge

Electron Microscopy 1 (TA309) (1 unit)
Basic theory, instrument operation, use of chemicals tissue preparation.

Electron Microscopy 2 (TA310) (1 unit)
Interpretation of photomicrographs, instrument checking, using the instrument; the scanning electron microscope, use and operation; routine maintenance (units taken together).

*Entomological Practice 1 (TA439) (1 unit)
Insect structure and physiology; detailed classification and identification, collection and handling, economic implications.

Experimental Design (TA316) (1 unit)
Statistical concepts and the use of statistics, especially in research work.

Glassworking (TA453) (1 unit)
Three hours per week (evening).
Assessment will be made on a number of items made during the course.
Repair of laboratory glassware. Design and construction of simple glass apparatus.

References
See teacher in charge

*Greenhouse and Growth Cabinet Management (TA421) (1 unit)
Design and use; control and measurement; media preparation; plant care.

*Histological and Enzymatic Techniques (TA425) (1 unit)
Sample collection; extraction, centrifugation and gradient preparation, partition and fractionation; equipment; tissue preparation for slide making.
Methods of Separation 2 (TA322) (1 unit)
Three hours per week for one semester.
Assessment: unit tests, assignments and practical work.
Prerequisites: Chemistry Practices 3 and 4.
Techniques of paper, column and thin-layer chromatography; ion-exchange, solvent extraction and electrophoresis, as applied to the separation and identification of components of mixtures.
References
See teacher in charge.

Microbiology 15 (TA460) (2 units)
Three hours per week for two semesters.
Assessment: two exams, essays and assignments. Practical work.
Recommended background in chemistry and biology.
Theory and practice including bacteriology, virology, serology, fungi and protozoa.
References
See teacher in charge.

Microbiology 25 (TA461) (2 units)
Three hours per week for two semesters.
Assessment: two exams, essays and assignments, practical work.
Prerequisites: Microbiology 15.
Theory and practice including bacteriology, immunology and virology as major topics.
References
See teacher in charge.

Microprocessors (TA327) (1 unit)
Functions of computers, software and hardware, algorithms, terminals -- their use, file to file handling, program running, plotters.

Native Fauna 1 (TA433) (1 unit)
The structure and behaviour of monotremes, marsupials and placental mammals; their housing and care.

Native Fauna 2 (TA434) (1 unit)
Care of orphaned or injured animals: birds; reptiles and fish, their structure and behaviour, their housing and care (units taken together).

Oil and Polymer Chemistry (TA332) (1 unit)
Three hours per week for one semester.
Assessment: tests and assignments.
Prerequisite: Organic Chemistry 1.

Overview of modern electronics practices with emphasis on the operation and function of test equipment. Project work including design, construction and evaluation of an electronic device.

References
See teacher in charge.

Optical Methods 1 (TA431) (1 unit)
Three hours per week for one semester.
Assessment: assignments, practical work and unit tests.
Prerequisites: Chemistry Practices 3 and 4.
Introduction to the principles and practices of UV/visible, atomic absorption and infra-red spectroscopy. Literature survey on a selected optical analysis technique not covered in class work.

References


References
See teacher in charge.


References
See teacher in charge.

Methods of Separation 1 (TA321) (1 unit)
Three hours per week for one semester.
Assessment: unit tests, assignments and practical work.
Prerequisites: Chemistry Practices 3 and 4.
Investigation of the separation and indentification of components of mixtures using gas chromatography and high performance liquid chromatography.

References

References
See teacher in charge.

Light Microscopy (TA428) (1 unit)
Theory of microscopy, microscope maintenance, simple repair, operation, special techniques.

Light Microscopy (TA428) (1 unit)
Theory of microscopy, microscope maintenance, simple repair, operation, special techniques.

Laboratory Workshop Practice 1A, 1B (TA210, TA211) (1 unit)
Three hours per week for one semester.
Practical workshop course. Materials and their properties, use of hand and power-operated tools, measuring instruments, joining techniques, soldering, glass-working, technical drawing.

References
See teacher in charge.

