

# The University of Wollongong



Calendar  
1981

# The University of Wollongong



## ARMS OF THE UNIVERSITY

The principal elements incorporated in the arms of the University are the blue of the sea, the gold of the sand and the red of the Illawarra flame tree. The open book often used for educational institutions has also been included.

The blazon is: "Azure an open book proper bound gold on a chief wavy or three cinquefoils gules."

Calendar  
1981

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## PREFACE

The University of Wollongong was incorporated by an Act of the New South Wales Parliament on 30th November, 1972. Eleven years earlier, in 1961, it had begun operation on its present site as Wollongong University College, a College of the University of New South Wales. Parts 1 and 2 of the Act came into effect in 1972. Part 3 was realized when the University was established on 1st January, 1975. The University is situated on the northern approaches to the City of Wollongong about 3 kilometres from the city centre. The spectacular backdrop of Mt. Keira dominates the site. Sydney is approximately 80 kilometres to the north.

The first years of the new University have seen the completion of Stage II of the Library, the Social Sciences Building, the Pentagon Lecture Theatre complex, Stage III of the Union, an extension of the Science Building and a Sports Pavilion. Two new wings of the Social Sciences Building which were commenced in 1979 were completed in 1980. Kid's Uni, (a child care centre) and extensions to the Sports Pavilion were also completed in 1980.

Courses offered at present lead to undergraduate degrees in Arts, Commerce, Engineering, Mathematics, Metallurgy and Science and to higher degrees in Arts, Commerce, Education, Engineering, Metallurgy and Science. Postgraduate diplomas in Accountancy, Applied Multicultural Studies, Computing Science, Education, European Studies, Geography, History and Philosophy of Science, Industrial Relations, Mathematics, Metallurgy, Philosophy, Public Works Engineering and Sociology are also offered.

Details of the University's courses, degree requirements and admission and enrolment procedures are provided in this Calendar. Students and intending students are advised to contact the Student Enquiries Office of the University for any further information they may require.



## CALENDAR OF DATES

### SESSION 1

February 23 to May 10

MAY RECESS                      May 11 to May 17

May 18 to June 7

STUDY RECESS                      June 8 to June 14

EXAMINATIONS                      June 15 to June 28

MID—YEAR RECESS                      June 29 to July 12

<b>January</b>	Thursday 1. . . . .	New Year's Day holiday
	Monday 26. . . . .	Australia Day holiday
<b>February</b>	Thursday 5, Friday 6 . . . . .	Enrolment of new students
	Monday 16, Thursday 19 . . . . .	Re-enrolment
	Monday 16 . . . . .	Engineering, Metallurgy
	Tuesday 17 . . . . .	Commerce
	Wednesday 18. . . . .	Arts A-O
	Thursday 19. . . . .	Arts P-Z, Mathematics & Science
	Monday 23. . . . .	Session 1 lectures commence
<b>April</b>	Friday 17 . . . . .	Easter holidays commence
	Monday 20. . . . .	Easter holidays end
	Saturday 25 . . . . .	Anzac Day
<b>May</b>	Monday 11. . . . .	May recess commences
	Sunday 17 . . . . .	May recess ends
<b>June</b>	Sunday 7. . . . .	Session 1 ends
	Monday 8 . . . . .	Study recess commences
	Sunday 14 . . . . .	Study recess ends
	Monday 8 . . . . .	Queen's Birthday holiday
	Monday 15. . . . .	Examinations commence
	Monday 29. . . . .	Mid-year recess commences

**SESSION 2**

July 13 to August 23

**AUGUST RECESS** August 24 to September 6

September 7 to November 1

**STUDY RECESS** November 2 to November 8

**EXAMINATIONS** November 9 to November 29

<b>July</b>	Sunday 12 . . . . .	Mid-year recess ends
	Monday 13. . . . .	Session 2 lectures commence
<b>August</b>	Monday 24. . . . .	August recess commences
<b>September</b>	Sunday 6. . . . .	August recess ends
<b>October</b>	Monday 5 . . . . .	Labour Day
<b>November</b>	Sunday 1. . . . .	Session 2 ends
	Monday 2 . . . . .	Study recess commences
	Sunday 8. . . . .	Study recess ends
	Monday 9 . . . . .	Examinations commence
	Sunday 29 . . . . .	Examinations end
<b>December</b>	Friday 25 . . . . .	Christmas Day
	Saturday 26 . . . . .	Boxing Day

## THE FACULTIES AND THEIR DEPARTMENTS

### ENGINEERING

CIVIL ENGINEERING  
ELECTRICAL ENGINEERING  
MECHANICAL ENGINEERING  
METALLURGY

### SCIENCE

BIOLOGY  
CHEMISTRY  
GEOLOGY  
PHYSICS

### HUMANITIES

ENGLISH  
EUROPEAN LANGUAGES  
HISTORY  
HISTORY AND PHILOSOPHY  
OF SCIENCE  
PHILOSOPHY

### SOCIAL SCIENCES

ACCOUNTANCY  
ECONOMICS  
EDUCATION  
GEOGRAPHY  
PSYCHOLOGY  
SOCIOLOGY

### MATHEMATICS

COMPUTING SCIENCE  
MATHEMATICS

## THE DEGREES AND DIPLOMAS AWARDED

### UNDERGRADUATE

#### Bachelor of:

ARTS  
 ARTS (HONOURS)  
 COMMERCE  
 COMMERCE (HONOURS)  
 ENGINEERING  
 ENGINEERING (HONOURS)  
 MATHEMATICS  
 MATHEMATICS (HONOURS)  
 METALLURGY  
 METALLURGY (HONOURS)  
 SCIENCE  
 SCIENCE (HONOURS)

### POSTGRADUATE

#### Diploma in:

ACCOUNTANCY  
 APPLIED MULTICULTURAL STUDIES  
 COAL GEOLOGY  
 COMPUTING SCIENCE  
 EDUCATION  
 EUROPEAN STUDIES  
 GEOGRAPHY  
 HISTORY AND PHILOSOPHY  
 OF SCIENCE  
 INDUSTRIAL RELATIONS  
 MANAGEMENT STUDIES  
 MATHEMATICS  
 METALLURGY  
 PHILOSOPHY  
 PUBLIC WORKS ENGINEERING  
 SOCIOLOGY

#### Bachelor of:

EDUCATION

#### Honours Master of:

ARTS  
 COMMERCE  
 EDUCATION  
 ENGINEERING  
 METALLURGY  
 SCIENCE

#### Doctor of:

PHILOSOPHY  
 LETTERS  
 SCIENCE



## LEGISLATION AND THE UNIVERSITY

### THE ACT

The University is governed under the University of Wollongong Act 1972 (as amended by the Acts of 1978). The Act defines the membership and functions of the University and provides for the government of the University under the council.

**The Council.** The Council is the governing authority of the University. The Council consists of official members, members appointed by the Minister and members elected by various constituencies, providing representation from Parliament, the students, academic and non-academic members of staff and Convocation. The members of Council also elect three members.

**Principal Officers.** The Act provides for the election of the Chancellor and Deputy Chancellor and for the appointment of the Vice-Chancellor who is the chief executive officer of the University.

**Financial Responsibilities.** The University has the responsibility of submitting an annual estimate of expenditure and income to the Treasurer and an annual statement of accounts to the Minister for presentation to Parliament.

**Annual Report.** The University is also required to submit to the Minister an annual report upon its proceedings, including a summary of the work, researches and investigations carried out by the University during the year.

**Rules and Regulations.** The Act also specifies a very wide range of matters on which by-laws, regulations and rules may be made.

### THE BY-LAW AND REGULATIONS

**The By-Law.** The University of Wollongong By-law sets down more detailed provisions for carrying out the requirements of some sections of the Act. Among the details included are:

- (i) the procedures for the election of Council members and of the Chancellor and Deputy Chancellor;
- (ii) definitions of various classes of academic staff and superior officers for the purpose of membership of the University;
- (iii) the responsibilities and authority of the Vice-Chancellor;
- (iv) the membership and responsibilities of Convocation;
- (v) the right of the Council to make regulations for the good management of the University; and
- (vi) procedures relating to student discipline.

**Regulations.** The By-law also prescribes that the Council shall make regulations specifying, among other matters, the degrees and diplomas to be offered, the entrance standards for students and the requirements to be satisfied for the award of the degrees and diplomas. These regulations are set out in the relevant parts of the Calendar as indicated in the guide below.

**A GUIDE TO LEGISLATION**

The Act is printed in the following pages, followed by the By-law. The Regulations are printed in relevant sections of the Calendar as indicated below.

**The By-law**

The By-law contains the following parts:

- PART I - Preliminary.
- PART II - Council Membership.
- PART III - Membership of the University.
- PART IV - The Common Seal.
- PART V - Chancellor and Deputy Chancellor.
- PART VI - Vice-Chancellor.
- PART VII - Courses and Degrees.
- PART VIII - Honorary Degrees.
- PART IX - Academic Costume.
- PART X - Convocation.
- PART XI - Management of the University.
- PART XII - Student Discipline and Procedure.

**SCHEDULE.****Regulations**

	Section of Calendar
Regulations for Admission and Matriculation	General Information
Bachelor Degree Regulations	The Bachelor Degrees
Regulations for the Award of Graduate Diplomas	Postgraduate Study.
Regulations for the Award of the Bachelor of Education	Postgraduate Study
Master of Studies Degree Regulations	Postgraduate Study
Honours Masters Degree Regulations	Postgraduate Study
Regulations for the Award of the Degree of Doctor of Philosophy	Postgraduate Study
Regulations for the Award of the Degrees of Doctor of Letters and Doctor of Science	Postgraduate Study

# THE UNIVERSITY OF WOLLONGONG ACT 1972

(AS AMENDED BY THE ACTS OF 1978)

An Act to provide for the establishment and incorporation of a University at Wollongong; to constitute a Council of the University and define its powers, authorities, duties and functions; to vest certain property in the University; to dissolve the Wollongong University College; to amend the Superannuation Act, 1916, the Local Government Act, 1919, and certain other Acts in certain respects; and for purposes connected therewith.

BE it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of New South Wales in Parliament assembled, and by the authority of the same, as follows:

## PART I - PRELIMINARY

**Short title and division of Act.** 1. (1) This Act may be cited as the "University of Wollongong Act, 1972."

(2) This Act is divided as follows:

**PART I.** -- PRELIMINARY -- ss. 1-3.

**PART II.** \* \* \* \* \*

**PART III.** -- THE UNIVERSITY OF WOLLONGONG -- ss. 8-41.

## SCHEDULE.

### REPEALED.

**Commencement.** 2. (1) This section and sections 1 and 3 commence on the date of assent to this Act.

(2) Part II shall commence upon such day as may be appointed by the Governor in respect thereof and as may be notified by proclamation published in the Gazette.

(3) Part III shall commence upon such day as may be appointed by the Governor in respect thereof and as may be notified by proclamation published in the Gazette being a day that is later than the day appointed pursuant to subsection (2).

**Interpretation.** 3. In this Act, unless the context or subject-matter otherwise indicates or requires --

- "by-laws" means by-laws under this Act;
- "Chancellor" means Chancellor of the University;
- "College" means Wollongong University College established and maintained by The University of New South Wales under the provisions of the University of New South Wales Act, 1968;
- "College Council" means Council of the College;
- "Committee" means Selection Committee constituted Under Part II;
- "Council" means Council of the University;
- "Deputy Chancellor" means Deputy Chancellor of the University;
- "University" means The University of Wollongong;
- "Vice-Chancellor" means Vice-Chancellor of the University.

PART II

REPEALED.

\* \* \* \* \*  
4-7. \* \* \* \* \*

PART III – THE UNIVERSITY OF WOLLONGONG.

**Establishment of University.**

8. A University, Consisting of -  
(a) a Council;  
(b) Convocation;  
(c) the professors and such other classes of persons giving instruction within the University as may be prescribed by the by-laws and such superior officers within the University as may be so prescribed; and  
(d) the graduates and students of the University, is hereby established at Wollongong in the State of New South Wales.

**Incorporation of University.**

9. (1) The University is a body corporate under the name of "The University of Wollongong."

(1A) Notwithstanding section 8 and subsection (1), a graduate or student of the University may be exempted by the Council, on grounds of conscience, from membership of the body corporate.

(2) The common seal of the University shall be kept in such custody as the Council may direct and shall not be used except by resolution of the Council.

**Functions of the University**

10. The functions of the University shall, within the limits of its resources and subject to this Act and the by-laws, include - -

- (a) the provision at Wollongong or elsewhere of educational facilities at university standard for any persons enrolled therein;
- (b) the dissemination and increase of knowledge and the promotion of scholarship; and
- (c) the conferring and awarding of degrees and diplomas.

**Facilities to be provided for students.**

11. The University may, for the purpose of discharging its functions, provide from time to time such facilities for its students as it deems desirable.

**The Council.**

12. (1) There shall be a Council of the University which shall have and may exercise and discharge the powers, authorities, duties and functions conferred and imposed upon the Council by or under this Act.

(2) The Council shall be the governing authority of the University.

REPEALED.

(3) \* \* \* \* \*

**Committees.**

13. (1) The Council may by resolution appoint such committees as it thinks fit to assist and advise it in the carrying out of its functions and the exercise of its powers under this Act.



(2) A committee appointed under subsection (1) shall have, and may exercise and discharge, such powers, authorities, duties and functions as the Council may determine.

**REPEALED.**

14. \* \* \* \* \*

**Constitution of Council.**

15.(1) The Council --

(a) shall be constituted in accordance with this section; and

(b) shall assume office upon such day as the Governor may appoint in that behalf and notify by proclamation in the Gazette.

(2) The Council shall consist of --

(a) parliamentary members;

(b) official members;

(c) appointed members; and

(d) elected student and non-student members.

(3) The parliamentary members of the Council shall be--

(a) a member of the Legislative Council elected by that Council --

(i) as soon as practicable after each periodic Council election within the meaning of section 3 of the Constitution Act, 1902; or

(ii) where there is a casual vacancy in the office of a parliamentary member of the Council held pursuant to subparagraph (i), as soon as practicable after that office becomes vacant; and

(b) a member of the Legislative Assembly elected by that Assembly --

(i) as soon as practicable after the commencement of this Part and thereafter as soon as practicable after each general election of members of the Legislative Assembly; or

(ii) where there is a casual vacancy in an office of a parliamentary member of the Council held pursuant to subparagraph (i), as soon as practicable after that office becomes vacant.

(4) The official members of the Council shall be --

(a) the person for the time being holding the office of Chancellor, where he is not otherwise a member of the Council; and

(b) the person for the time being holding the office of Vice-Chancellor.

(5) The appointed members shall comprise four persons appointed by the Minister.

(6) The elected student members of the Council shall comprise two persons who are qualified and elected in each case as may be prescribed by the by-laws by and from persons who are enrolled as candidates proceeding to a degree or diploma in the University (other than persons so enrolled who are members of the full-time staff of the University).

(7) The elected non-student members of the Council shall be qualified and elected in each case or for each class as may be prescribed by this subsection and the by-laws and shall comprise - -

- (a) three persons, none of whom shall be a member of the full-time staff of the University, so elected by such of the members of Convocation as are included in a list prepared for the purposes of this subsection in accordance with the by-laws;
- (b) four persons, of whom one shall not be, and each of the others shall be, a professor within the University, so elected by and from the professors and such other persons, being persons giving instruction within the University and superior officers within the University, as may be prescribed by the by-laws;
- (c) one person, being a member of the staff of the University ineligible for election pursuant to paragraph (b), so elected by and from such members of the staff of the University as may be prescribed by the by-laws; and
- (d) three persons so elected by the members of the Council for the time being referred to in subsections (3), (4), (5), (6) and paragraphs (a), (b) and (c).

(8) Where a person (not being a person who is a member of the Council) is appointed at any time by the Council to act in the place of the Vice-Chancellor, that person shall, while so acting, be deemed to be an official member of the Council.

(9) Subject to this Act, a member of the Council shall hold office - -

- (a) in the case of a parliamentary member, until a member of the House of Parliament that elected him is elected by that House to replace him;
- (b) in the case of an official member, while he holds the office by virtue of which he is such a member;
- (c) in the case of an appointed member, for such term not exceeding three years as may be prescribed by the by-laws; and
- (d) in the case of an elected member, for such term not exceeding three years as may be prescribed by the by-laws.

## 12 THE UNIVERSITY

(10) A retiring member of the Council shall not, by reason of that membership, be disqualified from again becoming a member of the Council.

(11) A casual vacancy shall - -

- (a) in the case of an appointed member, be filled by such person as the Minister may appoint; and
- (b) in the case of an elected member, be filled by a person qualified in accordance with subsection (6) or (7) to be elected to the vacancy concerned in such manner as may be prescribed by the by-laws,

and any member filling a casual vacancy under this subsection shall hold office for the residue of his predecessor's term of office.

(12) A by-law for the purposes of subsection (6) or (7) may be made with respect to - -

- (a) all persons of a specified class; or
- (b) all persons of a specified class other than persons of a specified class or classes.

(13) A by-law for the purposes of subsection (9) (c) and (d) may - -

- (a) prescribe a term of office by reference to determined, or determinable, days of commencement and termination;
- (b) prescribe different terms of office in respect of the appointed members or the different classes of elected members; and
- (c) provide for the retirement in rotation of the appointed members or the different classes of elected members.

### **Vacation of office.**

16. A member of the Council shall be deemed to have vacated his office if he - -

- (a) dies;
- (b) in the case of an appointed or elected member, transfers his place of permanent residence to a place that is not within the State or the Australian Capital Territory;
- (c) declines to act;
- (d) resigns his office by writing under his hand addressed - -
  - (i) in the case of the parliamentary member who is a member of the Legislative Council, to the President of the Legislative Council;

- (ii) in the case of the parliamentary member who is a member of the Legislative Assembly, to the Speaker of the Legislative Assembly;
  - (iii) in the case of an appointed member, to the Minister; or
  - (iv) in the case of an elected member, to the Vice-Chancellor;
- (e) is an appointed or elected member who becomes bankrupt, applies to take the benefit of any law for the relief of bankrupt or insolvent debtors, compounds with his creditors or makes any assignment of his estate for their benefit;
- (f) is an appointed or elected member who becomes a temporary patient or a continued treatment patient, a protected person or an incapable person within the meaning of the Mental Health Act, 1958, or a person under detention under Part VII of that Act;
- (g) is an appointed member or elected member and absents himself from four consecutive meetings of the Council without leave of the Council;
- (h) ceases, in the case of the parliamentary member elected by the Legislative Council - -
- (i) to be a member of that Council otherwise than by reason of section 22B (1) (c) of the Constitution Act, 1902; or
  - (ii) to be a member of that Council by reason of section 22B (1) (c) of that Act and does not become a candidate at the next periodic Council election within the meaning of section 3 of that Act or, as the case may be, becomes a candidate but is not elected; or
- (i) ceases, in the case of the parliamentary member elected by the Legislative Assembly - -
- (i) to be a member of that Assembly otherwise than by reason of its dissolution or its expiration by effluxion of time; or
  - (ii) to be a member of that Assembly by reason of its dissolution or its expiration by effluxion of time and does not become a candidate at the next general election of members of that Assembly or, as the case may be, becomes a candidate but is not elected; or
- (j) being an elected member referred to in section 15 (7) (b) or (c), ceases to be an employee of the University.



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### **Election of Chancellor.**

17. (1) The Council shall, at its first meeting and whenever a vacancy in the office of Chancellor occurs, elect a person (whether a member of the Council or not) to be Chancellor of the University.

(2) The Chancellor shall hold office for such period not exceeding three years and on such terms and conditions as may be prescribed by the by-laws.

### **Deputy Chancellor.**

18. (1) The Council shall, at its first meeting and whenever a vacancy in the office of Deputy Chancellor occurs, elect one of its members to be Deputy Chancellor of the University.

(2) The Deputy Chancellor shall, unless he sooner ceases to be a member of the Council, hold office for one year from the date of his election and on such conditions as may be prescribed by the by-laws.

(3) In the absence of the Chancellor or during a vacancy in the office of Chancellor or during the inability of the Chancellor to act, the Deputy Chancellor shall have and may exercise and discharge all the powers, authorities, duties and functions of the Chancellor.

### **Chairman.**

19. (1) The Chancellor shall preside at all meetings of the Council and all committees constituted by the Council at which he is present.

(2) At any meeting of the Council or of a committee constituted by the Council at which the Chancellor is not present, the Deputy Chancellor shall preside, and in the absence of both the Chancellor and the Deputy Chancellor a member elected by the members present from among their number, shall preside.

### **Appointment of Vice-Chancellor.**

20. (1) The first Vice-Chancellor of the University shall be the person who, immediately before the commencement of this Part, was the member of the full-time staff of the College holding office as Vice-Chancellor designate pursuant to section 6 (1) and he shall, subject to this section, continue in office under the terms and conditions determined under section 5 (c) in relation to his tenure of the office of Vice-Chancellor.

(2) Whenever a vacancy occurs in the office of Vice-Chancellor, the Council shall appoint a person, whether a member of the Council or not, to be Vice-Chancellor.

(3) The Vice-Chancellor (other than the first Vice-Chancellor) shall hold office for such period and on such terms and conditions as the Council Determines.

(4) The Vice-Chancellor shall be the chief executive officer of the University and shall have and may exercise and discharge such powers, authorities, duties and functions as may be prescribed by the by-laws and, subject to the by-laws, as the Council determines.

### **Quorum.**

21. At any meeting of the Council one-half (or where one-half is not a whole number the whole number next higher than one-half) of the total number of members for the time being of the Council, shall form a quorum.