Laboratory Workshop Practice 1A, 1B (TA210, TA211) (1 unit)
Three hours per week for one semester.
Practical workshop course. Materials and their properties, use of hand and power-operated tools, measuring instruments, joining techniques, soldering, glass-working, technical drawing.

References
See teacher in charge.

Laboratory Workshop Practice 1A, 1B (TA210, TA211) (1 unit)
Three hours per week for one semester.
Practical workshop course. Materials and their properties, use of hand and power-operated tools, measuring instruments, joining techniques, soldering, glass-working, technical drawing.

References
See teacher in charge.

Light Microscopy (TA428) (1 unit)
Theory of microscopy, microscope maintenance, simple repair, operation, special techniques.

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Assessment: unit tests, assignments and practical work.
Prerequisites: Chemistry Practices 3 and 4.
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References

References
See teacher in charge.

Methods of Separation 1 (TA321) (1 unit)
Three hours per week for one semester.
Assessment: unit tests, assignments and practical work.
Prerequisites: Chemistry Practices 3 and 4.
Investigation of the separation and identification of components of mixtures using gas chromatography and high performance liquid chromatography.

References
Optical Methods 2 (TA432) (1 unit)
Three hours per week for one semester.
Assessment: assignments, practical work and unit tests.
Prerequisites: Optical Methods 1.
Applications of the principles of optical analysis techniques.
Work project on a selected analytical technique practised in the students place of employment.
References

Organic Chemistry 1 (TA331) (1 unit)
Three hours per week for one semester.
Assessment: based on unit tests, assignments and practical work.
Prerequisites: Chemistry Practices 1 and 2.
Systematic study of organic compounds and their properties and reactivities. Examples to favour those which are useful to a subsequent study of oils, polymers and detergents.
References
See teacher in charge.

*Pharmacological Methods 1 and 2 (TA445/466) (1 unit each)
Pharmacological measurement, use of isolated organ preparations, drugs and animal behaviour.

Physics 2S (TA221) (1 unit)
Three hours per week for one semester.
Assessment: unit tests and assignments.
Prerequisite: Physics 1S.
Course of theoretical physics at post year 12 standard. Wave motion, thermodynamics, electro-magnetism, AC and DC circuits, properties of matter.
References

Physics Practices 1 (TA111) (1 unit)
3 hours per week for one semester.
Assessment: topic tests, laboratory reports and experimental techniques.
Heat, 51 units, errors and measurement, graphs, fluids, work, power and energy.
References

Physics Practices 2 (TA112) (1 unit)
3 hours per week for one semester.
Assessment: topic tests, laboratory reports and experimental techniques.
Optics, kinematics mechanics and radiation.
References

Physics Practices 3 (TA203) (1 unit)
Three hours per week for one semester.
Assessment: unit tests, practical work and assignments.
Prerequisites: Physics Practices 1 and 2.
Errors, physical testing, heat and electricity.
References
See teacher in charge

Physics Practices 4 (TA204) (1 unit)
Three hours per week for one semester.
Assessment: unit tests, practical work and assignments.
Prerequisites: Physics Practices 1 and 2.
Introduction to electronics, computers and light.
References
See teacher in charge

*Plant Propagation (TA220) (1 unit)
Preparation of potting mixes, production of new plant material — techniques, selection criteria.

Polymer Science (2 units)
Prerequisites: Chemistry Practices 3 and 4.
Theory and practice of mechanisms of polymerisation, structure and properties of polymers, classification of polymers, additives, mechanisms of deformation, forming and working.
References
See teacher in charge.

Project (TA470) (2 units)
Students undertake a supervised research program at their place of employment. Assessment is made on the basis of a properly presented report.

Quality Control (TA452) (1 unit)
Two hours per week for one semester.
Assessment: tests and assignment work.

Radioactive Methods (TA456) (1 unit)
Three hours per week for one semester.
Assessment: assignments, test and practical work.
Prerequisites: Chemistry 2S and Chemistry Laboratory Techniques 2.
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.
References
Carswell, D.J. Introduction to Nuclear Chemistry. Amsterdam, Elsevier, 1967
Other references will be discussed in class.

Scientific Photography 1 (TA480) (1 unit)
Three hours per week for one semester.
Assessment: assignments and practical work.
Theory and practice of basic photography, film processing and printing, densitometry, use of equipment and accessories, colour vs B/W, small-scale lighting techniques, field photography, UV and IR photography, photomacrography.
References
Shijman, C. SLK Photographers Handbook USA, HP Books, 1977
Blaker, A. Handbook for Scientific Photography USA, Freeman, 1977

Scientific Photography 2 (TA481) (1 unit)
Three hours per week for one semester.
Assessment: assignments and practical work.
Theory and practice of microscopy — basic and advanced techniques, photomicrography, film processing and printing.
References
Delly, J.G., ed. Photography Through the Microscope. USA Kodak, 1980

Statistics (TA144) (1 unit) Duration 2 hours.
Two hours per week — evening only, one semester.
Assessment: consists of two two-hour exams and two assignments.
Prerequisites: Computation
Theoretical approach and simple applications of statistical methods to design of experiments and various techniques of quality control in industry, including randomisation of sampling.
References

Tissue Culture (TA329) (1 unit)
Sterilisation of equipment, media preparation, culture techniques.

*Typing (2 units) Duration 2 hours
Preparation of business letters, orders, credit notes, statements, cheques and forms, including figure totals. Mastery of keyboard functions of on-line video display unit — input, editing, hard copy retrieval.
References
See teacher in charge.
Vacuum Techniques (TA458) (1 unit)
Three hours per week for one semester.
Prerequisites: Physics Practices 3 and 4.
Principles and techniques for construction and operation of vacuum systems. Rotary pumps, oil and Hg diffusion pumps; gauges; ultra high vacuum techniques; physics of gas discharges; applications to vacuum deposition, thin film optics, graticule techniques, detectors; use of hand-torch in vacuum line fabrication.
References
See teacher in charge.

*Vertebrate Zoology (TA448) (1 unit)
Structure and identification of fish, amphibia, reptiles, birds and mammals.

Bridging and Community Access Programs

H51LZA Bridging General Studies

S51LZC Bridging Science

A flexible study program is offered at approximately year eleven standard, principally for students who have left secondary school and who wish to take studies as preparation for entry to certificate and TOP courses. The subjects to be offered in any year depend on student demand and the level of funding available. The subjects of the program are:

- Biology B (TM192)
- Chemistry B (TM196)
- Communication & Study Skills (TH181)
- Efficient Reading (TH101)
- *English for Academic Purposes (Migrant English) (TH181)
- General Studies (TH182)
- Mathematics B (TM190)
- Physics B (TM194)

*English for Academic Purposes is a subject which runs for 3 hours/week for a semester. It is designed for recent adult migrants who wish to seek entry to TAFE Certificates and TOP, or tertiary courses, after completion of the English course.

S51LZN Special Bridging Program

A bridging program is offered from time to time to meet the needs of special groups in the community. At present the college offers a program, in science, for Vietnamese students who wish to prepare for tertiary and TAFE courses in science and engineering.

Subjects of the program are:

- English M (TH300)
- Mathematics M (TM301)
- Science M (TM302)

H51LDN Reading Writing and Study Skills

Reading, Writing and Study Skills is a course of 3 hours/week for 12 weeks, and is appropriate for people wishing to gain feedback on their preparedness for further study. It has been used by students as a preparation for a variety of further courses including studies at colleges of advanced education and universities.

C45LDB Volunteer Tutor Training

Two courses of training are offered. One prepares volunteers to work on a one-to-one basis with adult students who need individual tuition in the basics of reading, writing and spelling. The second prepares volunteers to tutor mildly intellectually disabled adults in life-coping skills.

- Basic Literacy (TR100)
  - 6 sessions, 2 hours/session
- Life Skills (TR106)
  - 7 sessions, 2 hours/session
C51LD8 Basic Studies Program
Individual Learning Workshop (Numeracy) (TR102)
This is a flexible program which gives people who wish to improve their basic mathematics knowledge an opportunity to work individually in an informal learning situation.

English Workshop (TR101)
The subject gives students the opportunity to upgrade their oral and written skills to enable entry into more formal courses. Participants are expected to be able to speak and write basic English before taking this subject.