**Re-appointment  
or re-election.**

22. Nothing contained in this Act shall prevent any person from being immediately, or at any time, re-appointed or re-elected to any office or place under this Act if he is eligible and otherwise qualified, for the time being, to hold that office or place.

**Validity of  
acts and  
proceedings.**

23. (1) No act or proceeding of the Council or any committee of the Council, or of the Vice-Chancellor or any other person acting pursuant to any direction of the Council, shall be invalidated or prejudiced by reason only of the fact that at the time when such act or proceeding was done, taken or commenced there was a vacancy or a number of vacancies in the office or offices of any member or members of the Council.

(2) All acts and proceedings of the Council or any committee of the Council, or of the Vice-Chancellor or any other person acting pursuant to any direction of the Council, shall, notwithstanding the subsequent discovery of any defect in the appointment or election of any member of the Council or that any such member was disqualified from acting as or incapable of being a member of the Council, be as valid as if that member had been duly appointed or elected and was qualified to act as or capable of being a member and had acted as a member of the Council and as if the Council has been properly and fully constituted.

**REPEALED.**

24. \* \* \* \* \*

**Powers of  
Council.**

25. (1) Subject to this Act and the by-laws, the Council--

- (a) may provide such courses as it deems fit and in conferring and awarding degrees and diplomas issue such certificates in the nature of degrees, diplomas or otherwise as it thinks fit;
- (b) may appoint and terminate the appointment of academic and other staff of the University;
- (c) shall have the control and management of the affairs and concerns of the University and may act in all matters concerning the University in such manner as appears to it best calculated to promote the objects and interests of the University;
- (d) may acquire by gift, bequest or devise any property for the purposes of this Act and may agree to carry out the conditions of any such gift, bequest or devise;
- (e) may borrow money for the purpose of carrying out and performing any of its powers, authorities, duties and functions, for the renewal of loans or the discharge or partial discharge of any indebtedness to the Treasurer or to any bank within such limits, to such extent and upon such conditions as to security or otherwise as the Governor upon the recommendation of the Treasurer may approve;

(f) may invest any funds belonging to or vested in the University in any manner for the time being authorised for the investment of trust funds or in any manner approved by the Governor, generally or in any particular case or class of cases, upon the recommendation of the Treasurer; and

(g) shall have the control and management of all real and personal property at any time vested in or acquired by the University, and may, subject to subsection (2), dispose of real or personal property in the name and on behalf of the University.

(2) Except as provided in subsection (3) the Council shall not, except with the approval of the Minister, alienate, mortgage, charge or demise any lands of the University.

(3) The Council may, without the approval of the Minister, lease any lands of the University where - -

(a) the term of the lease does not exceed twenty-one years; and

(b) subject to subsection (4) (b), there is reserved for the whole of the term, the highest rent that can reasonably be obtained without fine.

(4) In the case of a lease of any lands of the University or any renewal thereof to a residential college affiliated with the University, the lease shall - -

(a) be for a term not exceeding ninety-nine years;

(b) be at a nominal rent; and

(c) contain such other conditions as the University deems fit including a condition that the lease shall not be assigned.

(5) The rule of law against remoteness of vesting does not apply to and in respect of any condition of a gift, bequest or devise to which the University has agreed.

**Delegation  
by Council.**

26. (1) The Council may, in relation to any matter or class of matters, or in relation to any activity or function of the University, by resolution, delegate all or any of its powers, authorities, duties and functions under this Act (except this power of delegation) to any member or to any committee of its members, or to any officer or officers of the University.

(2) Every delegation under this section shall be revocable by resolution of the Council, and no delegation shall prevent the exercise of any power, authority, duty or function by the Council.

**By-Laws.**

27. (1) The Council may make by-laws, not inconsistent with this Act, with respect to all matters pertaining to the University.

(2) Without prejudice to the generality of sub-section (1) the Council may make by-laws for or with respect to - -

- (a) the management, good government, and discipline of the University;
- (b) the method of election of members of the Council (other than the parliamentary members) who are to be elected;
- (c) the manner and time of convening, holding and adjourning the meetings of the Council and the manner of voting at such meetings, including postal voting or voting by proxy; the powers and duties of the Chairman thereof; the conduct and record of the business; the appointment of committees of the Council, and the quorum, powers and duties of such committees;
- (d) the number, stipend, manner of appointment and dismissal of deans, professors, lecturers, examiners and other officers and employees of the University;
- (e) the entrance standards for students;
- (f) the payment of such fees and charges, including fines, as the Council deems necessary, including fees and charges to be paid in respect of - -
  - (i) entrance to the University;
  - (ii) tuition;
  - (iii) lectures and classes;
  - (iv) examinations;
  - (v) residence;
  - (vi) the conferring of degrees and diplomas;
  - (vii) the provision of amenities and services, whether or not of an academic nature; and
  - (viii) an organisation of students or of students and other persons;
- (f1) the exemption from, or deferment of, payment of fees and charges, including fines;
- (g) the course of lectures or studies for, the examinations for, and the granting of, degrees, diplomas, certificates and honours and the attendance of candidates therefor;
- (h) the examinations for, and the granting of, fellowships, scholarships, exhibitions, bursaries and prizes;

- (i) the admission of students of other universities and institutions of higher education to any status within the University or the granting to graduates of such universities or institutions, or other persons, of a degree or diploma without examination;
- (j) the establishment of residential colleges and halls of residence within the University and their conduct or the affiliation of residential colleges;
- (k) the affiliation with the University of any educational or research establishment;
- (l) the provision of a scheme of superannuation for the professors of the University; and
- (m) the form and use of academic costume.

(3) Every by-law made by the Council shall be sealed with the common seal of the University and shall be submitted for the approval of the Governor.

**Regulations,  
rules or  
orders.**

28. (1) The by-laws may provide for empowering any authority (including the Council) or officer of the University to make regulations, rules or orders (not inconsistent with this Act or with any by-law) for regulating, or providing for the regulation of, any specified matter (being a matter with respect to which by-laws may be made) or for carrying out or giving effect to the by-laws.

(2) Any regulation, rule or order referred to in subsection (1) - -

- (a) shall have the same force and effect as a by-law;
- (b) may, from time to time as the occasion requires, be amended or repealed by any authority (including the Council) or officer of the University empowered by subsection (1) to make such regulation, rule or order; and
- (c) shall be deemed not to be within the meaning of the term "regulation" as defined in section 41 of the Interpretation Act, 1897.

**Convocation.**

29. (1) Convocation shall consist of - -

- (a) all members and past members of the Council;
- (b) all graduates of the University;
- (c) all members of the full-time academic staff of the University and such other members or classes of members of the staff of the University as the by-laws may prescribe;
- (d) such graduates of other universities, or other persons, as are, in accordance with the by-laws, admitted as members of Convocation; and



(e) without prejudice to the generality of paragraph (d), graduates of The University of New South Wales who spent at least three years as properly enrolled students of the College.

(1A) Notwithstanding subsection (1), a person referred to in subsection (1) (b), (c) or (e) may be exempted by the Council, on grounds of conscience, from membership of Convocation.

(2) The first meeting of Convocation shall be convened by the Vice-Chancellor.

(3) Meetings of Convocation shall be convened and the business at such meetings shall, subject to the by-laws, be as determined by Convocation.

(4) A quorum at any meeting of Convocation shall be such number of members as may be prescribed by the by-laws.

(5) Convocation shall have and may exercise and discharge such powers, authorities, duties and functions as may be prescribed by the by-laws.

(6) The Council may establish a Standing Committee and such other committees of Convocation as it considers necessary.

**Treasurer to meet certain costs.**

30. (1) There shall be paid to the University in respect of the year commencing upon the first day of January of the year of commencement of this Part and in respect of each succeeding year, such sum as the Treasurer may, upon taking into consideration the University's estimated expenditure requirements and income from all sources which is capable of being applied towards meeting such expenditure requirements, determine.

(2) To enable the Treasurer to exercise and perform the powers and functions conferred upon him by subsection (1) the University shall, in respect of the year commencing upon the first day of January that next preceded the commencement of this Part, as soon as practicable after that commencement, and in respect of each succeeding year either before or as soon as practicable after its commencement, submit to the Treasurer estimates of the expenditure and income of the University for that year and such other information as the Treasurer may deem necessary.

(3) Any moneys payable by the Treasurer under this section shall be paid out of moneys provided by Parliament.

**Advance by Treasurer.**

31. The Treasurer may for the temporary accommodation of the University advance such moneys to the Council as the Governor may approve upon such terms and conditions as to repayment and interest as may be agreed upon.

**Accounts to be rendered.**

32. The Council shall cause to be kept proper books of account in relation to the funds of the University and shall, as soon as practicable after the thirty-first day of December in each year, prepare and transmit to the Minister for presentation to Parliament a statement of accounts in a form approved



by the Auditor-General exhibiting a true and correct view of the financial position and transactions of the University for the year.

**Audit.**

33. (1) The accounts of the University shall be audited by the Auditor-General who shall, in respect thereof, have all the powers conferred on the Auditor-General by any law for the time being in force relating to the audit of public accounts.

(2) The provisions of the Audit Act, 1902, apply to and in respect of the members of the Council and to the officers and employees of the University in the same manner as they apply to accounting officers of public departments.

**Report of proceedings.**

34. (1) As soon as practicable after the first day of January in each year, the Council shall prepare and furnish to the Minister a report upon the proceedings of the University during the period of twelve months immediately preceding that day including a summary of the work, researches and investigations carried out by the University during that period.

(2) A copy of each report under subsection (1) shall be laid before both Houses of Parliament as soon as practicable after it has been received by the Minister.

**No religious test or political discrimination.**

35. A person shall not, by reason of his religious or political views or beliefs, be denied admission as a student of the University or be ineligible to hold office therein or to graduate thereat or to enjoy any benefit, advantage or privilege thereof.

**Visitor.**

36. The Governor of New South Wales shall be the Visitor of the University with full authority and jurisdiction to do all such things and entertain such causes as may pertain to or be exercised by visitors as often as he thinks fit.

**School Teachers.**

37. (1) The Council shall allow such persons as are - -
- (a) teachers in schools established under the Public Instruction Act of 1880 or members of the Public Service of New South Wales approved by the Minister;
  - (b) qualified in such manner as may be prescribed by the by-laws to be enrolled as students of the University;
  - (c) selected by the University for admission to the University; and
  - (d) not otherwise excluded from the University,

to attend University lectures for the purpose of proceeding to a first degree and to receive tuition for the period required for admission to that degree without payment of lecture, class or tuition fees.

(2) Nothing in subsection (1) shall exempt any person referred to in that subsection from the payment of such fees, other than lecture, class or tuition fees, as may be approved by the Council.

**Acquisition  
of land.**

37A. (1) For the purposes of this Act, the Governor may, on the recommendation of the Minister, resume or appropriate any land under Division 1 of Part V of the Public Works Act, 1912.

(2) The Minister shall not make a recommendation for the purposes of subsection (1) unless he is satisfied that the adequate provision has been or will be made for the payment by the University of compensation for the resumption or appropriation and all necessary charges and expenses incidental to the resumption or appropriation.

(3) A resumption or appropriation effected pursuant to subsection (1) shall be deemed to be for an authorised work within the meaning of the Public Works Act, 1912, and the Minister shall, in relation to that authorised work, be deemed to be the Constructing Authority within the meaning of that Act.

(4) Sections 34, 35, 36 and 37 of the Public Works Act, 1912, do not, but section 38 of that Act does, apply in relation to a resumption or appropriation under this section.

**Transfer of  
land to  
University.**

37B. (1) Where land is vested in the Minister, whether as Constructing Authority within the meaning of the Public Works Act, 1912, by virtue of a resumption or appropriation effected pursuant to section 37A (1), or otherwise, the Minister may convey or transfer that land to the University for such estate, and subject to such trusts and rights of way or other easements, as he thinks fit.

(2) A conveyance, transfer or other instrument executed for the purposes of subsection (1) - -

- (a) is not liable to be stamped with stamp duty under the Stamp Duties Act, 1920; and
- (b) may be registered under any Act without fee.

**Provisions  
Relating to  
Wollongong  
University  
College.**

38. (1) The College is hereby dissolved.

(2) All real and personal property which immediately before the commencement of this Part was held by or was vested in the University of New South Wales or any other body in trust for, or on behalf of, the College shall, by virtue of this Act, be divested from The University of New South Wales or such other body and shall vest in the University to be applied by the University, subject to any trusts or conditions on which it was held immediately before that commencement, for the objects and purposes for which the University is established.

**Transfer by  
University of  
New South Wales  
of certain  
property to  
University.**

39. (1) This section applies to and in respect of real and personal property, including real and personal property vested in the University pursuant to section 38 (2), which immediately before the commencement of this Part was held by or was vested in The University of New South Wales and used by that University for the purposes of the College.

(2) The Minister shall cause to be constituted a Joint Committee consisting of five members of whom - -

- (a) one shall be the Auditor-General, or such person as he may nominate, who shall be Chairman and who shall convene, and preside at, all meetings of that Committee;
  - (b) two shall be such persons as are selected by the Council of The University of New South Wales to be representatives of that University; and
  - (c) two shall be such persons as are selected by the Council to be representatives of the University.
- (3) The function of the Joint Committee is to determine as soon as practicable - -
- (a) what property to which this section applies (other than property vested pursuant to section 38) is to be transferred to the University;
  - (b) what debts and liabilities in respect of property to which this section applies are to be transferred to the University;
  - (c) the manner in which payments on account of leave or upon the retirement or death of a member of the staff of The University of New South Wales who is transferred to the University pursuant to this Act are to be met and the extent to which those payments should be apportioned between The University of New South Wales and the University;
  - (d) what books, documents, records and papers are to be handed over to the University; and
  - (e) such other matters relating to the matters referred to in paragraphs (a), (b), (c) and (d) as that committee deems necessary or expedient.
- (4) Where a difference of opinion arises between the members of the Joint Committee representing The University of New South Wales and the University in respect of a determination of any of the matters referred to in subsection (3) the matter shall be determined in such manner as the Auditor-General or the person nominated by him to represent him on that Committee directs.
- (5) Any determination made by the Joint Committee pursuant to subsection (3) shall have effect according to its tenor.
- (6) The Chairman of the Joint Committee shall forward or cause to be forwarded to the Minister, The University of New South Wales and the University written notice of any determination it may make with respect to the matters referred to in subsection (3) and each University shall keep a record of that notice
- (7) Upon receipt of a notice of any determination made by the Joint Committee, The University of New South Wales shall, as soon as practicable, thereafter give effect to the determination.

**Persons holding office in the College.**

40. (1) In this section a reference to an "officer of the College" is a reference to a person who, immediately before the commencement of this Part, held any salaried office or employment at the College otherwise than as - -

- (a) a part-time lecturer, tutor or demonstrator;
- (b) a temporary senior lecturer, lecturer, senior tutor, tutor, senior demonstrator or demonstrator; or
- (c) a staff member employed on a fixed term contract.

(2) Every officer of the College shall become, at the commencement of this Part, an officer and an employee of the University on such terms and conditions (including terms and conditions as to remuneration and duration of appointment), not less favourable than those upon which he was employed at the College immediately before that commencement, as the Council determines.

(3) The Council may, in determining terms and conditions in respect of the title, duties or status attaching to offices or employment at the University, determine in relation to an officer of the College terms and conditions less favourable than those on which the officer of the College was employed immediately before the commencement of this Part.

(4) An officer of the College shall not have any right to damages or compensation in respect of the termination, in consequence of the commencement of this Part, of his tenure of any office or employment at the College but he shall be entitled to enforce or enjoy any right or privilege to which he was, by virtue of section 2 of the University of New South Wales Act, 1968, entitled immediately before that commencement as if the right or privilege had been conferred by this Act.

**Amendments.**

41. An Act specified in the first column of the Schedule is amended to the extent specified opposite that Act in the second column of the Schedule.

## Sec. 41.

First Column.	Second Column.
Year and No. of Act.      Short Title.	Extent of amendment.
1916, No. 28. Superannuation Act, 1916.	<p>Insert in the definition of "Employee" in section 3(1) after the words "University of New South Wales," the words "or, subject to subsection (5), a professor of The University of Wollongong,".</p> <p>Insert next after section 3 (4) the following new subsection:</p> <p>(5) (a) Subject to this subsection the exclusion from the definition of "Employee" of a professor of The University of Wollongong shall not extend to a person whose rights as a contributor are continued by section 40 of the University of Wollongong Act, 1972.</p> <p>(b) A professor of The University of Wollongong shall cease to be a contributor if, after the commencement of Part III of the University of Wollongong Act, 1972, he becomes, or continues to be, party to any scheme or arrangement to which that University is also a party and under which he is or may become entitled to any pension or annuity or retiring allowance upon retirement from his professorship.</p> <p>(c) The provisions of subsection (3) shall apply, mutatis mutandis, to professors of The University of Wollongong other than those who are employees by virtue of paragraph (a).</p> <p>Insert at the end of Schedule III the following words:</p> <p>The University of Wollongong.</p>
1919, No. 41 Local Government Act, 1919.	<p>Insert next after section 132 (1) (fiv) the following new paragraph:</p> <p>(fv) land which is vested in The University of Wollongong or in a college thereof and is used or occupied by the University or college, as the case may be, solely for the purposes thereof; and</p>
1924, No. 50 Metropolitan Water, Sewerage, and Drainage Act, 1924.	<p>Insert Next after section 88 (1) (f2) the following new paragraph:</p> <p>(f3) land which is vested in The University of Wollongong or in a college thereof and is used or occupied by the University or college, as the case may be, solely for the purposes thereof.</p>



## THE BY-LAW

The University of Wollongong hereby makes the following By-law:

### PART I – PRELIMINARY

1. This By-law may be cited as the "University of Wollongong By-law".
2. This By-law is divided into Parts as follows:

<b>PART I</b>	–	PRELIMINARY
<b>PART II</b>	–	COUNCIL MEMBERSHIP
<b>PART III</b>	–	MEMBERSHIP OF THE UNIVERSITY
<b>PART IV</b>	–	THE COMMON SEAL
<b>PART V</b>	–	CHANCELLOR AND DEPUTY CHANCELLOR
<b>PART VI</b>	–	VICE-CHANCELLOR
<b>PART VII</b>	–	COURSES AND DEGREES
<b>PART VIII</b>	–	HONORARY DEGREES
<b>PART IX</b>	–	ACADEMIC COSTUME
<b>PART X</b>	–	CONVOCATION
<b>PART XI</b>	–	MANAGEMENT OF THE UNIVERSITY
<b>PART XII</b>	–	STUDENT DISCIPLINE AND PROCEDURE
<b>SCHEDULE</b>		

3. (1) In this By-law, unless a contrary intention appears - -

"academic staff member" means a member of the Council elected under section 15 (7) (b) of the Act;

"Act" means the University of Wollongong Act, 1972;

"Convocation member" means a member of the Council elected under section 15 (7) (a) of the Act;

"Council" means Council for the University;

"general staff member" means the member of the Council elected under section 15 (7) (c) of the Act;

"student member" means a member of the Council elected under section 15 (6) of the Act;

"University" means The University of Wollongong.

(2) In this By-law, unless a contrary intention appears, a reference to an authority, officer or office shall be construed as a reference to that authority, officer or office in and of the University.

### PART II – COUNCIL MEMBERSHIP

4. (1) For the purposes of section 15 (6) of the Act the student members shall comprise two persons who are qualified and elected in accordance with this clause.



(2) The Returning Officer shall keep a roll (in this By-law referred to as the Roll of Students) containing the names and last known addresses of persons who are enrolled as candidates proceeding to a degree or diploma in the University (other than persons so enrolled who are members of the full-time staff of the University).

(3) The persons qualified to be elected are those persons whose names appear on the Roll of Students at the date and time prescribed pursuant to paragraph 8 of the Schedule for the close of nominations.

(4) The persons entitled to vote are those persons whose names appear on the Roll of Students at the date and time prescribed pursuant to paragraph 15 of the Schedule for the receipt of completed voting papers.

(5) The provisions of the Schedule apply to an election conducted under this clause.

5. (1) For the purposes of section 15 (7) (a) of the Act the Convocation members shall comprise three persons who are qualified and elected in accordance with this clause.

(2) The Returning Officer shall keep a list for the purposes of section 15 (7) (a) of the Act (in this By-law referred to as the Roll of Convocation) containing the names and last known addresses of the members of convocation.

(3) The persons qualified to be elected are persons other than full-time members of the staff of the University.

(4) The persons entitled to vote are those persons whose names appear on the Roll of Convocation at the date and time prescribed pursuant to paragraph 15 of the Schedule for the receipt of completed voting papers.

(5) The provisions of the Schedule apply to an election conducted under this clause.

6. (1) For the purposes of section 15 (7) (b) of the Act the academic staff members shall comprise four persons who are qualified and elected in accordance with this clause.

(2) The Returning Officer shall keep a roll (in this By-law referred to as the Roll of Academic Staff) containing the names and last known addresses of - -

(a) professors within the University;

(b) persons holding positions of associate professor, reader, senior lecturer, lecturer, senior tutor, senior demonstrator, tutor, demonstrator, tutor/demonstrator and teaching fellow within the University and such other positions within the University as may be specified in regulations made by the Council for the purposes of this paragraph; and

(c) officers holding the positions of Deputy Vice-Chancellor, Academic Registrar, Bursar, Estate Manager, Registrar and University Librarian within the University and such other positions within the University as may be specified in regulations made by the Council for the purposes of this paragraph.