Volunteer Tutor Program (Adult Literacy) (TR107)
Adult students are matched with an individual tutor for tuition in basic reading, writing and spelling. Students are required to be able to speak fluent English.

Volunteer Tutor Program (Life Skills) (TR108)
Students are matched with a tutor for tuition in literacy and numeracy related to life coping skills. It is a program for mildly intellectually-disabled adults.

Programs for Mildly Intellectually-Disabled Students

C53LZA Work Education Program
This program is a link program conducted for senior students from Special Schools. Students attend for eight hours per week and study a range of subjects incorporating practical workshop skills. It improves the students' work habits and their level of independence.

C52LZT Transition Program
Students attend for three days per week. The program encourages mildly intellectually disabled adults to develop their practical skills and to improve their levels of literacy, communication and independence.

Subjects offered are:
- Building (TR110)
- Clothing Trade Skills (TR111)
- Electrical (TR112)
- Fitting and Machining (TR113)
- Home Economics (TR114)
- Literacy/Numeracy (TR115)
- Sheetmetal (TR116)
- Typing (TR117)

C52LZE Vocationally-oriented Evening Classes
The course provides a range of practical subjects for mildly intellectually disabled adults. Subjects are offered in conjunction with Box Hill College of TAFE. Classes run in the evening.

Subjects offered are
- Carpentry (TR120)
- Literacy/Numeracy (TR121)

and the following subjects at Box Hill College of TAFE
- Clothing Trade Skills
- Electronics
- Home Economics
- Metalwork

Higher School Certificate (Evening Classes)
In 1985 eleven or twelve Group 1 HSC subjects will be offered from those listed below.

Classes will be held in the evenings, Monday to Thursday, and will generally be of four hours duration per week, starting at 6.00pm.

This arrangement is suitable for part-time students or full-time students wishing to take additional or alternative subjects to those offered at their schools.

Subjects Available
- Accounting (TS901)
- Australian History (TH910)
- Biology (TM924)
- Chemistry (TM925)
- Computer Science (TM926)
- Economics (TS902)
- English (TH911)
- English Literature (TH912)
- General Mathematics (TM923)
- Human Development and Society (TH913)
- Legal Studies (TS903)
- Politics (TH914)
Subject details

**Accounting (TS901)**

**Aims of course**
1. To introduce and examine the function and role of accounting as an aid to management of a business.
2. To introduce, in simple terms, the basis and processes of accounting measurement and to consider the limitations of methods used.
3. To assist students in preparing their future role in the community by providing skills, concepts, relationships, and understandings appropriate to living and/or working in a business environment.

**Reporting method**
Letter grades A-F based on standardised scores

**Core**

- Content
  - Recording, processing, using and reporting of the effects of financial transactions on a business. Analysing and evaluating alternative accounting methods, concepts, procedures and reports.
  - Prerequisite texts: See course description for suggested references.
  - Assessment
  - 3-hour written examination
  - School-based assessment

**Prescribed texts**
No prescribed texts. See course description for suggested references.

**Assessment**

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<th>Percentage</th>
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<td>Total for core</td>
<td>70%</td>
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**Length of core**
Approximately four hours per week for 20 weeks.

**Optional units**
Topics
1. Funds statements
2. Accounting for partnership
3. Accounting for partnerships (including partnership fund statements)
   - Prerequisite: Topic 1 — Funds statements
4. Company accounting — recording and reporting
   - Prerequisite: Topic 1 — Funds statements
5. Company accounting — profitability and financial stability
6. Company accounting — profitability and financial stability
7. Farm accounting
8. Accounting for clubs
9. Non-systematised records
10. Introduction to practical business EDP
11. Assessment by external parties of sole proprietor businesses
12. Modern business data processing systems

If an optional unit of the Group 1 Accounting course is composed entirely of a combination of these topics the following criteria apply to that combination.

1. A student must study a minimum of TWO topics.
2. The total time allocation must be a minimum of 40 hours.
3. Topic 1 is a prerequisite for Topics 3 and 5. Topics 2 and 3 are alternatives; Topics 4 and 5 are alternatives.

---

**Australian History (TH910)**

**Aims of course**
1. To provide students with the chance to study the history of the society of which they are a part.
2. The general aims of history are also central to a study of this subject.

**Reporting method**
Letter grades A-F based on standardised scores.

**Core**

- Content
  - The general aims of history are also central to a study of this subject.
  - Prerequisite texts: See course description for lists of 'essential' and 'additional' references for each core topic and optional unit.

**Prescribed texts**
No prescribed texts. See course description for lists of 'essential' and 'additional' references for each core topic and optional unit.

**Assessment**

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<td>Total for core</td>
<td>70%</td>
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**Length of core**
Approximately four hours per week for 20 weeks

**Optional units**

- A. Women in Australian history
- B. Post-war immigration — multiculturalism in Australia
- C. The Aborigines in the twentieth century
- D. Aspects of schooling in nineteenth century Victoria
- E. The dismissal of the Labor government
- F. Local history
- G. The debates on the discovery and foundation of Australia
- H. Health
- I. Violence in Australian history

**Assessment**

- School-based assessment

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<th>Subject total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>School-based assessment</td>
<td>30%</td>
</tr>
</tbody>
</table>
Biology (TM924)

Aims of course
This course aims to provide students with some knowledge and understanding of the principles of biology as a science, and the capacity to apply these principles in appropriate biological settings.

Reporting method
Letter grades A-F based on standardised scores.

Core
Content
Theory
1. The scientific process
2. The organism
3. Function and structure in plants
4. Function and structure in animals
5. Integration and regulation
6. Cellular processes
7. Heredity
8. Continuity and change
9. The human species

Practical
Every student to complete suitable laboratory exercises relevant to that combination. A minimum of one-third of the total class time should be devoted to such practical work.

Prescribed texts
No prescribed texts. See course description for recommended texts.

Assessment
3-hour written examination 60%
school-based assessment 10%
Total for core 70%

Length of core/Course rule
Approximately four hours per week for 20 weeks. Not less than one-third of this time should be devoted to practical work.

Candidates must gain a satisfactory assessment in their practical work to gain a Grade D or above overall. A candidate who does not gain a satisfactory assessment in the practical work, and whose standardised mark is greater than 49 will have that mark reduced to 49E.

Optional units
Topics
1. Research investigation
2. Plants
3. Animal structure and function
4. Behaviour
5. Chemical coordination
6. Cell activity
7. Genetics
8. Evolution
9. Science and society
10. Issues in biology

If an optional unit of the Group 1 Biology course is composed entirely of a combination of these topics, the following criteria apply to that combination.

1. A student must study two topics.
2. Any combination of pairs of topics may be chosen with the exception that no student may choose both of Topics 9 and 10.

Chemistry (TM925)

Aims of course
To provide students with some knowledge and understanding of basic chemistry and how it relates to the world around them.

Reporting method
Letter grades A-F based on standardised scores.

Core
Content
Theory
1. Atomic theory
1.1 The nuclear atom
1.2 Electronic structure of atoms
1.3 The periodic table
2. Chemical reactions
2.1 The mole and chemical formulae
2.2 Chemical reactions/equations
2.3 Stoichiometric calculations
2.4 Chemical equilibrium

3. Energy
3.1 Energy resources in human society
3.2 Transformation of energy by chemical reaction
3.3 Production of electrical energy by chemical reactions
3.4 Chemical reactions driven by electrical energy

4. The biosphere
4.1 Historical development of the periodic table
4.2 Carbon and silicon
4.3 Nitrogen and phosphorus
4.4 Oxygen, sulfur and the metals

Practical
At least 14 hours practical work related to the core to be carried out in the same year as the theory components of the course. Practical exercises must be chosen to fulfil the requirements of section 3.5.1 of the course description.

Practical work associated with both core and optional unit must total at least 26 hours.

Prescribed texts
No prescribed texts but the following are strongly recommended:
McTigue, P.T., ed. — Chemistry: key to the Earth — 2nd ed. — Melbourne University Press, 1982

Assessment
3-hour written examination 60%
school-based assessment 10%
Total for core 70%

It is recommended that up to 50 per cent of the maximum school-based mark be assigned to practical work associated with the core.