(3) Subject to section 15 (7) (b) of the Act, the persons qualified to be elected are those persons whose names appear on the Roll of Academic Staff at the date and time prescribed pursuant to paragraph 8 of the Schedule for the close of nominations.

- (4) The persons entitled to vote are those persons whose names appear on the Roll of Academic Staff at the date and time prescribed pursuant to paragraph 15 of the Schedule for the receipt of completed voting papers.
- (5) The provisions of the Schedule apply to an election under this clause.
7. (1) For the purpose of section 15 (7) (c) of the Act the general staff member shall comprise a person who is qualified and elected in accordance with this clause.
- (2) The Returning Officer shall keep a roll (in this By-law referred to as the Roll of General Staff) containing the names and last known addresses of the full-time staff of the University who are ineligible for election pursuant to section 15 (7) (b) of the Act.
- (3) The persons qualified to be elected are those persons whose names appear on the Roll of General Staff at the date and time prescribed pursuant to paragraph 8 of the Schedule for the close of nominations.
- (4) The persons entitled to vote are those persons whose names appear on the Roll of General Staff at the date and time prescribed pursuant to paragraph 15 of the Schedule for the receipt of completed voting papers.
- (5) The provisions of the Schedule apply to an election conducted under this clause.
8. (1) For the purposes of section 15 (7) (d) of the Act the members elected by the Council shall comprise three persons elected in accordance with this clause.
- (2) The election shall be held at a meeting convened by the Returning Officer of those members of the Council who are entitled, pursuant to section 15 (7) (d) of the Act, to vote.
- (3) The Returning Officer shall post or deliver to each such member at least ten days before the day of the meeting a notice that the election is to be held.
- (4) The notice of election referred to in subclause (3) shall state - -
- (a) the number of members to be elected; and
- (b) the date, time and place of the meeting.
- (5) The election shall be effected in such manner as may be determined at the meeting.
9. (1) For the purposes of section 15 (11) (b) of the Act the prescribed manner for filling a casual vacancy is, subject to subclause (2), the same manner as that in which the person whose seat is vacant was elected.
- (2) In the event of a casual vacancy in the office of any member of the Council (other than a member elected under section 15 (7) (d) of the Act) occurring within less than one year of the date on which the member's term of office would have expired, such vacancy shall be filled by some person qualified to hold that office appointed by the Council in the place of that member.
10. (1) An election conducted under this Part shall not be invalid by reason only of the omission of the name of a person who is qualified to be elected or eligible to vote at that election from the Roll of Students, Roll of Convocation, Roll of Academic Staff or Roll of General Staff, as the case may be.

(2) A person who is entitled to be enrolled on a roll or list kept under this Part may inspect that roll or list during the time that the office of the Academic Registrar is open.

11. (1) For the purposes of section 15 (9) (c) of the Act, the term of office of an appointed member is 3 years.

(2) For the purposes of section 15 (9) (d) of the Act and subject to subclause (3) --

(a) the term of office of an elected member (other than a student member) is 3 years; and

(b) the term of office of a student member is 2 years.

(3) The term of office of some of the elected members of any class --

(a) who are elected at the first election of members of that class after the commencement of this subclause; and

(b) who receive fewer votes than the other elected members of that class,

shall, if regulations made by the Council so provide, be reduced from the period specified in subclause (2) to such shorter period as may be specified in the regulations in order to provide for the retirement in rotation of the elected members of that class.

### PART III – MEMBERSHIP OF THE UNIVERSITY

12. For the purposes of section 8 (c) of the Act --

(a) the classes of persons (other than professors) giving instruction within the University are the persons holding the positions of associate professor, reader, senior lecturer, lecturer, senior tutor, senior demonstrator, tutor, demonstrator, tutor/demonstrator and teaching fellow within the University and such other positions within the University as may be specified in regulations made by the Council for the purposes of this paragraph; and

(b) the superior officers within the University are the officers holding the positions of Deputy Vice-Chancellor, Academic Registrar, Bursar, Estate Manager, Registrar and University Librarian and such other positions as may be specified in regulations made by the Council for the purposes of this paragraph.

### PART IV – THE COMMON SEAL

13. The Common Seal of the University shall be kept in the custody of the Academic Registrar.

14. The Common Seal of the University shall be affixed to any instrument or document in the presence of, and shall be attested by --

(a) the Chancellor, the Deputy Chancellor, the Vice-Chancellor or any other member of the Council; and

(b) the Academic Registrar.

15. (1) The Academic Registrar shall maintain a register of the use of the Common Seal.

(2) The register of the use of the Common Seal shall record --

- (a) the nature of, and parties to, an instrument or document to which the Common Seal was affixed;
- (b) the date on which the Common Seal was affixed to an instrument or document; and
- (c) the names of the persons who attested the affixing of the Common Seal.

### **PART V – CHANCELLOR AND DEPUTY CHANCELLOR**

- 16. (1) The Chancellor shall, subject to subclause (2), hold office for 3 years from the date of his election.
- (2) The Chancellor shall cease to hold office as Chancellor --
  - (a) where he was a member of the Council at the time of his election as Chancellor – if he ceases to be a member of the Council; or
  - (b) in any other case - if, were he an elected member of the Council, he would have ceased to be such a member pursuant to section (16) (a) – (g) of the Act.
- 17. An election to fill a vacancy in the office of Chancellor or Deputy Chancellor shall be held at an ordinary meeting of the Council.
- 18. A nomination for the office of Chancellor or Deputy Chancellor --
  - (a) shall be signed by 2 persons who are eligible to vote at the election for office of Chancellor or Deputy Chancellor, as the case may be; and
  - (b) shall be submitted in writing to the Academic Registrar before the commencement of the item of business of the meeting of the Council during which that election is to be held.

### **PART VI – VICE-CHANCELLOR**

- 19. Nothing in this Part shall affect the precedence or authority of the Chancellor or Deputy Chancellor.
- 20. The Vice-Chancellor shall --
  - (a) promote and further the development and interests of the University including, but without limiting the generality of this paragraph, the welfare of staff and students;
  - (b) be responsible to the Council for the general academic, administrative financial and other business of the University;
  - (c) exercise a general supervision over all staff and students of the University; and
  - (d) do all things ancillary to those referred to in paragraphs (a), (b) and (c).
- 21. Without prejudice to the generality of clause 20, the Vice-Chancellor shall exercise such functions and authority as may from time to time be delegated by the Council.
- 22. The Vice-Chancellor shall, by virtue of his office, be a member of any board, committee or faculty within the University and, unless the Council determines otherwise, may preside at a meeting of any such board, committee or faculty.



### PART VII – COURSES AND DEGREES

23. The degrees and diplomas to be conferred and awarded by the University shall be specified in regulations made by the Council for the purposes of this clause.
24. The requirements to be satisfied for the award of degrees and diplomas, including the conditions governing the admission of students of other universities and institutions of higher education to any status within the University, shall be specified in regulations made by the Council for the purposes of this clause.
25. The entrance standards for students and the conditions to be satisfied for matriculation in the University shall be specified in regulations made by the Council for the purposes of this clause.

### PART VIII – HONORARY DEGREES

26. The Council may confer, *honoris causa*, any degree of the University.
27. (1) The Council shall establish an Honorary Degrees Committee which shall consist of the Chancellor, the Vice-Chancellor and such other persons as the Council may from time to time, by resolution, determine.  
(2) The Honorary Degrees Committee may recommend to the Council the persons on whom honorary degrees may be conferred and the criteria for selection of any such persons.

### PART IX – ACADEMIC COSTUME

28. (1) The academic costume for the Chancellor shall consist of a gown of black damask lined with blue and trimmed with gold and a trencher cap of black with a gold tassel.  
(2) The form of academic costume for the Deputy Chancellor, the Vice-Chancellor, members of the Council, the officers of the University, the graduates and the students of the University shall be specified in regulations made by the Council for the purposes of this subclause.
29. The usages of the academic costumes shall be determined by resolution of the Council.

### PART X – CONVOCATION

30. (1) For the purposes of section 29 (1) (c) of the Act, the following classes of members of the staff of the University are prescribed as additional members of Convocation:—
  - (a) the full-time non-academic staff of the University who are graduates of other universities;
  - (b) the part-time academic staff of the University.(2) For the purposes of section 29 (1) (d) of the Act:—
  - (a) graduates of other universities who are resident within such local government areas as the Council may from time to time by resolution determine,
  - (b) such other persons as the Council may from time to time by resolution determine,

may, upon application made in writing to the Council, be admitted as members of Convocation by resolution of the Council.

(3) A person who becomes a member of Convocation pursuant to subclause (2) may resign from membership of Convocation by giving written notice thereof to the Academic Registrar.

31. (1) Convocation shall –

- (a) at its first meeting elect a person, being one of its members, to be Chairman of Convocation; and
- (b) whenever a vacancy occurs in the office of Chairman, at its first meeting following the occurrence of the vacancy, elect a person, being one of its members, to be Chairman of Convocation.

(2) The term of office of the Chairman of Convocation shall, unless he soon resigns, be 3 years.

(3) The Chairman of Convocation shall preside at all meetings of Convocation, but at any meeting of Convocation at which he is not present, a member elected by the members present from among their number shall preside.

(4) A quorum at any meeting of Convocation shall be such number (being not less than 25) as may be prescribed by regulation made by the Council for the purposes of this subclause.

32. Convocation shall –

- (a) report directly to the Council on any matter pertaining to the welfare of the University including any matter referred to it by the Council; and
- (b) have such other powers, authorities, duties and functions as may be prescribed by regulations made by the Council for the purposes of this paragraph.

### **PART XI – MANAGEMENT OF THE UNIVERSITY**

33. The Council may from time to time make regulations, rules or orders providing for the management and good government of the University including –

- (a) the access of persons to any premises or buildings of the University; and
- (b) the control and regulation of vehicles entering the University.

### **PART XII – STUDENT DISCIPLINE AND PROCEDURE**

34. In this Part, unless the context or subject-matter otherwise indicates or requires –

“Committee of Appeal” means the Committee of Appeal constituted under clause 41 (4);

“Council Sub-Committee” means the Council Sub-Committee constituted under clause 43 (3);

“Investigation Committee” means the Investigation Committee constituted under clause 41 (1);

“misconduct” means conduct on the part of a student which –



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- (a) constitutes a serious impediment to the carrying out of the University's functions, including those academic and administrative functions which are properly ancillary to those set out in section 10 of the Act or which relate to the participation by any person in the activities of the University; or
- (b) is otherwise detrimental to the proper conduct of the University.

but does not include minor acts of disruption causing no injury to persons or significant damage to property;

"senior officer" means a person holding the position of Deputy Vice-Chancellor, Chairman of a Department, Chairman of a Faculty and any other position that the Council may from time to time by resolution determine.

35. (1) If in the opinion of the University Librarian any student is guilty of misconduct in or about the library precincts or facilities or is in breach of any regulations, rules or orders for the use of library facilities as may be in force from time to time, the University Librarian may exclude the student from, or restrict the use by the student of, any library facilities for a period no longer than the end of the next succeeding day.
- (2) The University Librarian shall forthwith report in writing to the Vice-Chancellor any action taken against a student under subclause (1) and the Vice-Chancellor may quash that action if he thinks fit.
- (3) Any student against whom action is taken by the University Librarian pursuant to subclause (1) may make an immediate oral appeal to the Vice-Chancellor (or in his absence to a Deputy Vice-Chancellor) who, without prejudice to any action he may subsequently take under subclause (2), may confirm, quash or postpone the University Librarian's action as he sees fit.
36. (1) The Academic Registrar or any person authorised in writing by him may exclude any student from attendance at a particular examination conducted by the University if in the opinion of the Academic Registrar or the person duly authorised by him the student is guilty of misconduct or is in breach of any regulation, rule or order applicable to the examination.
- (2) The Academic Registrar shall forthwith report in writing to the Vice-Chancellor any exclusion imposed by him or any authorised person under subclause (1) and the Vice-Chancellor may quash that exclusion if he thinks fit.
- (3) Any student excluded from an examination pursuant to subclause (1) may make an immediate oral appeal to the Vice-Chancellor (or in his absence to a Deputy Vice-Chancellor) who, without prejudice to any action he may subsequently take under subclause (2), may confirm or quash that exclusion as he sees fit.
37. Any student against whom action is taken by the University Librarian pursuant to clause 35 or by the Academic Registrar or an authorised person pursuant to clause 36 may, within 14 days of that action being taken, make a written appeal to the Vice-Chancellor who, notwithstanding any action he may have taken under clause 35 (2) or 36 (2), may confirm or quash the action or refer the matter for investigation to the Investigation Committee.
38. (1) The Vice-Chancellor may, of his own motion, bring an allegation of misconduct against a student by referring a complaint in writing to the Investigation Committee for investigation.

- (2) In any case the Vice-Chancellor, on receiving a formal complaint in writing from a senior officer that a student has been guilty of misconduct, shall, within 14 days of receipt of the complaint or such further period not exceeding 28 days as he thinks fit, bring an allegation of misconduct against that student by referring the complaint in writing to the Investigation Committee for investigation unless the Vice-Chancellor forms the opinion that the complaint is unfounded or that the matters complained of do not constitute misconduct.
- (3) The Vice-Chancellor shall forthwith send the student concerned a copy of reference of the complaint to the Investigation Committee and, at the same time, inform the student -
- (a) that a copy of the clause of this By-law under which the action is taken is available from the Academic Registrar; and
  - (b) of the right of appeal provided under clause 40 (1).
- (4) The Vice-Chancellor's reference to the Investigation Committee shall set out a full statement of the alleged misconduct.
39. (1) The Investigation Committee shall on receipt of complaint and as promptly as possible investigate the complaint and report its finding to the Vice-Chancellor.
- (2) The Investigation Committee may, in accordance with its findings, recommend -
- (a) that no further action be taken against the student concerned;
  - (b) that the allegations be dismissed;
  - (c) that the student be fined, being a fine that does not exceed such sum as the Council may from time to time by resolution determine;
  - (d) that the student be suspended from the University for a limited period: or
  - (e) that the student be expelled from the University.
- (3) On receipt of the recommendations of the Investigation Committee, the Vice-Chancellor may, in accordance with the recommendations, fine, suspend or expel the student, dismiss the allegations or take no further action.
40. (1) Any student against whom action is taken pursuant to clause 37 or 39 may appeal to the Council against the action if the appeal is submitted in writing and reaches the Academic Registrar within 14 days, or within such further period as the Council shall allow, of the Vice-Chancellor's notification of the action.
- (2) An appeal lodged by a student pursuant to subclause (1) shall be referred by the Academic Registrar to the Committee of Appeal.
- (3) The Committee of Appeal shall investigate the appeal and report to the Council whether it should confirm, vary or quash the action which is the subject of the appeal.
- (4) On receipt of the report of the Committee of Appeal, the Council may quash, vary or confirm the action which is the subject of the appeal on such conditions as it deems fit.

41. (1) The Investigation Committee shall consist of a Deputy Vice-Chancellor, as chairman, the Chairman of the Academic Senate or, if he is not available, a member of the Academic Senate nominated by the Chairman of the Academic Senate, and the President of the Students' Representative Council in the University or, if he is not available, another member of the Students' Representative Council nominated by the President of that Council.
- (2) The Chairman of the Investigation Committee shall have a deliberative vote but not a casting vote.
- (3) If any member of the Investigation Committee is unable or unwilling to act, the Vice-Chancellor may appoint a senior officer or a student of the University as the circumstances may require to serve on the Committee.
- (4) The Committee of Appeal shall consist of the Deputy Chancellor, a student member of the Council and one other member of the Council appointed by the Council, but if any member of the Committee of Appeal is unable or unwilling to act, the Council may appoint one of its members to serve on the Committee as the circumstances may require.
- (5) A member of the Investigation Committee, the Committee of Appeal or the Council Sub-Committee who, during the currency of an investigation by the Committee of which he is a member, ceases to hold the office by virtue of which he is a member of that Committee shall remain a member of the Committee until its investigation has been completed.
- (6) If during the currency of an investigation by the Investigation Committee, the Committee of Appeal or the Council Sub-Committee a member of the Committee becomes unable for a period as would unduly delay the completion of the investigation to act through illness or any other cause, the Committee may complete its investigation in his absence if at least 2 members are able to act.
- (7) No person having acted on behalf of the University in any one of the matters referred to in a particular complaint shall be qualified to sit on the Investigation Committee investigating the complaint.
- (8) No person who is a member of the Investigation Committee shall be a member of the Committee of Appeal or the Council Sub-Committee.
- (9) The Academic Registrar or a deputy appointed by him shall be Secretary to the Committees and shall assist the Committees in whatever way the Committees, through their respective Chairmen, may from time to time direct.
- (10) A Committee shall conduct its investigation in accordance with the principles of natural justice, shall not be bound to conduct its proceedings in accordance with any rules of evidence or procedure, may disallow, inter alia, questions which it considers to be unseemly or irrelevant for the nature of its investigation, and in particular, but without prejudice to the generality of the foregoing, shall —
- (a) permit the student to be assisted or represented by such agent as he desires, whether a legal practitioner or otherwise;
  - (b) hold all its proceedings in camera and keep an adequate record of the evidence and its decision;
  - (c) with the consent of the student concerned, allow any member of the University to have access to that record;

- (d) give the student concerned due notice of the nature of the investigation against him; and
  - (e) give the student concerned an opportunity to be heard.
42. A document or notice required to be served on or given to a student under this Part may be served on him personally within the University or be sent by registered post addressed to his last known place of residence and shall be deemed to have been served on or given to the student on the date on which it would have been delivered in the ordinary course of the post.
43. (1) Notwithstanding any other provision of this Part, if, in the opinion of the Vice-Chancellor, the circumstances referred to in clause 35, 36, 38 (1) or 38 (2) are such that immediate or further action is required, the Vice-Chancellor may suspend a student from the University or preclude him from the use of or access to the Library until the next meeting of the Council or until the Council Sub-Committee has dealt with the matter and the Vice-Chancellor shall report any such action to the Council.
- (2) On receipt of the Vice-Chancellor's report, the Council may quash, confirm or vary that action on such conditions as it deems fit.
- (3) The Vice-Chancellor shall also report any action taken by him under subclause (1) to the Chancellor or, if he is not available, to the Deputy Chancellor who, at the request of the student and if the reference of the matter to the full Council would cause undue delay, may appoint a Sub-Committee of 3 persons to deal with that matter on behalf of the Council.
- (4) One of the members of the Council Sub-Committee shall be a student member of the Council unless he is unable or unwilling to serve on the Council Sub-Committee.
- (5) The Council Sub-Committee shall be deemed to have been delegated the full authority to deal with the matter on behalf of the Council.
- (6) Upon being informed by the Vice-Chancellor of any such suspension or further action the student shall cease to attend the University or enter the Library as the case may be, and if so direct by the Vice-Chancellor or the Council or the Council Sub-Committee, as the case may be, shall refrain from entering on any premises of the University or the Library.
44. A student who is expelled from the University shall not be re-enrolled except by permission of the Council.
45. (1) A fine imposed on a student pursuant to clause 39 (3) shall be paid into the general funds of the University.
- (2) A fine imposed on a student pursuant to clause 39 (3) shall be payable within 14 days of the date of notification of the fine, but an extension of time for payment may be granted by the Vice-Chancellor.
- (3) The payment of a fine shall be suspended while an appeal from the decision imposing it is pending.
- (4) If a fine imposed under clause 39 (3) is not paid within the time limited for its payment, the student shall be suspended and shall remain suspended so long as the fine remains unpaid.
- (5) When a fine, suspension or expulsion pursuant to clause 39 (3) is imposed on a student the student shall be notified in writing that he has a right to appeal in accordance with this Part.



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(6) Suspension or expulsion imposed on a student pursuant to clause 39 shall be deemed to be inoperative while an appeal from the decision imposing it is pending.

46. (1) Nothing in this Part affects the power of any person or body in the University duly authorised to administer any University regulation, rule or order not inconsistent with this Part and, in particular, nothing in this Part affects any power of a committee or person or other authority within the University to withdraw a student from a course, or to cancel the enrolment of a student, or to refuse a person further enrolment for any course or subject, or to deal otherwise with his case, by reason of his failure to satisfy academic requirements or to pay any fee, fine, charge or other money payable to the University.

(2) Nothing in this Part affects the power of the Council to make regulations, rules or orders given by any other provision of this By-law.

(3) Nothing in this Part shall be interpreted as limiting in any way any power vested in the Council by the Act or any other regulation, rule or order of the University or as limiting the right of the University to enforce by any other means any right vested in it or to take any other action which it may be entitled or empowered to take in the circumstances.

### SCHEDULE

1. The election shall be conducted by the Returning Officer.
2. The Returning Officer shall be the Academic Registrar.
3. In the performance of any of his powers or duties under this By-law, the Returning Officer may be assisted by such persons as he appoints.
4. Subject to this By-law, the election shall be effected in such manner as the Returning Officer determines.
5. In the conduct of the election of student members, academic staff members, and the general staff member, the following intervals shall be allowed:
  - (a) Between the date of publication or display of the notice of election and the date and time for close of nominations -- not less than fourteen and not more than twenty-eight days;
  - (b) Between the close of nominations and the despatch of voting papers -- not more than fourteen days; and
  - (c) Between the despatch of voting papers and the date and time by which completed voting papers must be returned to the Returning Officer -- not less than fourteen and not more than twenty-eight days.
6. In the conduct of the election of Convocation members, the following intervals shall be allowed:
  - (a) Between the date of publication of the notice of election and the date and time for close of nominations -- not less than fourteen and not more than twenty-eight days;
  - (b) Between the close of nominations and the despatch of voting papers -- not more than twenty-eight days; and
  - (c) between the despatch of voting papers and the date and time by which completed voting papers must be returned to the Returning Officer -- not less than fourteen and not more than sixty days.