Length of core/Course rule
At least four hours per week for 20 weeks.

Candidates must gain a satisfactory assessment in their practical work to gain a Grade D or above overall. A candidate who does not gain a satisfactory assessment in the practical work, and whose standardised mark is greater than 49 will have that mark reduced to 49E.

Optional units
Topics
1. Organic reaction mechanisms
2. Analysis with a purpose
3. Preparative chemistry
4. Surface chemistry — surfactants at interfaces
5. Carbon and silicon polymers
6. From minerals to metals
7. The chemistry of soils
8. Coal chemistry
9. Bauxite to aluminium
10. Chemicals in electric fields
**Computer Science (TM926)**

**Aims of course**

On successful completion of the course, a student should

1. comprehend the concepts and practices of computer science
2. know how computers store and process data
3. be able to describe the major components of computer hardware and their functions and interaction
4. be able to develop models of events and systems
5. be able to solve problems using algorithmic techniques
6. comprehend and be able to apply the fundamental concepts of programming
7. be able to devise, test, code, document and validate programs to implement various algorithms
8. have an insight into the range of applications of computers
9. appreciate some implications of computer use in contemporary society.

**Reporting method**

Letter grades A-F based on standardised scores

**Core Content**

The study of each of the following.

- Computer structure and data representation
- Algorithms and modelling
- Programming languages
- Data structures
- Input/output devices
- File structures
- System software
- Social implications

**Prescribed texts**

No prescribed texts. See course description for suggested references.

**Assessment**

<table>
<thead>
<tr>
<th>Component</th>
<th>Subject total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-hour written examination</td>
<td>50%</td>
</tr>
<tr>
<td>School-based assessment (practical work)</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total for core</strong></td>
<td><strong>70%</strong></td>
</tr>
</tbody>
</table>

**Length of core/course rule,**

Approximately four hours per week for 20 weeks.

In order to obtain a Grade D or above in this subject, a prescribed minimum standard must be achieved in the practical work (after moderation thereof). This is accomplished by writing sufficient programs of a sufficiently high standard, as described in the course description. A student who does not achieve this standard on the practical work, and whose standardised mark is greater than 49 will have that mark reduced to 49E.

**Optional units**

A. Computers in science and engineering

**Course rule**

Approximately 10 hours of practical work must be completed

**Assessment**

- School-based assessment

**Length of optional unit**

Approximately four hours per week for 10 weeks.

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**Economics (TM902)**

**Aims of course**

To develop in students sufficient understanding of economic concepts, skills and knowledge to enable them to participate more fully in the decision-making processes of a modern industrial state.

**Reporting method**

Letter grades A-F based on standardised scores

**Core Content**

- Economic framework and the level of activity
  A.1 Economic systems
  A.2 The level of economic activity
- Economic objectives and policy
  B.1 Economic objectives and problems
  B.2 Policy instruments and implementation of policy

**Prescribed texts**

See course description for detailed list.

**Assessment**

<table>
<thead>
<tr>
<th>Component</th>
<th>Subject total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-hour written examination</td>
<td>70%</td>
</tr>
</tbody>
</table>

**Length of core**

Approximately four hours per week for 20 weeks

**Optional units**

If the optional unit of the Group 1 Economics course is composed entirely of these options, then any TWO must be studied.

A. Developing economies
B. Alternative economic systems
C. The nature, extent and alleviation of poverty in Australia
D. Population and capital movements to Australia since 1945
E. The international monetary system since 1945
F. Financial relations between federal, state and local governments in Australia
G. The economics of energy

**Assessment**

<table>
<thead>
<tr>
<th>Component</th>
<th>Subject total</th>
</tr>
</thead>
<tbody>
<tr>
<td>School-based assessment 2 x 15%</td>
<td>30%</td>
</tr>
</tbody>
</table>

**Length of optional unit for all options**

Approximately four hours per week for 5 weeks.
Aims of course

1. To extend, deepen and enrich students' experience through reading, discussion and writing.
2. To help students develop further their abilities to deal with points of view relevant to their own experiences and those of others; how to reach such points of view, how to clarify and defend them, and how to evaluate and modify them.
3. To encourage students to pay close attention to the details of language used by themselves and others through active engagement in the four language modes, so that a balance is achieved between speaking and writing on the one hand, and listening and reading on the other.
4. To encourage and further develop students' abilities to read a variety of texts with accuracy, discrimination and enjoyment.
5. To encourage and further develop students' abilities to use writing efficiently as a tool for thinking and communication, employing and experimenting with different forms, styles and conventions of writing in order to express adequately their ideas and experiences.