7. The Returning Officer shall give notice of the election --
  - (a) in the case of the election of the academic staff members of the general staff member -- by displaying the notice on a notice board at the University; and
  - (b) in the case of the election of the student members and the Convocation members -- by publishing the notice at least once in a newspaper circulating within the Wollongong district and the State.
8. The notice of election shall --
  - (a) state the number of persons to be elected and the qualifications for candidature;
  - (b) specify the form of the nomination; and
  - (c) prescribe a date and time by which nominations must reach the Returning Officer.
9. The Returning Officer shall not accept a nomination unless --
  - (a) it is in writing in the form specified in the notice of election;
  - (b) it is signed by two persons who are eligible to vote at the election for which the candidate is nominated;
  - (c) the person nominated has consented to stand for election by a notice in writing given to the Returning Officer before the time prescribed for the close of nominations or by a notation to that effect on the nomination form; and
  - (d) it is received by the Returning Officer before the time prescribed for the close of nominations.
10. If, following the close of nominations, the number of accepted nominations does not exceed the number of persons to be elected, the Returning Officer shall declare the persons nominated to be elected.
11. If, following the close of nominations, the number of accepted nominations exceeds the number of persons to be elected, the Returning Officer shall send by post or by other means a voting paper to those persons entitled to vote at the address shown in respect to those persons on the Roll of Students, Roll of Convocation, Roll of Academic Staff or the Roll of General Staff, as the case may be.
12. Each voting paper shall contain the names of the candidates in alphabetical order and shall be initialled by the Returning Officer or his deputy.
13. Each voting paper shall be accompanied by a form of declaration that the person so voting is qualified to vote at the election and by two envelopes, one marked "voting paper" and the other addressed to the Returning Officer.
14. Where a voting paper has been lost or destroyed, a duplicate may be issued by the Returning Officer upon receipt of a written declaration that the voting paper has been lost or destroyed.
15. With each voting paper sent in accordance with paragraph 11, there shall be sent a notice which --
  - (a) specified the date and the time by which the completed voting paper must reach the Returning Officer;



- (b) contains instructions for the transmission of the completed voting paper to the Returning Officer; and
  - (c) states the date and time on which the votes will be counted.
16. The voter shall mark his voting paper by making a cross opposite the name of each candidate for whom he votes, but the number of candidates for whom a vote is cast shall not exceed the number of persons to be elected.
17. At the date and time appointed for the counting of votes, the Returning Officer or his deputy shall --
- (a) open the outer envelope;
  - (b) if he is satisfied that the form of declaration has been properly completed, place the envelope marked "voting paper" with other similar envelopes;
  - (c) following the opening of all of the outer envelopes, open the envelopes marked "voting paper" and count the number of votes given to each candidate.
18. A voting paper received by the Returning Officer after the close of the poll shall not be taken into account at the election.
19. The Returning Officer shall reject as informal any voting paper in which the voter has not complied with the provisions of this Schedule.
20. Where an election is held to elect one member, the Returning Officer shall declare as elected the candidate who receives the highest number of votes.
21. Where an election is held to elect more than one member, the Returning Officer shall declare as elected the persons who receive the highest number of votes.
22. Where there is an equality of votes, the person to be elected shall be determined by lot by the Returning Officer.
23. For the purpose of paragraph 22, "determined by lot" means determination in the following manner:--
- The name of each candidate shall be written on separate and similar slips of paper and the slips having been folded so as to prevent identification and mixed and drawn at random, the candidate whose name is first drawn shall be the elected candidate.
24. Each candidate shall be entitled to nominate a scrutineer to be present at the counting of votes and any determination by lot.
25. The voting papers in an election shall be kept in safe custody by the Returning Officer for at least four months after the election and may be destroyed at any time thereafter with the approval of the Council.

## THE UNIVERSITY OF WOLLONGONG

### VISITOR

His Excellency the Governor of New South Wales

### CHANCELLOR

The Honourable Mr. Justice Robert Marsden Hope, CMG, LLB *Syd.*

### DEPUTY CHANCELLOR

The Honourable Lawrence Borthwick Kelly, MP

### VICE-CHANCELLOR

Emeritus Professor Lindsay Michael Birt, CBE, BAgSc BSc PhD *Melb.*,  
DPhil *Oxf.*

### DEPUTY VICE-CHANCELLOR

Professor Alexander Marshall Clarke, BA *N.S.W.*, PhD *A.N.U.*, ASTC,  
FAPsS

## THE COUNCIL

### ELECTED BY THE LEGISLATIVE COUNCIL

The Honourable Peter Francis Watkins, MLC

### ELECTED BY THE LEGISLATIVE ASSEMBLY

The Honourable Lawrence Borthwick Kelly, MP

### APPOINTED BY THE MINISTER FOR EDUCATION

*To hold office until 7th August, 1981*

Colin Denley, LLB Syd.

Brian Somerville Gillett, BA DipEd Syd.

The Honourable Sir Richard Clarence Kirby, LLB Syd.

*To hold office until 1st February, 1982*

Professor Peter Desmond Rousch, BA BEd *Melb.*, PhD *Wayne State*,  
MACE.

### EX OFFICIO

The Chancellor

The Vice-Chancellor

### ELECTED BY THE STUDENTS OF THE UNIVERSITY

*To hold office until 10th August, 1981*

Murray James Robinson

Graeme Watchirs

**ELECTED BY CONVOCATION**

*To hold office until 7th August, 1981*

Edgar Beale, Hon. DLitt  
James Wilmot Dombroski, BSc Syd.  
William Edward Parnell, BA BCom N.S.W.

**ELECTED BY THE FULL-TIME ACADEMIC STAFF OF THE UNIVERSITY**

*To hold office until 7th August, 1981*

*Three Professorial members*

Professor Austin Duncan Brown, MSc Syd., PhD Manc.  
Professor John Lauchlan Carter Chipman, MA LLB Melb. BPhil DPhil Oxf.  
Professor Robert Barry Leal, MA DipEd Syd., PhD Q'ld.

*One member other than a Professor*

Associate Professor James Seymour Hagan, BA DipEd Syd., PhD A.N.U.

**ELECTED BY THE FULL-TIME GENERAL STAFF OF THE UNIVERSITY**

*To hold office until 7th August, 1981*

Elisabeth Ann Hilton

**ELECTED BY MEMBERS OF THE COUNCIL**

*To hold office until 7th August, 1981*

Elizabeth Anne Kernohan, MSc Agr PhD Syd.  
John Royse Lysaght, BE Syd.  
Patricia Diana Mowbray, MB BS Syd.

## THE ACADEMIC SENATE

### EX OFFICIO MEMBERS

The Honourable Justice R. M. Hope, Chancellor  
Emeritus Professor L. M. Birt, Vice-Chancellor  
Professor A. M. Clarke, Deputy Vice-Chancellor  
Mr. J. C. Hazell, University Librarian  
Professor P. D. Rousch, Director, Institute of Education

### CHAIRMEN OF DEPARTMENTS

Professor G. Brinson, Department of Metallurgy, CHAIRMAN OF SENATE  
Professor R. B. Leal, Department of European Languages, DEPUTY  
CHAIRMAN OF SENATE  
Professor J. R. Blake, Department of Mathematics  
Professor A. D. Brown, Department of Biology  
Professor J. L. C. Chipman, Department of Philosophy  
Professor A. C. Cook, Department of Geology  
Professor R. Duncan, Department of History  
Professor P. Fisher, Department of Physics  
Chairman of Chemistry (Vacant)  
Professor S. C. Hill, Department of Sociology  
Professor R. Johnston, Department of History and Philosophy of Science  
D. L. M. Jones, Department of English  
Professor R. C. King, Department of Education  
Professor S. A. Marshall, Department of Mechanical Engineering  
Professor J. Reinfelds, Department of Computing Science  
Professor J. B. Ryan, Department of Accountancy  
Professor B. H. Smith, Department of Electrical Engineering  
J. C. Steinke, Department of Economics  
Associate Professor R. W. Upfold, Department of Civil Engineering  
Associate Professor L. L. Viney, Department of Psychology  
Professor M. G. A. Wilson, Department of Geography

### CHAIRMEN OF FACULTIES

Dr. G. Doherty, Faculty of Mathematics  
C. R. Horne, Faculty of Social Sciences  
Dr. F. S. Piggin, Faculty of Humanities  
Associate Professor R. W. Upfold, Faculty of Engineering  
Chairman, Faculty of Science (vacant)



**ELECTED MEMBERS**

**ACADEMIC STAFF ELECTED BY AND FROM THE MEMBERS OF EACH FACULTY**

*To hold office until 16th May, 1981*

Dr. J. Kontoleon, Faculty of Engineering

*To hold office until 24th May, 1981*

A. J. Anderson, Faculty of Social Sciences

Dr. J. C. Bishop, Faculty of Humanities

Associate Professor W. H. Charlton, Faculty of Engineering

Dr. A. G. Morris, Faculty of Mathematics

Dr. A. J. Wright, Faculty of Science

**STUDENT MEMBERS**

*To hold office until 24th May, 1981*

M. E. Egan, Faculty of Social Sciences

G. Watchirs, Faculty of Humanities

*To hold office until 23rd March, 1982*

J. D. Black, Faculty of Mathematics

## FULL TIME STAFF

### Vice-Chancellor

Professor L. M. Birt, CBE, (Emeritus Professor, Australian National University), BAgrSc BSc PhD *Melb.*, DPhil *Oxf.*

### Deputy Vice-Chancellor

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### UNIVERSITY LIBRARY

All staff and students are encouraged to use the University Library and material can be borrowed by using a staff or student library card. Graduates of the University are also permitted to borrow. Borrowing rights were also extended in 1980 to students of the Wollongong College of T.A.F.E. and the Wollongong Institute of Education as part of a reciprocal borrowing scheme. Fines are levied for late return of books.

The Library has the responsibility of providing material for all courses in the University curriculum and carries information in books, periodicals, non-book and archival sources. It has a growing reference collection and endeavours to provide for needs outside curricular and research requirements.

Following the completion of Stage II of the Library complex in 1976, the Library has the capacity to accommodate 250,000 volumes and over 600 readers.

Hours of opening are usually 9.00 a.m. to 10.00 p.m. Monday to Friday, 9.00 a.m. to 5.00 p.m. on Saturday and 1.00 p.m. to 5.00 p.m. on Sunday. Variations in hours are displayed on notice boards in the Library.

The Library is presently used by many people from outside the University campus, particularly qualified personnel from local commerce and industry.

### UNIVERSITY UNION

The Union, which provides opportunities for the development of social and intellectual intercourse between members, is housed in buildings at the south-east corner of the campus. It was opened in 1965, Stage II additions were added in 1970, Stage III in 1976 and Stage IV in 1978/9. The facilities include a hall, cafeteria, coffee bar, take-away bar, airconditioned licensed bar and bistro, four squash courts, sauna and table tennis room. There are also common rooms, administrative offices, a Union Shop, a branch of the Commercial Banking Company of Sydney Ltd., and the University Co-operative Bookshop Ltd.

All students and staff of the University and the Union are members of the Union. The affairs of the Union are controlled by the Board of Management and, in day to day matters, by the Secretary-Manager.

The following Clubs and Societies are affiliated to, and supported by, the Union:

Camera Club	Geological Society
Debating Society	Historical Society
Drama Society	Il Circolo Italiano
French Club	Metallurgical Society
Film Group	Musical Society
Geographical Society	Parents' Club

### STUDENTS' REPRESENTATIVE COUNCIL

The Students' Representative Council (S.R.C.) is a body of students elected by and from the Students. The S.R.C. is the executive organisation of the entire student body. The S.R.C. promotes student welfare and interests. It provides a channel through which students can express their views on any matter relevant to themselves, their courses, and the University.

The S.R.C. is involved with the politics and welfare of being a student. As well as taking an active interest in a wide variety of issues, the S.R.C. organises many social functions. The following clubs and societies are affiliated to and supported by the S.R.C.

Psychology Society	Engineering Society
Overseas Students Association	Women's Co-operative
Economics Society	Simulation Gaming Society
Socialist Left Club	Philosophy Society
Alternate Film Society	International House Film Society
Muslim Association	

Part of the compulsory S.R.C. subscription is paid to the Australian Union of Students (A.U.S.), the national student organisation. As a constituent member of A.U.S. the S.R.C. offers travel and health and insurance schemes (at student rates).

Tertangala, the S.R.C. student Journal, and Tertlet, an occasional S.R.C. broadsheet are published throughout the year. Students are invited to submit articles and items for publication.

Most importantly, students are encouraged to participate in the running and activities of the S.R.C. Some present portfolios and interests are:

Education	A.U.S.
Women	Student Publications
Social Activities	

The S.R.C. belongs to the students; they are encouraged to use it.

## SPORTS ASSOCIATION

All students pay a compulsory fee which automatically makes them members of the Sports Association. Membership entitlements include the use of the recreational facilities provided by the Sports Association. Members may also join one or other of the constituent clubs of the Association at a small extra subscription.

The Sports Association aims to provide physical recreation facilities of an opportunity-type for individuals or small groups. In addition, it aims to ensure that its constituent clubs are provided with adequate playing surfaces and associated equipment, that adequate funds are available to subsidise travelling, and that both clubs and individuals are encouraged to attain higher sporting standards through competition under the auspices of local associations and through inter-iversity competitions, representative matches and championships organised by the Australian Universities Sports Association.

A sports pavilion (with licensed bar) and four squash courts have been provided and improvements to existing playing fields are being undertaken. An Indoor Sports Centre which was completed in 1980, is used by the Wollongong Institute of Education during the mornings, and by the sporting clubs at other times. Facilities exist for Basketball, Badminton, Volleyball, Table Tennis, and Tae Kwon Do.

The constituent clubs of the Sports Association are as follows. Enquiries in respect of them should be made at the Union Office:

Australian National Football	Rugby Union
Badminton	Sailing
Basketball	Ski
Cricket	Soccer
Men's Hockey	Squash
Women's Hockey	Surf Riders

Hang Glide  
Judo  
Motor Cycle  
Netball  
Outdoors

Table Tennis  
Tae Kwon Do  
Tennis  
Volleyball

## CHAPLAINCY SERVICE

A Chaplaincy Service is provided within the University, for the benefit of students and staff, by five Christian Churches.

The Service offers fellowship, personal counselling and guidance, and leadership in biblical and doctrinal studies and in worship. The visiting Chaplains maintain close liaison with student religious societies. The visiting Chaplains may be contacted at their private addresses or through the Academic Registrar.

Anglican:	Rev. Canon Dr. D. G. Peterson, The Rectory, Market Street, Wollongong. 2500 Telephone 28 9132
Baptist:	Rev. J. E. Helm, 216 Jacaranda Avenue, Figtree. 2525 Tel. 28 3767 (office) 29 1671 (home).
Presbyterian:	Rev. I. Cox, St. Andrew's Manse, 25 Stanbrook Avenue, Mt. Ousley. 2519 Tel. 29 1725 (office) 29 5358 (home).
Roman Catholic:	Rev. Father L. Stevens, The Presbytery, 48 Princes Highway, Unanderra. 2526 Telephone 71 1068
Uniting:	Rev. L. L. Arthur, 75 Uralba Street, Figtree. 2525 Tel. 29 2119 (office) 29 5291 (home).

## COUNSELLING CENTRE

A vital university is a shifting mosaic of people, ideas, actions and events. Any person involved in university life, whether student or staff will experience many of its elements as challenges to change: Change in ways of living one's life, forming relationships and simply experiencing. One may wish to renegotiate one's role in the family as a result of a changing concept of self; to be more assertive in day to day interactions; to re-examine long held moral precepts; to explore the possibility of more co-operative ways of living; to re-assess one's interest and commitment to one's chosen career, to cite but a few. Whilst some of these challenges can be exciting and inspiring most are, at some level, threatening and confusing. These challenges to change require constructive responses if we are to develop both individually as people and collectively as a community of learning.

Of course, just what constitutes a constructive response to a particular situation cannot be clearly defined nor prescribed. Ultimately each person must decide for him/herself. This, however, does not preclude the role of other people in arriving at that decision. In fact, other people usually play a most crucial part. As a trained and interested 'other' the University Counsellor is able to help you move

more effectively towards defining and implementing the response which is constructive for you by assisting you to clarify and reconcile your interests and values, your responsibilities to self and to others. In some situations the participation of the Counsellor may simply be that of the perceptive and concerned listener; in others a deep understanding and the use of psychological techniques may be required; in others the Counsellor may organise and guide groups where people facing similar challenges may interact to stimulate and encourage one another. In all approaches the Counsellor strives to create a supportive environment where constructive responses to problematic situations can be pursued more safely and effectively than is frequently possible in the normal course of everyday life.

If you are grappling with change of any sort or merely pondering its possibilities or if for any other reason you would like to talk to the University Counsellor, please drop in for a chat (Building 12) or ring for an appointment on 28-2925. The service is completely confidential and free to both students and staff. As first year students are probably more vividly confronted with the problems of change than are most other university members, they are especially invited to talk things over with the Counsellor - preferably early in the year - so that he can help to ensure their successful transition to University.

## ACCOMMODATION

The Secretary in the Counselling Centre conducts a Student Accommodation Service for a range of private accommodation, e.g. board (both 7 and 5 day), single rooms, flats and houses made available by the local community in response to media advertisements.

In addition to the General Accommodation Service, the Secretary also conducts a University Leasing Service. The previously established system will continue to operate whereby the University leases a number of flats and cottages and sub-leases these to groups of students.

Individual students wishing to take private board, or groups of students wishing to lease a property from the University should contact the Secretary in the Counselling Centre which is located in Building 12, or telephone her on 28-2925 as early as possible in the year.

## International House

*Warden:* Dr. T. S. Ng, BSc H.K., MEngSc PhD *N'cle(N.S.W.).*  
*Secretary Manager:* Elisabeth Hilton.

International House is the University's only Hall of Residence. It is situated between the University and the North Wollongong beaches on the Princes Highway at its junction with the Wollongong by-pass.

The House is operated on a co-educational, non-denominational basis by the Board of Management. As indicated by its title, the House provides a place of living and studying for both overseas and local students, thus providing a meeting place of varying cultures.

The House has 180 single study bedrooms, 13 double study bedrooms and six postgraduate rooms. The rooms are in five three-storey residential blocks.

Facilities include a large lounge room, dining room, students' kiosk, laundry, games room, and tutorial rooms.

Informal tutorials are run by the Warden and the Assistant Wardens.

For further information contact the Warden, International House, P. O. Box 1144, Wollongong, 2500. Telephone: (042) 299-711.



**EMPLOYMENT**

The Student Employment Service, run in conjunction with the Commonwealth Employment Service, is located in Building 12. The Service provides information about casual and part-time work throughout the year, plus vacation work. All positions available are displayed on two boards; one in Building 12, the other in the Union Foyer.

Students interested in tutoring in any subject at any level may register with the Counselling Centre Secretary. All positions available will be individually notified where possible.

All enquiries concerning casual, part-time, vacation work and tutoring should be directed to the Student Employment Service, telephone 28-2925.

**MEDICAL SERVICE**

A Student Medical Service has been established at the University and is located in Building 12. The names of the practitioners together with surgery times are available on campus notice-boards.

Students registered with Medibank sign Medibank forms for the practitioner and students registered with Private Funds pay a fee equal to the benefit paid for ordinary consultation by the Private Fund. A receipt will be issued to those students so that they can claim benefits.

It is preferable that appointments be made prior to surgery hours.

For enquiries about the Service or to make an appointment contact the Counselling Centre Secretary, telephone 28-2925.

**CHILD CARE CENTRE**

Kids' Uni., a student co-operative child care centre on campus, offers child care facilities to both students and staff. The modern centre provides a happy and stimulating atmosphere where children can stay while their parents are at classes and/or work.

Fees are calculated on a sliding scale based on income but parent participation is also heavily relied upon. The centre is open from 8.30 a.m. - 5.30 p.m. Monday to Friday for children in the 0-6 year old age group. After school care is also available at these times for older children. Nurses are in attendance for children under two years of age.

For further information contact the Secretary, Child Care Committee, C/- The Union, or phone Kids' Uni., The Union extension 14. Information sheets will also be available from the Student Enquiries Office, Administration Building or from the Union Office.

**N.S.W. TEACHER EDUCATION ADVISORY OFFICE (T.E.A.O.)**

This office is located on the campus of the University to serve the needs of students who wish to be teachers. Holders of scholarships from the State Government must have their courses approved by the Senior Teacher Education Adviser before the academic year commences so that subjects relevant to their specific teaching subject(s) scholarships are chosen. Any private student or T.E.A.S. student who is thinking of teaching as a career is also wise to avail himself or herself of that advice.

Personal welfare is regarded as a prime function of the office. There is liaison therefore on the part of this office and the University academic and administrative staff, in addition to other agencies, for the benefit of students.

## REGULATIONS FOR ADMISSION AND MATRICULATION

Being Regulations made by Council pursuant to clause 25 of the University of Wollongong By-Law.

### GENERAL PROVISIONS

- 1.1 All candidates for a degree of the University shall:
- 1.1.1 either (a) have matriculated to the University and have lodged an Application for Admission form,  
or (b) applied for admission to the University under the special provisions in these Regulations;
  - 1.1.2 have been selected for a degree course; and
  - 1.1.3 have satisfied pre-requisites approved by the Council for a subject before enrolment in that subject.
- 1.2 Should the number of qualified persons seeking enrolment in any degree, or subject, exceed the number of places available, the Council may limit the number of students enrolling in a particular degree, or subject. In this event candidates would be required to be selected for the degree or subject for which limitations had been imposed.