Reporting method
Letter grades A-F based on standardised scores.

Core
Content
All parts are compulsory.

Part 1 — Single Text (minimum of 2 books to be chosen)
Part 2 — Thematic Study (minimum of 2 books to be chosen)
Part 3 — Essay

Prescribed texts
See annually revised list in VSE circular. Also published as a separate leaflet.

Assessment
- 3-hour written examination
- School-based assessment

Subject total

Length of core
Approximately four hours per week for 20 weeks.

Optional units
A. Writing workshop
B. Oral English
C. Focus on language
D. Language development through social analysis
E. The writer's self

Assessment
- School-based assessment

Subject total

Length of optional unit
Approximately four hours per week for 10 weeks.
General Mathematics (TM923)

Aims of course
To develop an understanding of various mathematical concepts and skills. The ability to formulate ‘real world’ problems in mathematical terms should be given particular emphasis.

Reporting method
Letter grades A-F based on standardised scores.

Core

Content
The core study consists of three sections
- Arrangements and selections, including permutations, combinations, and the binomial theorem for a natural number index.
- Functions and their graphs. Trigonometric functions, solution of trigonometric equations, elementary trigonometric identities. Exponential and logarithm functions. Linear programming.
- Calculus. Differentiation and anti-differentiation, maximum-minimum problems.
- Elementary ideas of probability. Conditional probability, Bayes’ theorem, independence, discrete random variables, expectation, probability distributions.

Prescribed texts
No prescribed texts. See course description for list of references.

Assessment
- 3-hour written examination

Length of core/course rule
- Approximately four hours per week for 20 weeks.
- There are no formal prerequisites. However, students are strongly urged to have completed a satisfactory Year 11 mathematics program.

Optional units
A. Computer applications in mathematics
   Course rule
   Students taking this unit should have had some introduction at Years 10 or 11 to Computer Programming up to a standard where IF statements and DO loops could be used.
B. Mathematics of earth and space
C. Mathematics of growth and decay
D. Applicable mathematics
   Assessment
   - School-based assessment

Length of optional unit
- Approximately four hours per week for 10 weeks.

Home Economics – Human Development and Society (TH913)

Aims of course
To assist students to develop attitudes, appreciations, understandings and abilities contributing to the achievement of satisfying personal, family and community life.

Reporting method
Letter grades A-F based on standardised scores.

Core

Content
The core is comprised of four modules of approximately equal length.
- Module One – Biological aspects of growth and development throughout the life span
- Module Two – Nutrition, growth and development – a life span approach
- Module Three – Socialisation of children within the family
- Module Four – Family resource management

Practical
Practical exercises are a compulsory component of the core. Each practical exercise to be a small-scale systematic inquiry carried out at the appropriate stage of the course. These exercises should, by their nature, indicate that the core has been covered, and by their diversity in methods of inquiry, that a variety of skills has been employed in carrying them out.

No marks are awarded for these exercises. However students who do not complete all eight exercises will not be able to obtain a result greater than 49E for the subject.

Prescribed texts
No prescribed texts. See course description for details of teacher and student references.

Assessment
- 2½-hour written examination

Length of core/course rule
- A minimum of eight practical exercises must be carried out.

Optional units
If the optional unit of the Group 1 Home Economics course is composed entirely of these options then any TWO must be studied.
A. Social aspects of food
B. The family in society
C. Independent investigation
D. Cognitive development in children
E. Family health
F. Housing
G. Food management
H. Conserving food resources
I. Advanced nutrition
J. Consumer resource management

Assessment
For total optional unit
- School-based assessment 2 x 15%

Length of optional unit
- Approximately four hours per week for 5 weeks.
Legal Studies (TS903)

Aims of course
To provide an understanding of the relationship between law and society, the social function of law, and the position of the individual within the legal system.