### MATRICULATION

- 2.1 A person who obtains at an examination approved by the Council a level of performance determined by the Council from time to time shall be matriculated to the University; provided that the Council may grant matriculation to a candidate who has:
- 2.1.1 matriculated to any Australian university; or
  - 2.1.2 matriculated to any university outside Australia approved by the Council; or
  - 2.1.3 graduated from any university approved by the Council; or
  - 2.1.4 submitted evidence acceptable to the Council of a satisfactory level of performance in year 12 of a school in New South Wales, or its equivalent in other states of Australia; or
  - 2.1.5 matriculated to the University under the provisions existing in 1975 and 1976.

### EXAMINATIONS APPROVED BY THE COUNCIL

- 3.1 Examinations approved by the Council in accordance with 2.1 above are:
- 3.1.1 The New South Wales Higher School Certificate Examination, provided that the rules of the examination relating to the presentation of subjects as determined by the New South Wales Board of Senior School Studies have been complied with; and
  - 3.1.2 The University of Sydney Matriculation Examination.

### NEW SOUTH WALES HIGHER SCHOOL CERTIFICATE EXAMINATION

- 4.1 The following subjects, and any other subjects approved by the Council, shall be recognised subjects for the purpose of matriculation at the New South

## Wales Higher School Certificate Examination:

Agriculture	Industrial Arts
Ancient History	Italian**
Arabic	Japanese
Art	Latin**
Chinese	Latvian
Classical Greek	Lithuanian
Czech	Mathematics
Dutch	Modern Greek
Economics	Modern History
English	Music
Farm Mechanics	Polish
Food and Textile Science*	Russian**
French**	Science
General Studies	Serbo-Croatian
Geography	Sheep Husbandry and Wool Technology
German**	Slovenian
Hebrew	Spanish
Home Science	Textiles and Design
Hungarian	Turkish
Indonesian	Ukrainian

4.2 A candidate's performance shall be measured by the aggregate of marks gained in the examination, such marks being co-ordinated in a manner approved by the Council.

4.3 The aggregate of co-ordinated marks shall include the co-ordinated marks achieved in ten units in approved matriculation subjects.

4.4 When more than ten units from approved matriculation subjects are presented, the ten highest co-ordinated marks from among such other subjects shall be counted.

4.5 There shall be no restriction on the number of 4 Unit, 3 Unit, 2 Unit and 2 Unit A courses that may be included in the aggregate of co-ordinated marks.

### SPECIAL PROVISIONS FOR ADMISSION

5.1 The Council may grant a candidate admission to the University where the candidate:

5.1.1 has, since leaving school, satisfactorily completed over a period of not less than two years full-time or three years part-time, a course of study acceptable to the Council for this purpose; or

5.1.2 is not less than twenty-one years of age on 1st March of the year for which admission is sought and the Council is satisfied that he has reasonable prospects of success in university studies; or

5.1.3 although not qualified for admission under clauses 5.1.1 and 5.1.2 above, nevertheless satisfies the Council that in the special circumstances of his case he has reasonable prospects of success in university studies.

5.2 The Council, before admitting a candidate under these special provisions, may prescribe certain requirements, including the taking of examinations.

NOTE: \* Food and Textile Science cannot be offered together with Home Science and/or Textiles and Design.

\*\* French 2 Unit Z, German 2 Unit Z, Italian 2 Unit Z, Latin 2 Unit Z, and Russian 2 Unit Z may be included in the determination of the aggregate.

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5.3 A candidate admitted under these special provisions shall be subject to the Degree Regulations as if he had been a matriculated student.

5.4 A candidate admitted under these special provisions, after being credited with twenty-four credit points or equivalent in subjects passed at this University, may be granted matriculation by the Council.

5.5 The Council may impose quotas for the number of candidates to be granted admission under each, or any, of the clauses in 5.1 above.

## PRE-REQUISITES AND CREDIT

### 100-LEVEL SUBJECT PRE-REQUISITES

Although there are no formal pre-requisites for the degree courses, some 100-level (First Year) subjects have N.S.W. Higher School Certificate pre-requisites. These pre-requisites, in many cases, affect the subjects which students may include in their courses. In this regard, attention is drawn to the notes listed under the following table. (Similar subjects passed at interstate matriculation examinations will be considered.) Intending *Engineering* and *Metallurgy* students should particularly take notice of "Note 1" on the following page.

<i>Subject</i>	<i>Mandatory Pre-requisite †</i>	<i>Recommended Pre-requisite ††</i>
Mathematics IA	2 Unit Mathematics at N.S.W.H.S.C.: Top 30% percentile bands, provided the student has a suitable aggregate score or on the recommendation of the relevant high school principal;  3 Unit Mathematics at N.S.W.H.S.C.: Top 90% percentile bands;  4 Unit Mathematics at N.S.W.H.S.C.: either (a) Top 90% percentile bands, or (b) bottom 10% percentile bands, provided the student has a suitable aggregate score, or on the recommendation of the relevant high school principal.	
All First year subjects offered by the departments of Civil, Electrical and Mechanical Engineering and the Department of Metallurgy		2 Unit Mathematics, top 30% percentile bands <i>and</i> 2 Unit Science <i>or</i> 2 Unit Industrial Arts.
Biology, Chemistry and Physics		Any 2 Unit Science Course
Economics and Quantitative Methods		2 Unit Mathematics
Accounting and Financial Management I and Introduction to Law		Any course in English, top 70% percentile bands

† Mandatory pre-requisite refers to the knowledge that you *must* have before you can enrol in a particular subject.

†† Recommended pre-requisite refers to the knowledge that would be useful to have before you undertake a particular subject. If you do not have the recommended pre-requisite for a subject you should consult an academic adviser for that subject and discuss the matter with him/her.



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### NOTES:

1. Mathematics IA is a compulsory subject in all 100-level Engineering and Metallurgy courses and, therefore, the pre-requisite for this subject must also be obtained.
2. Mathematics IA is a co-requisite for Mathematics IB and a pre-requisite for most 200-level (Second Year) Physics subjects.
3. The assumed knowledge of Mathematics IA is that of the 3 Unit Mathematics Course at the N.S.W. H.S.C. examination.
4. 100-level Chemistry is a pre-requisite for later year courses in Chemistry and Biology.
5. Some of the proposed pre-requisites are recommended and not mandatory. However, any student wishing to take Biology, Chemistry or Physics without the recommended 2 Unit Science Course at the N.S.W. H.S.C. examination, would be advised to discuss the matter with the Departmental Chairman concerned.

### CREDIT TOWARDS DEGREE

Students enrolled for degree courses may seek credit on the basis of studies completed prior to their enrolment at the University. Studies undertaken at Universities, Colleges of Advanced Education and Technical Colleges may be considered for the purposes of credit. Normally, credit is not granted for qualifications gained more than ten years previously.

It is the University's policy to grant credit of up to 66 credit points to students who have completed a degree and up to 96 credit points to students who have partially completed a degree at another University. Specific credit in relation to General Studies subjects will only be considered where the application is made for subjects completed at other recognised Universities that are comparable in content and level to those offered as General Studies subjects at this University. Holders of the Diploma in Teaching may be granted unspecified credit of up to 48 credit points in respect of 100-level (first year) subjects, and those with two year teaching qualifications may seek credit of up to 24 credit points in respect of specified subjects at the 100-level (first year).

Students enrolling in Engineering and Metallurgy degree courses who have completed approved Certificate courses offered by the Department of Technical and Further Education, may be granted exemptions in the Engineering and Metallurgy degree.

Those seeking credit should apply at the time of enrolment. Applications for credit are referred to Departmental Chairmen for recommendation on the basis of the student's previous academic record and details of the subjects completed. Students seeking credit for previous studies *must supply full documentation* and, where required, details of the contents of the subjects undertaken. All recommendations must be considered by the Undergraduate Studies Committee and endorsed by the Academic Senate.

## UNDERGRADUATE ENROLMENT AND RE-ENROLMENT

The enrolment procedure in 1981 for the different classes of undergraduate students is as follows:

### First Enrolments

All applications for admission must be lodged with the University **not later than 1st October, 1980** by all applicants. Applications received after this date will be considered if possible.

Students whose applications for enrolment are accepted will be required to complete their enrolment at a specified time before the start of Session 1. Charges must be paid on the day specified. However, in special circumstances and provided class places are still available students may be allowed to complete their enrolment after the prescribed date, subject to the payment of a late charge.

### Re-Enrolments

All students enrolling other than for the first time should re-enrol by attending the University to complete re-enrolment, including the payment of charges, on days prescribed. Students will be informed by the end of 1980 of the dates and procedures for re-enrolment.

Students who are unable to attend the University to complete re-enrolment on the days prescribed should apply in writing to the Academic Registrar for approval to re-enrol at a later date.

Students who have completed the final examinations but have a thesis still outstanding are required to enrol and pay the requisite charges.

Enrolment must be completed during the prescribed enrolment period. Students who fail to comply with this requirement will incur a late charge of \$10. For details of charge requirements, including late charge provisions, see under Charges.

**No student is considered to have completed his enrolment until all fees and charges have been paid.**

### Course Transfers

Students who are currently enrolled at the University and who wish to transfer to another course at the University should submit an "Application for Admission" in the same manner as is required of new applicants.

Students whose applications to transfer are successful are required to comply with the enrolment procedures for the **new** course in which they expect to enrol. Unless otherwise instructed they must present the letter granting approval of the transfer to the enrolling officer.

Students who have not received advice regarding their application to transfer before the date on which they are required to enrol should check at the Student Enquiries Office.

### Resumption of Courses

Students who have been granted leave of absence for 1980 should contact the Academic Registrar by 31st January, 1981, for information on enrolment procedures.

All other students seeking to resume their studies after an absence of twelve months or more are required to submit an "Application for Admission" in the same manner as is required of new applicants.

Students re-enrolling in this way will normally be required to satisfy conditions pertaining to the course at the time of re-enrolment. This condition applies also to students who have been re-admitted to a course after exclusion under the rules restricting students re-enrolling.

### Miscellaneous Subject Enrolments

A person wishing to enrol in miscellaneous subjects (i.e. subjects not to be counted towards a degree) may be considered provided the Chairman of the Department offering the subject considers it will be of benefit to the student and there are facilities available. To be eligible for admission as miscellaneous students, applicants must meet the University's normal entrance requirements. Applicants for miscellaneous subject enrolments are not considered until after all students proceeding to a degree have enrolled. Results of applications for miscellaneous enrolment will not be advised until the first week of lectures. Only in exceptional cases will subjects taken in this way count towards a degree or diploma. Where a student is under exclusion he may not be enrolled in miscellaneous subjects unless given approval by the Academic Senate.

Application forms can be obtained by written application to the Academic Registrar or from the Student Enquiries Office, Ground Floor, Administration Building. Application forms should be received by the Academic Registrar by 31st January, 1981.

### Final Dates for Completion of Enrolment

No enrolments will be accepted from **new students** after the end of the second week of Session 1 (6th March, 1981) except with the express approval of the Academic Registrar or the Assistant Registrar (Student Administration) and the Departmental Chairman concerned; no **later year enrolments** will be accepted after the end of the fourth week of Session 1 (20th March, 1981) without the express approval of the Academic Registrar or the Assistant Registrar (Student Administration) which will be given in exceptional circumstances only.

### Variation of Enrolments

Students are advised of the importance of being familiar with the time limits, methods and procedures for varying and confirming their programmes of study.

Students' attention is drawn to **Appendix 1** at the end of this Calendar for details of the Variation of Enrolment Procedures. This information was undergoing clarification for students, at the time this section of the Calendar went to print.

### Leave of Absence

Students may apply for leave of absence from their studies for periods of one or two years. It is not normally possible to be granted leave for more than two years.

Applications for leave for the 1981 academic year must be made in writing to the Academic Registrar **no later than 20th March, 1981**. Applications received after this date cannot be considered.

Leave of absence will not be granted to any student required to "show cause" under Degree Requirement 14 until he has shown cause to the satisfaction of the Academic Senate.

### Enrolment at Other Tertiary Institutions

Students wishing to enrol at another tertiary institution in 1981, either concurrently or otherwise, and who wish to have subjects successfully completed at that institution counted towards their degrees at the University of Wollongong must gain the **prior** approval of the Council (refer Regulations 7.1 and 15.5).

Applications for such enrolment must be made in writing to the Academic Registrar, **no later than 31st January, 1981**. Applications must contain full details of the course(s), including a photocopy of the Handbook entry for the course(s), for which approval is being sought.

### **Enrolment in Programmes Exceeding 48 Credit Points**

Students wishing to enrol in programmes with a value exceeding 48 credit points (or equivalent in Engineering and Metallurgy) may apply for approval on the appropriate form which is available from the Student Enquiries Office, Ground Floor, Administration Building.

The previous academic record will be taken into consideration when assessing an application to exceed 48 points. Approval will not normally be granted for programmes with a value exceeding 60 credit points unless the applicant has an outstanding academic record.

Normally, students in their first year of enrolment will not be granted permission to exceed 48 credit points (or equivalent).



## POSTGRADUATE ENROLMENT AND RE-ENROLMENT

### Research Degrees

Application forms for registration are obtainable from the Student Enquiries Office, Ground Floor, Administration Building.

Before lodging an application, applicants are advised to contact the appropriate Departmental Chairman to discuss research interests, suitability of qualifications held and the availability of facilities for research in particular areas.

### Courses Requiring Attendance at Formal Lectures

Students wishing to enrol as candidates for postgraduate degrees or diplomas requiring attendance at formal lectures should make application on the appropriate form available from the Student Enquiries Office.

No enrolments will be accepted after 30th March without the express approval of the Academic Registrar, which will be given in exceptional circumstances only.

### Re-enrolment

Enrolment forms will be sent to re-enrolling students at the beginning of the year with instructions concerning re-enrolment procedure.

Students who have completed the final examinations, but have a thesis or project still outstanding are required to enrol and pay any requisite charges. However, when the student submits his thesis for examination, he will receive a refund of the student charges on the same basis as if he had notified the University of his withdrawal from the course.

### Miscellaneous Subject Enrolments

A person wishing to enrol in miscellaneous post-graduate (900-level) subjects (i.e. subjects not to be counted towards a degree or diploma) may be considered provided the Chairman of the appropriate Department considers it will be of benefit to the student and there are facilities available.

To be eligible to enrol as miscellaneous students in postgraduate subjects, applicants must meet the entrance requirements for the degrees or diplomas from which the subjects are selected. Applications for Miscellaneous subject enrolments are not considered until the enrolments in the relevant postgraduate courses have been finalised. Only in exceptional cases will subjects taken in this way count towards a degree or diploma.

Application forms can be obtained by written application to the Academic Registrar or from the Student Enquiries Office, Ground Floor, Administration Building. Application forms should be received by the Academic Registrar by 31st January, 1981.

## STUDENT CHARGES\*

According to Government regulations, students, both undergraduate and post-graduate, are required to meet the following charges where applicable:

1. Penalty charges such as late charges, parking fines, etc.
2. Administrative charges such as "statement of record" charges, "review of result" charges or charges for examinations requiring special arrangements.
3. Cost of travel incurred by students attending practical work for courses in social work, teacher training, etc.
4. Cost of travel incurred by external students attending residential schools.
5. Accommodation charges and cost of subsistence on excursions, field work, etc.
6. Charges for special clothing or laundry costs.
7. Purchase of instruments\* or equipment.
8. Cost of handbooks and notes.
9. Charges associated with the development and operation of unions, student associations, students' representative councils and other student activities.
10. Deposits and refundable charges.

### Compulsory Charges

All registered students will be required to pay:

University Union <sup>†</sup> - entrance charge . . . . .	\$25
Sports Association <sup>†</sup> - entrance charge . . . . .	\$ 6

Student Activities charges:

University Union <sup>†</sup> - annual subscription . . . . .	\$62
Sports Association <sup>†</sup> - annual subscription . . . . .	\$17
Students' Representative Council - annual subscription . . . . .	\$18

Exemption from payment of fees will be granted in certain circumstances:

- (a) From 1981, the Union will waive fees for enrolled students who have paid six or more annual fees to the Union from **1965** onwards.
- (b) From 1981, the Sports Association will waive fees for enrolled students who have paid six or more annual fees to the Sports Association from **1962** onwards.

\* All charges listed are current at time of printing.

† Life members of these bodies are exempt from the appropriate charge or charges.



**Special Examination Charges**

- Deferred examination . . . . . \$ 8 for each subject
- Examinations conducted under special circumstances . . . . . \$11 for each subject
- Review of examination result . . . . . \$11 for each subject

**Late Charges**

The rules relating to late charges are as follows:

**New Students -**

All new students shall be required to attend the enrolment centre and pay all charges on the date shown on their letter of offer.

**Re-enrolling students -**

Failure to attend the enrolment centre on the prescribed date - Charge . . . . \$10

Where charges have not been paid prior to the commencement of Session 1 the following additional charges to apply:

- Charges paid during the first two weeks of session 1 . . . . . \$20
- Charges paid subsequent to the second week of session 1 . . . . . \$40

Note: Payment of charges subsequent to the second week of session 1 will only be accepted with the express approval of the Academic Registrar or the Assistant Registrar (Student Administration.)

**Confirmation of Enrolment**

For charges relating to this section refer to Appendix 1 at the end of this Calendar - Variation and Confirmation of Enrolment Procedures.

**Variation of Academic Record**

For charges relating to this section refer to Appendix 1 at the end of this Calendar - Variation and Confirmation of Enrolment Procedures.

**Withdrawal**

1. Students withdrawing from a course are required to notify the Academic Registrar in writing.
2. Where notice of withdrawal from a course is received by the Academic Registrar before 23rd February a refund of all charges paid will be made.
3. On notice of withdrawal on or after 23rd February and prior to 20th March, a full refund of student activities charges, other than entrance charges, will be made but thereafter no refund will be made, except as provided for in section 4 below. Student activities charges are listed on the previous page.
4. If a student's initial enrolment in any year is made at the commencement of Session 2 for Session 2 only and the student gives notice of withdrawal prior to 7th August, a full refund of student activities charges, other than entrance charges will be made but thereafter no refund will be made.
5. Late charges are not refundable.

### **Extension of Time**

Any student who is unable to pay charges by the due date may apply in writing to the Academic Registrar for an extension of time. Such applications must state clearly and fully the reasons why payment cannot be made and the extension sought, and must be lodged before the date on which a late fee becomes payable. Normally the maximum extension of time for payment of charges is until 20th March.

### **Assisted Students**

Scholarship holders or Sponsored Students who have not received an enrolment voucher or appropriate letter of authority from their sponsor at the time when they are enrolling should complete their enrolment paying their own charges. A refund of charges will be made when the enrolment voucher or letter of authority is subsequently lodged with the Cashier.

### **Failure to Pay Charges**

Any student who is indebted to the University and who fails to make a satisfactory settlement of his indebtedness upon receipt of due notice ceases to be entitled to membership and privileges of the University. Such a student is not permitted to register for a further session, to attend classes or examinations, or to be granted any official credentials.

No student is eligible to attend the annual examinations in any subject where any portion of his charges for the year is outstanding after 7th August.

In very special cases the Academic Registrar may grant exemption from the disqualification referred to in the two preceding paragraphs upon receipt of a written statement setting out all relevant circumstances.

### **Cashier's Hours**

The Cashier's office is open for the payment of charges from 9.30 a.m. to 4.30 p.m., Monday to Friday. The Cashier's office may be open for additional periods during enrolment and re-enrolment. Details of these additional times may be obtained from notices posted at the Cashier's office.

### **Research Degree - Special Note**

A candidate who at the end of a year has completed all work for a postgraduate degree other than the writing up of the thesis and who anticipates submitting the thesis to the Academic Registrar for examination during the following year is required to re-enrol for that year and pay the appropriate student charges outlined above. However, when the student submits his thesis for examination he will receive a refund of the student charges on the same basis as if he had notified his withdrawal from the course (refer to the section under "Withdrawal" above).

## SCHOLARSHIPS

### UNDERGRADUATE SCHOLARSHIPS

#### Tertiary Education Assistance Scheme (TEAS)

The Commonwealth Government, through the Tertiary Education Assistance Scheme, provides means-tested financial aid to full-time students who are not bonded, are permanent residents of Australia and are studying in an approved tertiary course.

Allowances are available at the "dependent at home", "dependent away from home" and "independent" rates. Students who qualify for an allowance will also receive an incidentals allowance of \$100.

A fares allowance may also be payable to students receiving the "dependent away from home" or "independent" rate to the extent of three return trips a year between the institution and the student's home.

Re-enrolling students should lodge applications as soon as their results are available. New students should lodge applications as soon as possible after they have completed enrolment. Students should ensure that applications are lodged by 31st March, 1981 in order to receive their full year's entitlement.

Students should advise the TEAS office if at any time they change or discontinue their advised study programme as their eligibility to receive benefits could be affected. Forms for this purpose are available from the Student Enquiries Office.

Information and application forms are available from The Director, New South Wales State Office, Commonwealth Department of Education, 59 Goulburn Street, Sydney (Postal address: P. O. Box 596, Haymarket, N.S.W. 2000. Telephone: 218 880).

#### N.S.W. Teacher Education Scholarships

The N.S.W. Department of Education offers scholarships to enable students to undertake studies in teacher education with specialisation in the subject fields of secondary or primary. These scholarships are awarded on the basis of planned needs.