Reporting method
Letter grades A-F based on standardised scores

Core
Content
The core is divided into five sections:
A. Sources of law in Australia
B. The adjudicating and enforcement process
C. The functions of law in Australian society
D. Imperfections in the legal system
E. Changing our law.

Each section must be studied; approximately half the time must be given to Sections A and B, in roughly equal proportions, and approximately half the time to Sections C, D and E, in roughly equal proportions.

Prescribed texts
No prescribed texts

Assessment
- 3-hour written examination

Length of core/Course rule
Approximately four hours per week for 20 weeks

Optional units

If an optional unit is the Group 1 Legal Studies course is composed entirely of a combination of these topics, the following criteria apply to that combination.

1. A student must study two topics.
2. Any combination of pairs of topics may be chosen

The optional units are composed of the following allowed combinations of topics.

<table>
<thead>
<tr>
<th>Optional unit</th>
<th>Topic combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2 1</td>
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<tr>
<td>B</td>
<td>3 1</td>
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<tr>
<td>C</td>
<td>4 1</td>
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<tr>
<td>D</td>
<td>3 2</td>
</tr>
<tr>
<td>E</td>
<td>2 4</td>
</tr>
<tr>
<td>F</td>
<td>4 3</td>
</tr>
</tbody>
</table>

Assessment
For total optional unit
- School-based assessment 2 x 15%

Length of optional unit
Approximately four hours per week for 5 weeks.

Politics (TH914)

Aims of course
1. To enable students to develop an understanding of politics based on facts, generalisations, concepts and theories derived from a study of the Australian political system and Australia's place in the world.
2. To enable students to develop and practise a variety of intellectual and work study skills which facilitate an understanding of politics.
3. To develop an empirical, reasoned and humane outlook on social and political behaviour; to encourage a predisposition to responsibility and involvement in political dialogue which are at once effective and respectful of the rights of others; to enable students to reflect on social values as discovered through the study of politics, recognise the values of others and clarify a personal set of values.

These aims could be fulfilled by a study of certain political processes evident in the Australian local and wider regional contexts.

In particular, it is intended that students will
- develop an understanding of significant aspects of Australian politics and government
  - gain an awareness of relevant contemporary events, of the major political dialogues, and the perceptions of the main actors in the political arena
  - gain an awareness of the power relationships between individuals, groups, governments and countries as they affect the process of making and enforcing political decisions in Australia
- develop skills of
  - critical thinking, classifying, conceptualising, generalising, hypothesising, theorising, interpretation and use of evidence
  - reading, listening, viewing, speaking and writing about politics

The course provides the opportunity for students to develop and test their attitudes and values (although these will not be assessed), in particular;
- to develop personal attitudes/values to key political theories and concepts
- to develop personal means for sustaining these attitudes/values in writing or dialogue.

Reporting method
Letter grades A-F based on standardised scores.

Core
Content
Ten core units are provided, six concerned with Australian domestic politics and four with international affairs. Students concerned MUST study a minimum of FIVE of these units.

1. The Constitution
2. Voting and elections
3. Political parties
4. pressure group
5. Political representation and Parliament
6. Executive government
7. Foreign policy 1901-1945
8. Australia's relations with the USA since 1945
10. Australia, South-east Asia and Papua New Guinea since 1970

Prescribed texts
No prescribed texts. See course description for list of resources
Examinations
Swinburne is a recognised VISE examination centre — exams in all listed subjects will be held at Swinburne under VISE examination regulations as outlined in the VISE Handbook, Section 6, pp13-19.

Enrolments
The enrolment period will be on February 5-6, 9.00am to 8.00pm. However, enrolments will be accepted up until the start of classes (18 February) if places are still available.

Additional details about HSC Evening Classes and brochures covering information for prospective HSC students are available from:
- Rob Carmichael
  VISE co-ordinator
  42 Wakefield Street
  Hawthorn. 3122 Tel: 819 8385

Further Information
For general information about services available to all Swinburne students, see section ‘General Information’ at the end of this book.