For 1980 there were no Teacher Education Scholarships available to students who enrolled in the first year of a degree course at a University. It is not known what the situation will be in subsequent years.

Further information is available from the Teacher Education Advisory Office on the campus of the University of Wollongong (P. O. Box 1741, Wollongong, 2500. Telephone: 28 4033).

#### Aboriginal Study Grants Scheme

The Aboriginal Study Grants Scheme is intended to assist Aborigines who wish to further their education after leaving school.

Benefits include the payment of all compulsory course fees, book and equipment allowances, travel costs and establishment and clothing allowance.

For full-time students in 1981 benefits will amount to \$51.98 a week for students under 18 and \$62.98 a week for students over 18. A family allowance of \$5.25 a week is also available.

A first Dependant's Allowance of \$42.70 a week may also be payable where applicable and additional dependants each attract \$10.00 a week.

Part-time students are also eligible for some financial assistance.

Further information may be obtained from the Director, New South Wales State Office, Commonwealth Department of Education, P. O. Box 596, Haymarket, N.S.W. 2000. (Telephone: 2 0920, ext. 8511).

## POSTGRADUATE SCHOLARSHIPS

### University Postgraduate Awards

The University provides each year a number of scholarships for postgraduate study and research in any approved field.

These awards are normally for graduates of Australian Universities who are domiciled in Australia. They are tenable for one year and, subject to satisfactory progress, may be renewed annually to provide a maximum tenure of two years in the case of a scholar registered for the degree of Master.

In the case of a scholar registered for the degree of Doctor of Philosophy the award is tenable for up to a maximum of three years, but an extension for one year may be granted if special circumstances apply.

Further details of the awards are set out in the postgraduate section of this Calendar.

### Australian Government Postgraduate Research Awards

A number of Australian Government Postgraduate Research Awards are available to students undertaking full-time postgraduate research at the University, leading to the degree of Master and/or PhD.

Persons permanently domiciled in Australia, who are University graduates or will graduate in the current academic year, are eligible for the awards.

Applicants should hold, or expect to obtain, at least an upper division second class honours degree or its equivalent.

Awards are tenable for one year and, subject to satisfactory progress, may be renewed annually to provide a maximum tenure of two years in the case of a scholar registered for the degree of Master. In the case of a scholar registered for the degree of Doctor of Philosophy the award is tenable for up to a maximum of three years, but an extension for one year may be granted if special circumstances apply.

Stipend is \$4,200 per annum, with a dependants' allowance at the rate of \$1,632.80 for dependent wife and \$390 for each child. There is no provision for Establishment, Travel, Incidentals and Thesis Allowances.

The closing date for applications is 31st October.

### Australian Government Postgraduate Course Awards

A number of awards for full-time postgraduate study leading to the degree of Master by formal course-work are also made available by the Australian Government.

Persons permanently domiciled in Australia and who are University graduates or will graduate in the current academic year, are eligible for the awards.

Applicants are expected to have an undergraduate record at better than pass level.

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Stipend and allowances are as for the Australian Government Postgraduate Research Awards.

Applications close on 30th September.

### **Applications and Enquiries**

Application forms for postgraduate awards are available from the University. Applications should be lodged with the Academic Registrar by the specified date.

Separate application for registration as a higher degree candidate should be made on the appropriate form, in accordance with conditions applying to the particular degree.

Further enquiries may be directed to the Student Enquiries Office, Ground Floor, Administration Building.



## STUDENT PROCEDURES

### General Conduct

Acceptance as a member of the University implies an undertaking on the part of the student to observe the regulations, by-laws and other requirements of the University, in accordance with the declaration signed at the time of the enrolment.

Smoking is not permitted during lectures, in examination rooms or in the University Library. Gambling is also forbidden.

Members of the academic staff of the University, senior administrative officers, and other persons authorised for the purpose, have authority, and it is their duty to check and report on disorderly or improper conduct or any breach of regulations occurring in the University.

### Indebtedness to the University

Any student who is indebted to the University and who fails to make a satisfactory settlement of his indebtedness upon receipt of due notice ceases to be entitled to membership and privileges of the University. Such student is not permitted to attend classes or examinations, or to be granted any official credentials.

Indebtedness to the University includes the non-payment of charges, late charges, library fines, the non-payment of student loans and any arrears in rent or other financial obligations resulting from an accommodation agreement entered into with the University.

In very special cases the Academic Registrar may grant exemption from the disqualification referred to in the preceding paragraph upon receipt of a written statement setting out all the relevant circumstances.

### Change of Address

Students are requested to notify the Academic Registrar in writing of any change in their address as soon as possible. Forms for this purpose are available from the Student Enquiries Office, Ground Floor, Administration Building. Failure to do this could lead to important correspondence (e.g. confirmation of enrolment form, examination results, etc) or course information not reaching the student. The University cannot accept responsibility if official communications fail to reach a student who has not notified the Academic Registrar of a change of address.

### Change of Name by Marriage or Deed Poll

All records held, and statements issued by the University will be in the name given by students at the time of their admission to the University.

Students who change their name by marriage or by Deed Poll and who also wish to change their name on University records should complete a Change of Name form which is available from the Student Enquiries Office, Ground Floor, Administration Building, and present for notation the original Marriage Certificate or Deed Poll document.

### Ownership of Students' Work

The University reserves the right to retain at its own discretion the original or one copy of any drawings, models, designs, plans and specifications, essays, theses or other work executed by students as part of their courses, or submitted for any award or competition conducted by the University.



## Notices

Official University notices are displayed on the notice boards and students are expected to be acquainted with the contents of those announcements which concern them.

### Students' Travelling Concession Passes

The various transport authorities provide fare concessions for certain classes of students.

Application forms for these concessions may be obtained from the Student Enquiries Office, Ground Floor, Administration Building.

#### Train:

Identification cards issued by the Railways of Australia are available to full-time students to enable them to travel at concession rates on railways within Australia. These cards are available from the Student Enquiries Office, Ground Floor, Administration Building.

#### Aircraft:

Concession fares for travel overseas, inter-state and intra-state are available under the conditions ruling for various operating companies. Appropriate travel cards are available from travel agents.

### Student Identification Cards

All students are issued with a new Student Identification Card at the beginning of each year of enrolment. This card must be carried during attendance at the University and shown on request.

The number appearing on the front of the card is the student registration number used in the University's records. This number should be quoted in all correspondence.

The card must be presented when varying enrolment, when collecting examination results, when applying for travel concessions and when notifying a change of address.

A student who loses his identification card must notify the Academic Registrar as soon as possible.

All students will be issued with a Student Identification Card as soon as possible after enrolment. In the meantime, the receipt form issued at the time of enrolment should be carried during attendance at the University and shown on request. If the identification card is not received within six weeks of enrolment the Student Enquiries Office should be advised.

### Lost Property

Enquiries concerning lost property should be made to the Student Enquiries Office, Ground Floor, Administration Building, and the Union Office.

### Application of Rules

Any student who requires information on the application of the rules or any service which the University offers, may make enquiries at the Student Enquiries Office.

## EXAMINATIONS

Formal University examinations may take place at the end of the first or second session. Timetables showing time and place at which individual examinations will be held are posted on notice boards. Mis-reading of the timetable is not an acceptable excuse for failure to attend an examination. Examination results are posted to the session addresses of students. **No information concerning examinations or results will be given by telephone.**

Examination results may be reviewed for a charge of \$11 a subject which is refundable in the event of an error being discovered. Applications for review must be submitted on the appropriate form, together with the necessary charge no later than four weeks from the date of publication of the examination results.

### Rules and Procedures for the Conduct of Examinations

- (a) Candidates are required to obey any instruction given by an examination supervisor for the proper conduct of the examination.
- (b) Candidates are required to be in their places in the examination room not less than ten minutes before the time for commencement.
- (c) No bag, writing paper, blotting paper, manuscript or book, other than a specified aid, is to be brought into the examination room.
- (d) No candidate shall be admitted to an examination after thirty minutes from the time of commencement of the examination.
- (e) No candidate shall be permitted to leave the examination room before the expiry of thirty minutes from the time the examination commences.
- (f) No candidate shall be re-admitted to the examination room after he has left it unless during the full period of his absence he has been under approved supervision.
- (g) A candidate shall not by any improper means obtain, or endeavour to obtain, assistance in his work, give, or endeavour to give, assistance to any other candidate, or commit any breach of good order.
- (h) Smoking is not permitted during the course of examinations.
- (i) All answers must be in English unless otherwise directed. Foreign students who have the written approval of the Examinations Office may use standard translation dictionaries.
- (j) A candidate who commits any infringement of the rules governing examinations is liable to disqualification at the particular examination, to immediate expulsion from the examination room, and to such further penalty as may be determined in accordance with the By-Laws.

### Deferred Examinations

Most departments at the University do not offer deferred examinations except in medical and compassionate cases.

### Terminating Passes

The award of the grade of terminating pass will prohibit a student progressing to the next subject in a sequence for which the subject in which the terminating pass is awarded, is a pre-requisite. However, students are not prevented from repeating a subject for which a terminating pass has been awarded.

## APPLICATION FOR ADMISSION TO A DEGREE OR DIPLOMA

Applications for admission to a degree or the award of a diploma must be made on the appropriate form. Students who complete the requirements for their degrees or diplomas at the end of session 2 should apply by 5th January in the following year. Students who complete their degrees at the end of session 1 and do not wish to wait until the next Graduation Ceremony may choose to have their degrees awarded by resolution of the Council, in which case the application must be submitted to the Academic Registrar by 1st September. All applicants should ensure that they have completed all requirements for the degree or diploma, including industrial training where necessary.

## PRIZES

The following prizes are awarded to students of the University. Details of the conditions of the prizes are available from the Student Enquiries Office.

The Australasian Institute of Mining and Metallurgy (Illawarra Branch) Geology Prize

1979: **J. H. Boddington**

The Australasian Institute of Mining and Metallurgy (Illawarra Branch) Metallurgy Prize

1979: **R. M. Smith**

The Australasian Institute of Mining and Metallurgy (Illawarra Branch) Mining Prize

1979: **R. W. Kirkwood**

The Australian Institute of Metals (Port Kembla Branch) Metallurgy Prize

1979: **D. G. Mellor**

The Australian Institute of Physics (N.S.W. Branch) Prize (Physics)

1979: No Award

The Australian Iron and Steel Prize (Metallurgy)

1979: **R. M. Smith**

The Australian Psychological Society Prize in Psychology

1979: **J. Stubbs**

The Australian Society of Accountants Prizes (Accountancy)

1979: (1) **M. E. Berglund**

(2) **G. J. Pappas**

(3) **T. G. Parkinson**

The Peter Beckmann Memorial Prize (Chemistry)

1979: **D. Tober and C. E. Rovere**

The Biology Prize

1979: **D. M. Howarth**

The Blue Circle Southern Cement Limited Maldon Works Prize (Metallurgy)

1979: No Award

The B. P. Australia Ltd. Coal Geology Prize

1979: **J. C. Campbell**

The Marjory Brown Prize (English - Women Students)

1979: **B. C. Keaveney**

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The Commonwealth Banking Corporation Prize (Metallurgy)

1979: No Award

The Darryl Condon Memorial Prize (Metallurgy)

1979: **L. Clapham**

The Corporate Affairs Commission Prize (Accountancy)

1979: **J. A. Baxter**

The G. W. Daniels Memorial Prize (Chemistry)

1979: **L. L. Ingram**

The Foundation Prize in Geology

1979: **L. L. Ingram**

The Institution of Engineers, Australia, Prize for Engineering

1979: **P. Buchhorn**

The John Lysaght Australia Limited Prize (Metallurgy)

1979: **D. G. Mellor**

The Metal Manufactures Prize (Metallurgy)

1979: No Award

The Metallurgical Society Award (Metallurgy)

1979: No Award

The N.S.W. Department of Education Prize (Diploma in Education)

1979: **J. Davis and I. Lazzarotto**

The Gina Savage Prize (Science - Women Students)

1979: **D. Tober**

The S. A. Senior Prize (Mathematics)

1979: **J. Cergovska and J. Werakso**

Staff Prize for the Fourth Year Electrical Engineering Thesis

1979: **W. Koeller**

Staff Prizes in Physics

1979: (1) **A. R. Brinsmead**

(2) No Award

(3) No Award

(4) No Award

The A. J. & I Waters Prize in Geology

1979: **J. C. Campbell**

The Western Mining Corporation Prizes for Metallurgy

- 1979: (1) **R. M. Smith**  
(2) **D. G. Mellor**

The Western Mining Corporation Prizes for Mining Engineering

- 1979: (1) **I. C. Sheppard**  
(2) **I. C. Sheppard**



## BACHELOR DEGREE REGULATIONS

Being Regulations made by Council pursuant to clauses 23 and 24 of the University of Wollongong By-Law.

### PART I – PRELIMINARY

#### SHORT TITLE

1. These Regulations may be cited as the "Bachelor Degree Regulations."

#### COMMENCEMENT

2. These Regulations shall come into operation on 1st January, 1981.

#### PARTS

3. These Regulations are divided into parts, as follows:

<b>PART I</b>	-	Preliminary (Clause 1-6)
<b>PART II</b>	-	General (Clause 7-15)
<b>PART III</b>	-	Bachelor of Arts (Clause 16)
<b>PART IV</b>	-	Bachelor of Commerce (Clause 17)
<b>PART V</b>	-	Bachelor of Engineering (Clause 18)
<b>PART VI</b>	-	Bachelor of Metallurgy (Clause 19)
<b>PART VII</b>	-	Bachelor of Science (Clause 20)
<b>PART VIIA</b>	-	Bachelor of Mathematics (Clause 20A)
<b>PART VIII</b>	-	Honours Degrees (Clauses 21-28)
<b>PART IX</b>	-	Miscellaneous (Clause 29-31)
<b>PART X</b>	-	Schedules

#### ABBREVIATED TITLES

4. There shall be degrees of Bachelor as follows:

- 4.1 the degrees of

Bachelor of Arts (BA)  
Bachelor of Commerce (BCom)  
Bachelor of Engineering (BE)  
Bachelor of Metallurgy (BMet)  
Bachelor of Science (BSc)  
Bachelor of Mathematics (BMath)

- 4.2 the honours degrees of

Bachelor of Arts (BA(Hons))  
Bachelor of Commerce (BCom(Hons))  
Bachelor of Engineering (BE(Hons))  
Bachelor of Metallurgy (BMet(Hons))  
Bachelor of Science (BSc(Hons))  
Bachelor of Mathematics (BMath(Hons))

#### INTERPRETATION

- 5.1 In these Regulations, unless the contrary intention appears,

- 5.1.1 "Course" means both the combination of subjects taken in any one year, and the sequence of subjects taken over several years, leading to a degree of the University;
- 5.1.2 "Subject" means a unit of study of single or double session duration;
- 5.1.3 "100-level subject" means a subject at first year level,  
 "200-level subject" means a subject at second year level,  
 "300-level subject" means a subject at third year level,  
 "400-level subject" means a subject at fourth year level;
- 5.1.4 "credit points" means the value attributed to a subject as a component in a degree;
- 5.1.5 "academic adviser" means a person designated by the Academic Senate to advise a candidate proposing a course of study on the conformity of that course to these Regulations
- 5.1.6 "Candidate" means a candidate for a degree of the University;
- 5.1.7 "full-time" candidate means a full-time candidate who is enrolled in any year in a subject or subjects with a value of not less than 36 credit points in courses for the degree of Arts, Commerce, Mathematics or Science, or not less than the equivalent of three quarters of a year's programme in courses for the degrees of Engineering or Metallurgy;
- 5.1.8 "part-time" candidate means a candidate who is not designated as a full-time candidate.

### CONFERRING OF DEGREES

- 6.1 The degrees or honours degrees of Bachelor, as prescribed by Regulations 4.1 and 4.2 of these Regulations may be conferred by the Council on a candidate who has to the satisfaction of the Council, complied with these Regulations; provided that in no case shall any of the degrees referred to in Regulation 4 be conferred more than once on the same candidate.
- 6.2 The degree of Bachelor of Commerce may be conferred with merit where a candidate has demonstrated a standard of academic achievement approved by the Council.
- 6.3 Where a candidate has qualified more than once for the award of the same degree, the Academic Registrar shall issue a certificate certifying to the fact and setting out the subjects and the grades awarded.

## PART II – GENERAL

### ENROLMENT

- 7.1 A candidate qualified for candidature for the degree of Bachelor of Arts, Commerce, Engineering, Mathematics, Metallurgy or Science shall apply to the Academic Registrar and be enrolled in the first and each subsequent year as a full-time or part-time student for one of the above degrees. Unless provided by these Regulations no candidate shall be enrolled for more than one degree in any one year except with the approval of the Council.

### SCHEDULES OF SUBJECTS

- 8.1 The Council shall approve the subjects for the degrees in Arts, Commerce, Engineering, Mathematics, Metallurgy and Science. The subjects so approved shall be set out in schedules to these Regulations which shall include where relevant the credit points, subject pre-requisites, co-requisites, when offered and any restrictions or recommendations for each subject. The Schedules of Subjects are:

Arts and General Studies	- Schedule A
Commerce	- Schedule B
Engineering	- Schedule C
Metallurgy	- Schedule D
Science	- Schedule E
Mathematics	- Schedule F

**COURSE OF STUDY**

9.1 Subject to these Regulations a candidate shall, in each year, enrol in a course of study (selected from the Schedules of Subjects) which he shall propose after consultation with an academic adviser.

9.2 Except with the approval of the Council, in any year of enrolment a candidate shall not enrol in a subject or subjects with a value less than 12 credit points selected from the Schedules for the degrees of Arts, Commerce, Mathematics and Science, or less than the equivalent of one quarter of the course for a full-time year in the degrees of Engineering and Metallurgy. This requirement shall not apply when a candidate, in order to complete his degree, needs less than 12 credit points in subjects selected from the Schedules for the degrees of Arts, Commerce, Mathematics and Science, or less than one quarter of the course for a full-time year in the degrees of Engineering and Metallurgy; such a candidate must enrol for the amount of his course needed to complete the degree.

9.3 Normally, in any year of enrolment a candidate shall not enrol in subjects with a value of more than 48 credit points in courses for the degrees of Arts, Commerce, Mathematics and Science or more than the equivalent of the programme for a full-time year in the courses for the degrees of Engineering and Metallurgy, except with the approval of the Council.

9.4 Except with the approval of the Council, a candidate may not enrol in a subject unless he satisfies the conditions for enrolment specified in the Schedules of Subjects.

**CHANGE OF COURSE**

10.1 Where a candidate seeks to change his course of study, enrolled in pursuant to Regulation 9.1, he shall apply in writing to the Academic Registrar after consultation with an academic adviser.

10.2 Where the change of course referred to in Regulation 10.1 includes discontinuance of a subject or subjects, the candidate shall be deemed not to have been enrolled in the subject or subjects if he discontinues:

- (a) in the case of a subject which terminates at the end of a single session, before the end of the eighth week of the session in which that subject is offered;
- (b) in the case of a subject which terminates at the end of two sessions before the end of the first week of the second session in which that subject is offered.

10.3 Where a candidate withdraws from a subject or subjects pursuant to Regulation 10.2 that subject or subjects shall be deleted from the candidate's enrolment record.

10.4 Where the change of course referred to in Regulation 10.1 includes a subject or subjects discontinued after the time limits specified in Regulation 10.2(a) or 10.2(b), the subject shall not be deleted from the candidate's enrolment record provided that:

- (a) where the Council determines that the failure to discontinue within the time limits specified in Regulation 10.2(a) and (b) is due to

medical, compassionate or other acceptable reason, the candidate's enrolment record shall note the discontinuation and the date;

- (b) where the Council is not satisfied that failure to discontinue within the time limits specified in Regulation 10.2(a) and (b) is due to reasons specified in (a) above, the candidate shall be deemed to have failed the subject or subjects and his enrolment record shall note the date of the discontinuation and the Fail grade.

10.5 Where a date of discontinuance is recorded it shall be the date on which a notice of discontinuance on the prescribed form is lodged with the Academic Registrar.

## LEAVE OF ABSENCE

11. Subject to these Regulations a candidate may be granted leave of absence for up to one year by the Academic Registrar on receipt of an application in writing; applications for leave of absence in excess of one year shall be determined by the Council.

## ASSESSMENT

12.1 Subject to these Regulations, the declaration whether a candidate has completed satisfactorily a subject forming part of his course for the degree of Bachelor so as to gain the number of credit points specified in the Schedules of Subjects for the degrees of Arts, Commerce, Mathematics and Science, or standing in the subject for the degrees of Engineering and Metallurgy, shall be made by the Council.

12.2 In order to complete a subject satisfactorily and to gain the number of credit points specified for the subject in the Schedules for the degrees of Arts, Commerce, Mathematics and Science or standing in a subject prescribed for a degree in Engineering or Metallurgy, a candidate shall

12.2.1 attend such classes; and

12.2.2 complete such essays, exercises and practical work and present himself for such tests and examinations; and

12.2.3 reach a satisfactory standard in such completed work as may be determined by the relevant Departmental Chairman. Provided that a candidate whose performance was affected or was prevented by illness or other cause beyond his control from satisfying the requirements of this Regulation shall report the circumstances in writing (supported by evidence) to the Academic Registrar who shall inform the Departmental Chairman; and the Departmental Chairman may take into account such illness or other cause when assessing the candidate's performance. The candidate shall submit such a report to the Academic Registrar not later than seven days following the illness or other cause referred to above, except that it may be submitted by some other person if circumstances prevent the candidate from taking the required action.

12.3 The Council shall determine a period at the end of each session when examinations may be scheduled.

12.4 The Council shall determine the grades to be used for recording the level of achievement in a subject. The grade of achievement of a candidate in a subject shall be declared by the Council after advice from the relevant Departmental Chairman whose assessment shall be based on the candidate's level of performance with respect to Regulation 12.2.



### MINIMUM RATE OF PROGRESS

13.1 The required minimum rate of progress in the degrees of Arts, Commerce, Mathematics and Science shall be the attainment of a number of credit points (excluding credit points granted pursuant to Regulation 15) aggregated as follows, provided that this Regulation shall not apply to a subject or subjects withdrawn pursuant to Regulations 10.2 or 10.4(a):

13.1.1 during the first two years of candidature, 48 credit points for full-time candidates and 24 credit points for part-time candidates, and

13.1.2 thereafter 32 credit points for each year of full-time candidature and 16 credit points for each year of part-time candidature.

13.2 The required minimum rate of progress in the degrees of Engineering or Metallurgy shall be the successful completion of subjects (excluding standing granted pursuant to Regulation 15) aggregated as follows:

13.2.1 during the first two years of candidature the first year of the course prescribed for full-time candidates, and the equivalent of half of the first year of the course prescribed for part-time candidates;

13.2.2 thereafter two thirds of the course prescribed for each year of candidature.

### RESTRICTIONS ON ENROLMENT

14.1 Subject to these Regulations, a candidate who has failed to complete a subject satisfactorily after having enrolled therein twice may not enrol again in that subject except with permission of the Council, provided that this Regulation shall not apply in the case of a subject or subjects withdrawn pursuant to Regulations 10.2 or 10.4(a).

14.2 Subject to these Regulations, a candidate who fails to maintain the required minimum rate of progress in a course of study set out in Regulation 13 may not enrol in any subject without showing cause to the satisfaction of the Council why enrolment should be permitted.

14.3 A candidate who, in the opinion of the Council has an unsatisfactory academic record in any other university or tertiary institution, shall not be permitted to enrol in any subject without the approval of the Council.

14.4 A candidate not permitted to enrol pursuant to this Regulation in a particular year may apply to the Council for permission to enrol in the following year.

14.5 Where a candidate required to show cause or to obtain the approval of the Council under this Regulation is permitted to enrol in any subject or subjects in the University, such enrolment shall be subject to any condition imposed by the Council.

### CREDIT TOWARDS DEGREE

15.1 A candidate who has completed in a university or other tertiary institution approved by the Council one or more subjects approved for the purpose of this Regulation by the Council may, subject to this Regulation, be granted such credit therefor as may be determined by the Council.

15.2 A candidate enrolled for a degree of Arts, Commerce, Mathematics or Science and granted credit pursuant to this Regulation shall in no case be eligible by reason thereof to be credited with more than 96 credit points, and shall in any case

15.2.1 complete such subjects as shall permit the obtaining of at least 24 credit points in 300-level subjects (selected from the Schedules of Subjects



referred to in Regulation 8 of these Regulations) determined by the Council as providing a substantial and coherent study at the 300-level, and

15.2.2 complete such other subject or subjects as may be determined by the Council.

15.3 A candidate enrolled for a degree of Engineering or Metallurgy and granted credit pursuant to this Regulation shall in no case be eligible by reason thereof to be credited with more than two-thirds of the course and shall in any case

15.3.1 complete such subjects as shall permit the attaining of a satisfactory performance in at least three-quarters of the final year, or its part-time equivalent if a part-time candidate, of the prescribed course determined by the Council, and

15.3.2 complete such other subject or subjects as may be determined by the Council.

15.4 A candidate shall not be granted credit pursuant to this Regulation for subjects completed more than 10 years previously, except with the approval of the Council.

15.5 A candidate may, with the prior approval of the Council, be permitted to enrol for subjects at another university or tertiary institution and on successful completion of the subjects to have them credited towards a degree of the University.

15.6 Notwithstanding anything to the contrary contained in this Regulation a candidate who is a graduate or who has satisfied the requirements for a degree or other award of a university or other tertiary institution approved by Council shall not be credited pursuant to this Regulation with more than 66 credit points in the case of degrees in Arts, Commerce, Mathematics and Science, except that appropriate subjects passed but not included in the previous degree may extend the maximum to 96 credit points; or one half of the prescribed course in the case of degrees in Engineering and Metallurgy, except that appropriate subjects passed but not included in the previous degree may extend the maximum of two-thirds of the prescribed course.

15.7 Save with the approval of the Council a candidate who has satisfactorily completed, either at the university or elsewhere, a subject which, in the opinion of the Council is a similar subject and for which credit has been obtained for a particular degree shall not be permitted to enrol in that subject for credit towards that particular degree.

## PART III – BACHELOR OF ARTS

### DEGREE REQUIREMENTS

16. In order to complete a course of study which qualifies for the award of the degree of Bachelor of Arts, a candidate shall, subject to these Regulations, obtain from the successful completion of subjects listed in Schedule A, an aggregate of not less than 144 credit points of which

16.1 not less than 72 shall be obtained in respect of subjects other than 100-level subjects; and

16.2 not less than 24 shall be obtained in respect of 300-level subjects determined by the Council as providing a substantial and coherent study at the 300-level.

## **PART IV – BACHELOR OF COMMERCE \***

### **DEGREE REQUIREMENTS**

17.1 In order to complete a course of study which qualifies for the award of the degree of Bachelor of Commerce, a candidate shall, subject to these Regulations, obtain an aggregate of not less than 144 credit points by the successful completion of subjects listed in Schedule A of which

17.1.1 not less than 72 shall be obtained in respect of subjects other than 100-level subjects.

17.2 Subject to these Regulations and any conditions specified in the Schedules, candidates enrolled for the specialisation in Accountancy shall successfully complete the subjects set out in Schedules B1 and B2.

17.3 Subject to these Regulations and any conditions specified in the Schedules, candidates enrolled for the specialisation in Economics shall successfully complete the subjects set out in Schedules B1 and B3.

17.4 Subject to these Regulations and any conditions specified in the Schedule, candidates enrolled for the combined specialisation in Accountancy and Economics shall successfully complete the subjects set out in Schedule B4.

17.5 Subject to these Regulations and any conditions specified in the Schedules, candidates enrolled for the specialisation in Industrial Relations shall successfully complete the subjects set out in Schedules B1 and B5.

17.6 Subject to these Regulations and any conditions specified in the Schedules candidates enrolled for the specialisation in Management Studies shall successfully complete the subjects set out in Schedules B1 and B6.

## **PART V – BACHELOR OF ENGINEERING**

### **DEGREE REQUIREMENTS**

18. In order to complete a course of study which qualifies for the award of the degree of Bachelor of Engineering, a candidate shall, subject to these Regulations, successfully complete the subjects prescribed in one of the courses set out in Schedule C.

## **PART VI – BACHELOR OF METALLURGY**

### **DEGREE REQUIREMENTS**

19. In order to complete a course of study which qualifies for the award of the degree of Bachelor of Metallurgy, a candidate shall, subject to these Regulations, successfully complete the subjects set out in Schedule D.

## **PART VII – BACHELOR OF SCIENCE**

### **DEGREE REQUIREMENTS**

20 In order to complete a course of study which qualifies for the award of the degree of Bachelor of Science, a candidate shall, subject to these Regulations, fulfil either Regulation 20.1 or Regulation 20.2 or Regulation 20.3.

20.1

20.1.1 A candidate shall obtain an aggregate of not less than 144 credit points by the successful completion of subjects listed in Schedule A, of which

\* Criteria for the award of the Bachelor of Commerce degree with Merit are set out on page 98.

- 20.1.2 not less than 108 credit points shall be in respect of subjects selected from Schedule E, of which
- 20.1.3 not less than 84 credit points shall be in respect of subjects offered by member departments of the Faculty of Science or other subjects specifically approved by the Council for the purpose of this Regulation, of which
- 20.1.4 not less than 60 credit points shall be in respect of subjects offered by one member department of the Faculty of Science or other subjects specifically approved by the Council for the purpose of this Regulation.
- 20.1.5 Of the 144 credit points specified in Regulation 20.1.1 not more than 60 credit points shall be in respect of 100-level subjects and not less than 36 credit points shall be in respect of 300-level subjects.
- 20.1.6 Of the 60 credit points specified in Regulation 20.1.4 not less than 24 credit points shall be approved by the Council as providing a substantial and coherent study at the 300-level.
- 20.2
- 20.2.1 A candidate shall obtain an aggregate of not less than 144 credit points by the successful completion of subjects listed in Schedule A, of which
- 20.2.2 not less than 108 credit points shall be in respect of subjects selected from Schedule E and shall consist of 54 credit points in respect of subjects offered by each of any two member departments of the Faculty of Science or other subjects specifically approved by the Council for the purpose of this Regulation.
- 20.2.3 Of the 144 credit points specified in Regulation 20.2.1 not more than 60 credit points shall be in respect of 100-level subjects.
- 20.2.4 Of the 108 credit points referred to in Regulation 20.2.2, not less than 24 of each of the 54 credit points shall be in respect of 300-level subjects and shall be approved by the Council as providing a substantial and coherent study at the 300-level.
- 20.3
- 20.3.1 A candidate shall obtain an aggregate of not less than 144 credit points by the successful completion of subjects listed in Schedule A, of which
- 20.3.2 not less than 120 credit points shall be in respect of subjects selected from Schedule E and shall consist of
- 20.3.3 not less than 48 credit points in respect of subjects offered by one associate member department of the Faculty of Science or other subjects specifically approved by the Council for the purpose of this Regulation, which shall comprise a programme recommended by the Faculty of Science and approved by the Council as a coherent course of study, together with
- 20.3.4 not less than 72 credit points in respect of subjects offered by member departments of the Faculty of Science or other subjects specifically approved by the Council for the purpose of this Regulation, of which
- 20.3.5 not less than 60 credit points shall be in respect of subjects offered by one member department of the Faculty of Science or other subjects specifically approved by the Council for the purpose of this Regulation and shall comprise a substantial and coherent course of study as approved by the Council.

## 94 THE BACHELOR DEGREES

20.3.6 Of the 144 credit points specified in Regulation 20.3.1 not more than 60 credit points shall be in respect of 100-level subjects.

20.3.7 Not less than 24 of the 48 credit points referred to in Regulation 20.3.3 together with not less than 24 of the 60 credit points referred to in Regulation 20.3.5 shall be in respect of 300-level subjects and shall be approved by the Council as providing substantial and coherent studies at the 300-level.

20.4 Except with the approval of the Council not less than half the course of study in any one year of enrolment of a candidate satisfying Regulation 20 shall consist of subjects offered by a member department or member departments of the Faculty of Science and/or the Faculty of Mathematics or other subjects specifically approved by the Council for the purpose of Regulation 20.

### PART VIIA – BACHELOR OF MATHEMATICS

#### DEGREE REQUIREMENTS

20A In order to complete a course of study which qualifies for the award of the degree of Bachelor of Mathematics, a candidate shall, subject to these Regulations, obtain an aggregate of not less than 144 credit points by the successful completion of subjects listed in Schedule A, of which

20A.1 not more than 60 credit points shall be in respect of 100-level subjects; and

*either*

20A.2.1 not less than 84 credit points shall be in respect of subjects selected from Schedule F; and

20A.2.2 not less than 36 credit points shall be in respect of 300-level subjects, of which at least 24 from Schedule F shall be approved by the Council as providing a substantial and coherent study at the 300-level;

*or*

20A.3.1 not less than 72 credit points shall be in respect of subjects selected from Schedule F, of which at least 24 credit points shall be approved by the Council as providing a substantial and coherent study at the 300-level; and

20A.3.2 not less than 48 credit points shall be in respect of subjects, other than those in Schedule F, offered by, or on behalf of, any one department of the University; of these 48 credit points at least 24 credit points shall be approved by the Council as providing a substantial and coherent study at the 300-level.

### PART VIII – THE HONOURS DEGREE OF BACHELOR

#### PRELIMINARY

21. Subject to the succeeding Regulations, Regulations 1 to 20 inclusive of these Regulations shall, unless the context or subject matter indicate a contrary intention, have equal application to candidates for the honours degree of Bachelor as to candidates for the degree of Bachelor.

#### ADMISSION TO HONOURS DEGREE COURSES IN ARTS, COMMERCE, MATHEMATICS AND SCIENCE

22. In order to be admitted as a candidate for the degree of Bachelor with Honours in Arts, Commerce, Mathematics or Science a candidate shall



22.1 have (save as determined by the Council in exceptional cases) qualified for the award of a degree of Bachelor of Arts, Commerce, Mathematics or Science of the University; and

22.2 have attained in the subjects completed for his degree a standard of achievement approved by the Council;

22.3 have completed satisfactorily such subjects as may have been determined by the Council.

*or*

22.4 hold from another University qualifications or academic attainments approved by the Council as equivalent to those set out in Regulations 22.1 and 22.2. Provided that the Council may require an applicant, before being admitted as a candidate for the honours degree of Bachelor, to complete such work and sit for such examinations as the Council may determine.

**COURSE OF STUDY FOR THE HONOURS DEGREE COURSE IN ARTS, COMMERCE, MATHEMATICS AND SCIENCE.**

23.1 A candidate for the degree of Bachelor with Honours in Arts, Commerce, Mathematics or Science shall obtain an aggregate of not less than 48 credit points from the successful completion of subjects approved by the Council from those listed in the Schedules of Subjects at a standard of achievement approved by the Council.

23.2 A candidate may be enrolled for

*either*

23.2.1 a single honours degree where subjects are taken from one department,

*or*

23.2.2 a joint honours degree where subjects are taken from more than one department.

**LENGTH OF CANDIDATURE FOR HONOURS DEGREE COURSE IN ARTS, COMMERCE, MATHEMATICS AND SCIENCE**

24. Unless otherwise determined by the Council a full-time candidate shall pursue the course of study approved under Regulation 23 for two successive half-years and a part-time candidate shall pursue the course of study for four successive half-years. Provided that a candidate admitted pursuant to Regulation 22.4 may be required by the Council to pursue a course of study for more than two successive half-years if a full-time candidate and for more than four successive half-years if a part-time candidate.

**ADMISSION, COURSE OF STUDY AND LENGTH OF CANDIDATURE FOR HONOURS DEGREE COURSES IN ENGINEERING AND METALLURGY**

25. In order to complete a course of study which qualifies for the award of the degree of Bachelor with Honours in Engineering or Metallurgy, a candidate must complete the course for the degree of Bachelor of Engineering or Metallurgy at a standard of achievement determined by the Council.

**ADDITIONAL HONOURS COURSE**

26.1 A candidate who has qualified for the honours degree of Bachelor and who has fulfilled such requirements for admission to a second honours course as may be determined by the Council may be permitted by the Council to enrol for the second honours course provided that this course is, in the opinion of the Council,



sufficiently different from the first honours course completed.

26.2 Unless otherwise determined by the Council a candidate permitted to undertake a second honours course pursuant to Regulation 26.1 shall comply with Regulations 23, 24 and 25 where relevant.

### **CLASSES OF HONOURS**

27. A candidate who has satisfactorily fulfilled the Regulations prescribed may be awarded an honours degree in one of the following classes:

- Honours Class I
- Honours Class II Division 1
- Honours Class II Division 2
- Honours Class III

### **TERMINATION OF CANDIDATURE**

28. Unless otherwise determined by the Council a candidate who, pursuant to these Regulations, fails to qualify for the award of any class of honours referred to in Regulation 27 may not continue as a candidate for the honours degree of Bachelor.

## **PART IX – MISCELLANEOUS**

### **GENERAL SAVING CLAUSE**

29. Notwithstanding anything to the contrary herein contained the Council may, in any case in which it may deem it appropriate to do so, dispense with or suspend any requirement of or prescription by these Regulations.

### **APPLICATION OF AMENDING REGULATIONS**

30. Where, after the commencement of these Regulations an amendment relating to the courses of study that may be taken by candidates for the pass degrees of Bachelor or the degrees with honours is made to these Regulations, the amendment shall not apply to such a candidate who, before the making of the amendment, completed 12 credit points or the equivalent of one quarter of the course for a full-time year in the degrees of Engineering or Metallurgy, unless

30.1 the candidate elects that the amendment apply to him and submits to the Council proposed alterations to his course that are in accordance with these Regulations as amended by the amendment and the Council approved those alterations or

30.2 the Council otherwise determines.

### **APPEAL**

31. A candidate may appeal against any decision made pursuant to these Regulations to the Council which may determine the matter as it sees fit.

## **PART X – THE SCHEDULES**

*SCHEDULE A – ARTS AND GENERAL STUDIES*

*SCHEDULE B – COMMERCE*

*SCHEDULE C – ENGINEERING*

*SCHEDULE D – METALLURGY*

*SCHEDULE E – SCIENCE*

*SCHEDULE F – MATHEMATICS*

All the subjects set out in the Schedules of Subjects are offered contingent upon the availability of staff and the level of student enrolments.

## CRITERIA FOR THE AWARD OF BCOM DEGREE WITH MERIT

To be eligible for the award of a Bachelor of Commerce Degree with Merit a candidate must:

1. have passed at credit level or better in subjects aggregating not less than 60 credit points;
2. have not failed in any subjects;

### 3A. **Accountancy**

have passed at credit level or better 50% of the subjects taken from those offered by the Department of Accountancy above 100-level, but in no case shall the subjects passed at credit level or better under this clause be less than 30 credit points, and provided further that

- (i) the subjects passed under this clause at credit level or better must include two subjects from Accounting & Financial Management IIA, IIB, IIIA and IIIB, and
- (ii) either Accounting & Financial Management IIIA or IIIB must be passed at credit level or better.

### 3B. **Economics**

have passed at credit level or better 50% of subjects above 100-level taken from the Department of Economics, provided that subjects passed at credit level or better to which the clause refers:

- (i) have a credit point value of 30 or more;
- (ii) include at least one subject at 300-level from the Schedule of Subjects for Economics.

## A GUIDE TO THE SCHEDULES

Intending students are strongly urged to read the details of each subject in which they are interested. In particular, when selecting their programme of study they should ensure that they are complying with any special requirements concerning the subject or subjects which they wish to study beyond the first year (100-level).

### **Pre-requisites and Co-requisites**

The information in the columns headed "Pre-requisites" and "Co-requisites" indicates the minimum requirements to be met by students wishing to enrol in the various subjects. A *pre-requisite* subject is one which must be completed successfully prior to undertaking the subject for which it is prescribed. A *co-requisite* subject is one which must either be completed successfully before or be studied concurrently with the subject for which it is prescribed.

The pre- and co-requisites listed for subjects in the Schedules are described in terms of the current subject titles. Students who have completed similar subjects in previous years are advised to contact the appropriate Departmental Chairman to determine whether these subjects are acceptable as pre- and co-requisites for subjects in their present courses.

Students or intending students, who feel that they have good grounds for requesting waiver of a pre-requisite or co-requisite should present their case to the appropriate Departmental Chairman.

Under the Regulations a Departmental Chairman may dispense with the need to comply with a pre-requisite or co-requisite. However, pre-requisites and co-requisites have been carefully determined and waiver will be allowed only in cases where the Departmental Chairman and the Academic Senate are satisfied that the student has a background of study sufficient to take the subject profitably.

### **Session Offered**

In the column headed "Session Offered" the following coding is used:

1 = first half-year; 2 = second half-year; 3 = full year

**The University reserves the right to withdraw any subject or subjects at any time without notice.**

ENGL330	Theatre Arts C	300	6	1	ENGL231
ENGL331	Theatre Arts D	300	6	2	ENGL330
ENGL332	Modern Media C	300	6	1	ENGL233
ENGL333	Modern Media D	300	6	2	ENGL332

*400-Level*

ENGL400	English IV Honours	400	48	3	
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Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman

**Department of European Languages**

**FACULTY OF HUMANITIES**

**French**

*100-Level*

EURO103	Introductory French	100	12	3	
EURO111	French IA	100	6	1	Prior study of French to an acceptable level*
EURO112	French IB	100	6	2	French IA

For beginners or near-beginners



**Italian***100-Level*

EURO153	Introductory Italian	100	12	3		For beginners or near-beginners
EURO161	Italian IA	100	6	1	Prior study of Italian to an acceptable level **	
EURO162	Italian IB	100	6	2	Italian IA	

*200-Level*

EURO251	Italian IIC	200	8	1	Introductory Italian	
EURO252	Italian IID	200	8	2	Italian IIC	
EURO261	Italian IIA	200	8	1	Italian IB	
EURO262	Italian IIB	200	8	2	Italian IIA	

*300-Level*

EURO361	Italian IIIA	300	12	1	Italian IID or IIB	
EURO362	Italian IIIB	300	12	2	Italian IIIA	

GENE150	The Art of Chemistry	100	6	3		This subject does not satisfy the pre-requisite for entry to 200-level Chemistry
GENE151	The Art of Physics	100	6	2		Excludes PHYS118, 119, 120, 121, 141, 142, and 151.
<i>200-Level</i>						
GENE203	The World of Language IA	200	8	1	24 credit points	
GENE204	TheWorld of Language IB	200	8	2	24 credit points and GENE203	
GENE213	Women in Society A	200	8	1	24 credit points	
GENE214	Women in Society B	200	8	2	24 credit points	
GENE220	Concepts of the Modern Universe	200	6	1	24 credit points	Excludes PHYS251
GENE221	Science, Technology and Social Progress	200	8	1	24 credit points	
GENE225	Computers in Society	200	8	2	24 credit points CSCI241 is also a desirable pre-requisite	Not to count with HPS228

GENE272	The Science and Art of Music C: Musical Acoustics	200	8	2	24 credit points and GENE270
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*300-Level*

GENE302	Industrial Relations 3B: Special Topics in Industrial Relations	300	8	2	GENE340
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GENE303	The World of Language IIA: The Structure of Language	300	8	1	GENE203 and GENE204
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GENE304	The World of Language IIB: Language in the Community	300	8	2	GENE203 and GENE204
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GENE340	Comparative Labour Studies	300	8	1	GENE240
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*400-Level*

GENE403	Epistemology and Comparative Methodology	400	6	3	Admission to an approved 400- level programme, plus permission from the Chair- man of the Department(s) in which that programme is undertaken
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\* Advice has been received that there may be a re-arrangement in the sessions offered: GENE231 Religious Studies A will be offered in 1st session while GENE232 will be offered in 2nd. These changes are waiting approval at the time of printing. Students are advised to contact Student Enquiries Office for confirmation of this re-arrangement.



GEOG220	Social Behaviour in Urban Space	200	8	2	Normally GEOG102	A knowledge of GEOG202 sub- ject content will be assumed
GEOG261	Man, Culture and Environmental Impact	200	8	1	Normally GEOG102/ 193 or GEOG112/ 192	
GEOG291	Biogeography (Science)	200	8	1	GEOG192 or BIOL101	Not to count with GEOG212
GEOG296	Arid Landscapes (Science)	200	8	2	GEOG192 or 6 credit points of 100-level Geology or BIOL101	Not to count with GEOG206
<i>300-Level</i>						
GEOG311	Fluvial Geomorphology	300	12	1	Either GEOG206, GEOG212 or 6 credit points of 200-level Geology	
GEOG313	Coastal Geomorphology	300	12	2	Normally either GEOG206, GEOG212 or 6 credit points of 200-level Geology	

GEOG393	Coastal Geomorphology (Science)	300	12	2	Normally GEOG291 or GEOG296 or 6 credit points of 200-level Geology	Not to count with GEOG313
GEOG394	Evolution of Landscape (Science)	300	8	1	Normally GEOG212/291, or GEOG206/ 296	Not to count with GEOG314
<i>400-Level</i>						
GEOG402	Geography IV Honours	400	48	3		Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman
GEOG403	Geography Honours (Science)	400	48	3		
GEOG460	Joint Honours in Geography and Psychology	400	48	3	Refer to PSYC460	Entry into the Honours subject will be determined by the Academic Senate on the advice of the Chairmen of the Depart- ments of Psychology & Geography

**Department of Geology**

**FACULTY OF SCIENCE**

*100-Level*

GEOL103	Introductory Geology	100	12	3		Not to count with both of GEOL 101 and GEOL102; or with GEOL251, GEOL351, GEOL252, GEOL352
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*300-Level*

GEOL331	Mineralogy and Petrology	300	8	1	GEOL222 or GEOL202	Not to count with GEOL301 or GEOL302
GEOL332	Sedimentology	300	8	1	12 credit points of 200-level Geology and/ or Physical Geography	Not to count with GEOL211 or GEOL311
GEOL333	Geological Mapping and Stratigraphy II	300	8	1	GEOL223 or GEOL203	Not to count with GEOL303
GEOL334	Economic Geology	300	8	2	GEOL221 or GEOL201 or GEOL351 or GEOL352	Not to count with GEOL212/ 312 or GEOL213/313
GEOL335	Resource Geology II	300	8	2	24 credit points of 200-level Geology	Not to count with GEOL225
GEOL336	Geophysics	300	8	1	12 credit points of 200-level Geology or GEOL351 ; or GEOL352 or GEOL103 or (GEOL101 and GEOL102), and 12 credit	Not to count with GEOL207 or GEOL307

GEOL402	Geology Joint Honours	400	24	1,2 or 3	Normally 24 credit points of GEOL300-level subjects at an appropriate standard	This joint Honours subject would normally be taken with 24 credit points at 400-level from another department (commonly any Science department)
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### Department of History

### FACULTY OF HUMANITIES

#### 100-Level

HIST102	English Social History, 1815 - 1945	100	12	3		
HIST103	Italian History, 1849 - 1968	100	12	3		

#### 200-Level

HIST204	History and Politics	200	8	2	HIST101, HIST102, HIST103 or PHIL143	For students without HIST101, HIST102, or HIST103, this subject does not satisfy the prerequisites for entry to 300-level, with the exception of HIST334
HIST221	Australian Social History, 1850 - 1939 A	200	16	3	HIST101, HIST102, or HIST103	Not to count with HIST235, HIST238, HIST310, HIST328, HIST330
HIST222	French History, 1700 - 1940 A	200	16	3	HIST101, HIST102, or HIST103	Not to count with HIST234, HIST240, HIST311, HIST327, HIST332



HIST234	French History, 1700 - 1799 A	200	8	1	HIST101, HIST102, or HIST103	Not to count with HIST222, HIST311, HIST327
HIST235	Australian Social History, 1850 - 1900 A	200	8	1	HIST101, HIST102, or HIST103	Not to count with HIST221, HIST310, HIST328
HIST236	Modern Indonesian and Malaysian History A	200	8	1	HIST101, HIST102, or HIST103	Not to count with HIST224, HIST312, HIST319
HIST237	History of Modern Mainland Southeast Asia A	200	8	2	HIST101, HIST102, or HIST103	Not to count with HIST224, HIST312, HIST320
HIST238	Australian Social History, 1900 - 1939 A	200	8	2	HIST101, HIST102, or HIST103	Not to count with HIST221, HIST310, HIST330
HIST 240	French History, 1800 - 1871 A	200	8	2	HIST101, HIST102, or HIST103	Not to count with HIST222, HIST311, HIST332
HIST241	Eurocommunism A	200	8	1	HIST101, HIST102, or HIST103	Not to count with HIST334

					HIST204, HIST224, HIST236, HIST227	
HIST313	Religion and Society from the Reformation B	300	24	3	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST223, HIST226, HIST227	Not to count with HIST223, HIST226, HIST227, HIST316, HIST317
HIST314	Australian Social History Since the Depression B	300	24	3	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST225	Not to count with HIST225
HIST316	Reformation and Revolution, 1517 - 1660 B	300	12	1	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST226, HIST223	Not to count with HIST223, HIST226, HIST313

HIST321	Russia, the Soviet Union and International Communism, 1885 - 1962 B	300	24	3	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST224, HIST237		Not to count with HIST220, HIST231, HIST232, HIST233, HIST309, HIST326, HIST333
HIST325	Theory and Method of History (Advanced)	300	8	2	Credit or better in a 100- or 200-level History subject	Any History subject at 300-level	Normally, this subject will be a pre-requisite for entry to History IV (Honours)
HIST326	The Soviet Union and International Communism, 1917 - 1970 B	300	12	2	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST220, HIST231 HIST232, HIST233		Not to count with HIST220, HIST231, HIST232, HIST233, HIST309, HIST321, HIST333



HIST330	Australian Social History, 1900 - 1939 B	300	12	2	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST221, HIST238	Not to count with HIST221, HIST238, HIST310
HIST331	English Political History, 1906 - 1914	300	12	2	16 credit points at 200-level in History subjects <i>except</i> HIST204	Not to count with HIST318
HIST332	French History, 1800 - 1871 B	300	12	2	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST222, HIST240	Not to count with HIST222, HIST240, HIST311
HIST333	History of Russia from the Earliest Times to the Present Day B	300	24	3	16 credit points at 200-level in History subjects <i>except</i>	Not to count with HIST220, HIST231, HIST232, HIST233, HIST309, HIST321, HIST326

HPS120	Technology and the Modern Industrial State A	100	6	2		
HPS130	The Origins of Modern European Science 1500 - 1700 A	100	12	3		
<i>200-Level</i>						
HPS210	The Industrial Revolution: Technology and Social Change B	200	8	1	*	Not to count with HPS110 The Industrial Revolution: Technology and Social Change A
HPS220	Technology and the Modern Industrial State B	200	8	2	*	Not to count with HPS120 Technology and the Modern Industrial State A
HPS230	The Origins of Modern European Science 1500 - 1700 B	200	16	3	*	Not to count with HPS130 The Origins of Modern European Science 1500 - 1700 A
HPS232	The Darwinian Revolution A	200	16	3		100-level HPS subject or other relevant 100-level subject determined by Chairman of Department.
HPS233	Knowledge and Power: The Politics of Science and Technology A	200	16	3		HPS110/210 The Industrial Revolution: Technology and Social Change A/B; or HPS120/220



HPS216	Scientific Explanation and Scientific Understanding (Science)	200	6	1	Enrolment in or completion of any 200-level subject offered by member departments of the Faculty of Science	Available only to students enrolled in the B. Sc. degree
HPS217	Materials in the Twentieth Century	200	12	3		It is desirable that students have completed successfully METL121
HPS234	Scientific Change in the Twentieth Century	200	12	3	100-level HPS subject or other relevant 100-level subject determined by Chairman of Department	Not to be counted with HPS233 The Integration of Biology and Chemistry in the Twentieth Century OR with HPS237 The Integration of Biology and Chemistry in the Twentieth Century
HPS237	The Integration of Biology and Chemistry in the Twentieth Century	200	6	3	Either BIOL102 or both CHEM 101 and CHEM102	Available only to students enrolled in the B.Sc degree
HPS228	Computers in Society	200	8	2	*	

\* Students are advised to contact the Department or the Student Enquiries Office for details of the Pre-Requisites required for these subjects; they were awaiting approval at the time of printing.

					determined by Chairman of Department
HPS319	The Politics of Energy	300	12	1	HPS120/220 Technology and the Modern Industrial State A/B; OR HPS233/333 Knowledge and Power: The Politics of Science and Technology A/B; OR other rele- vant 100-level subject deter- mined by Chairman of Department
HPS324	The Politics of Medicine and Health	300	12	2	100-level HPS subject or other rele- vant 100-level subject deter- mined by Chairman of Department
HPS317	Aristotelian Thought in the Middle Ages	300	12	1	Any 100-level subject offered by the Depart-

FACULTY OF MATHEMATICS

100-Level

MATH101 Mathematics IA

100 12 3

2 Unit Mathematics at N.S.W. H.S.C.: top 30% percentile bands provided the student has suitable aggregate score or the recommendation of the relevant high school principal;

3 Unit Mathematics at N.S.W. H.S.C.: top 90% percentile bands;

4 Unit mathematics at N.S.W. H.S.C.: either (a) top 90% percentile bands or (b) bottom 10% percentile bands, provided the student has a

Students who do not meet the requirements of the pre-requisite, and still wish to do Mathematics IA, may attempt a special entry examination offered by the Chairman of the Department of Mathematics. However, the assumed knowledge for MATH101 is the 3 Unit H.S.C. Mathematics course.

Not to count with MATH131 Mathematics IC or MATH132 Mathematics ID.



MATH132 Mathematics ID

100 12 3

4 Unit Mathematics at N.S.W. H.S.C.: either (a) top 90% percentile bands or (b) bottom 10% percentile band, provided the student has a suitable aggregate score, or on the recommendation of the relevant high school principal.

Assumed knowledge is the 2 Unit H.S.C. Mathematics course. Not to count with MATH101 Mathematics IA or MATH102 Mathematics IB or MATH131 Mathematics IC or MATH234 Statistical Methods or ECON122 Quantitative Methods I or ECON122 Quantitative Methods II or PSYC 232 Research Methods and Statistics.

*200-Level*

MATH201 Mathematics IIA

200 12 3

MATH101  
Mathematics  
IA

Not to count with MATH281 Mathematics IIE or MATH282 Mathematics IIM

MATH234	Statistical Methods	200	6	3		Not to count with MATH102 Mathematics IB or MATH131 Mathematics IC or MATH132 Mathematics IC or MATH231 Mathematics IID or MATH233 Mathematics IIP or MATH331 Mathematics IIIG or PSYCH232 Research Methods and Statistics or PSYC101 Psychology IA or PSYC102 Psychology IB or ECON121 Quantitative Methods I or ECON122 Quantitative Methods II
MATH286	Mathematics IIZ	200	8	3	MATH201 Mathematics IIA	Not to count with MATH211 Mathematics IIB or MATH281 Mathematics IIE
<i>300-Level</i>						
MATH306	Mathematics Methods A: Integral Transforms and Special Functions	300	6	3	MATH201 Mathematics IIA and either MATH211 Mathematics IIB or MATH202 Mathematics IIS	Not to count with MATH301 Mathematics IIIA. TRANSITION SUBJECT AVAILABLE ONLY IN 1981.
MATH307	Mathematics Methods B: Complex Variables and Calculus of Variations	300	6	3	MATH201 Mathematics IIA and either MATH211 Mathematics IIB or MATH	Not to count with MATH301 Mathematics IIIA. TRANSITION SUBJECT AVAILABLE ONLY IN 1981.



MATH314	Ocean Dynamics	300	6	2	MATH211 Mathematics IIB	MATH311 Mathematical Methods
MATH315	Mathematical Modelling	300	6	1 or 2	MATH211 Mathematics IIB	
MATH316	Continuum Mechanics	300	6	1 or 2	MATH211 Mathematics IIB	
MATH321	Functional Analysis	300	6	1 or 2	MATH221 Mathematics IIC	
MATH322	Abstract Algebra	300	6	1 or 2	MATH102 Mathematics IB and any 12 credit point of 200 level Schedule F Mathematics subjects	
MATH323	Logic and Set Theory	300	6	1 or 2	MATH102 Mathematics IB and and 12 credit point of 200 level Schedule F Mathematics subjects	Not to count with PHIL222 Set Theory

MATH336	Applied Probability Models	300	6	1 or 2	MATH231 Mathematics IID
MATH337	Operations Research	300	6	1 or 2	Any 12 credit point of 200 level Mathe- matics subjects
MATH338	Population Dynamics	300	6	1 or 2	Either MATH102 Mathematics IB or any 12 credit points of 200-level Schedule F Mathematics Subjects

*400-Level*

MATH401	Mathematics IV (Honours)	400	48	3	
MATH411	Mathematics Honours Seminar	400	12	3	Candidature for MSc or DipMath

Entry to Honours year or Honours subject shall be determined by the Academic Senate on the advice of the Departmental Chairman

**Department of Mechanical Engineering**

**FACULTY OF ENGINEERING**

The Department of Mechanical Engineering does not offer subjects for inclusion in Schedule A.

PHIL193	History of Ideas	100	12	3		Not to count with PHIL163
<i>200-Level</i>						
PHIL203	Philosophy 203	200	16	3	At least 18 credit points	Not to count with PHIL103 or PHIL123 or PHIL133 or PHIL173 or PHIL273
PHIL211	Classical Philosophy	200	8	1	At least 18 credit points	
PHIL216	Logic B	200	8	2	At least 18 credit points	Not to count with PHIL112 or PHIL113 or PHIL153 or PHIL173 or PHIL253 or PHIL273
PHIL222	Set Theory 222	200	8	2	Either PHIL112 or PHIL153 or PHIL173 or PHIL216 or PHIL253 or PHIL273 or 12 credit points in Mathematics	
PHIL231	Formal Logic A	200	8	1	At least 6 credit points in Philosophy excluding PHIL193 or Mathematics	Not to count with PHIL361



PHIL254	Philosophy of Value A	200	16	3	At least 18 credit points in Philosophy	Not to count with PHIL201 or PHIL202 or PHIL251 or 252 or PHIL257 or PHIL259 or PHIL301 or PHIL302 or PHIL354 or PHIL357 or PHIL359
PHIL257	Moral and Social Philosophy A	200	16	3	At least 8 credit points in Philosophy	Not to count with PHIL201 or PHIL251 or PHIL254 or PHIL259 or PHIL292 or PHIL301 or PHIL354 or PHIL357 or PHIL359 or PHIL392
PHIL259	Moral and Political Philosophy A	200	16	3	At least 8 credit points in Philosophy	Not to count with PHIL201 or PHIL232 or PHIL251 or PHIL254 or PHIL257 or PHIL301 or PHIL332 or PHIL354 or PHIL357 or PHIL359
PHIL262	Empiricism A	200	8	2	At least 18 credit points of which at least 8 are in Philosophy or Psychology or H. P. S.	Not to count with PHIL212 or PHIL322
PHIL271	Special Philosophical Questions IA	200	8	1		Admission only on the recommendation of the Chairman of the Department of Philosophy
PHIL272	Special Philosophical Questions IIA	200	8	2		Admission only on the recommendation of the Chairman of the Department of Philosophy

PHIL302	Aesthetics B	300	12	2	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL202 or PHIL252 or PHIL254 or PHIL354
PHIL303	Immanuel Kant's Critique of Pure Reason	300	16	3	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL311
PHIL305	Special Philosophical Questions IB	300	12	1	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Admission only on the recommendation of the Chairman of the Department of Philosophy
PHIL306	Special Philosophical Questions IIB	300	12	2	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Admission only on the recommendation of the Chairman of the Department of Philosophy
PHIL315	History of Traditional Logic B	300	12	2	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL281. Students are expected to have some familiarity with either Logic or Greek Philosophy



PHIL342	Probability and Induction	300	12	1	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Students with a suitable background in H.P.S. and who do not otherwise meet the prerequisites may be admitted on the recommendation of the Chairman of Philosophy
PHIL354	Philosophy of Value B	300	24	3	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL201 or PHIL251 or PHIL254 or PHIL257 or PHIL259 or PHIL301 or PHIL357 or PHIL359 or PHIL252 or PHIL302
PHIL357	Moral and Social Philosophy B	300	24	3	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL201 or PHIL251 or PHIL254 or PHIL257 or PHIL259 or PHIL301 or PHIL354 or PHIL359 or PHIL292 or PHIL392
PHIL359	Moral and Political Philosophy B	300	24	3	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL201 or PHIL251 or PHIL254 or PHIL257 or PHIL259 or PHIL301 or PHIL354 or PHIL357 or PHIL232 or PHIL332
PHIL361	Formal Logic B	300	12	1	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL231

*400-Level*

PHIL403	Philosophy Honours	400	48	3	Entry to the Honours year or Honours subjects shall be determined by the Academic Senate on the advice of the Departmental Chairman	Guidelines for prospective Honours candidates are set out in the general Preamble to the detailed descriptions of Philosophy subjects
PHIL413	Combined Philosophy Honours	400	24	3	Entry to combined Honours shall be determined by the Academic Senate on the advice of the Departments concerned.	Guidelines for prospective combined Honours candidates are set out in the general Preamble to the detailed descriptions of Philosophy subjects

**Department of Physics**

**FACULTY OF SCIENCE**

*100-Level*

PHYS141	Fundamentals of Physics A	100	6	3		Excludes PHYS118, 119 and 151, and GENE151
PHYS142	Fundamentals of Physics B	100	6	3		Excludes PHYS120, 151, 121, and GENE151



PHYS248	Astronomy	200	6	3	PHYS141 PHYS142		Approval for taking Astronomy at the 300-level is at the discretion of the Chairman of the Department of Physics
PHYS251	Concepts of the Modern Universe	200	6	1	24 credit points at 100-level		Excludes GENE220
<i>300-Level</i>							
PHYS301	Classical Mechanics and Electromagnetism	300	6	1	PHYS201 <i>or</i> PHYS225 and PHYS235	MATH301	Excludes PHYS302
PHYS302	Classical Mechanics, Electromagnetism and Plasma Physics	300	8	1	PHYS201 <i>or</i> PHYS225 and PHYS235	MATH301	Excludes PHYS301
PHYS306	Project in Physics A	300	6	1,2 or 3	24 credit points of Physics at 200-level		
PHYS307	Advanced Experimental Physics A	300	6	1	24 credit points of Physics at 200-level		Excludes PHYS309, and PHYS312
PHYS308	Advanced Experimental Physics B	300	6	2	24 credit points of Physics at 200-level		Excludes PHYS309, and PHYS312



PHYS317	Quantum Mechanics and Nuclear Physics	300	6	3	PHYS201 and 211 <i>or</i> PHYS205 and PHYS215 <i>or</i> PHYS244	MATH301	Excludes PHYS311, PHYS315, PHYS316, PHYS318, PHYS319, PHYS321, PHYS322 and PHYS327
PHYS318	Quantum Mechanics and High Energy Physics	300	6	3	PHYS201 and 211 <i>or</i> PHYS205 and PHYS215 <i>or</i> PHYS244	MATH301	Excludes PHYS311, PHYS315, PHYS316, PHYS317, PHYS319, PHYS322 and PHYS328
PHYS319	Quantum Mechanics and Astro-Physics	300	6	3	PHYS201 and 211 <i>or</i> PHYS 205 and PHYS 215 <i>or</i> PHYS244	MATH301	Excludes PHYS311, PHYS315, PHYS316, PHYS317, PHYS318, PHYS321, PHYS322 and PHYS329
PHYS321	Astro-, Nuclear and Solid State Physics	300	6	2	PHYS201 and 211 <i>or</i> PHYS205, 215, 225 and 235	PHYS311	Excludes PHYS322
PHYS322	Astro-, High Energy, Nuclear and Solid State Physics	300	8	2	Same as PHYS321	PHYS311	Excludes PHYS321
PHYS324	Role of Energy in Microscopic Physics and Chemistry	300	12	3	Same as for PHYS311 and CHEM324	Same as for PHYS311 and CHEM324	Excludes CHEM306, CHEM308, CHEM313, CHEM324, PHYS311, PHYS315, PHYS326, PHYS327, PHYS328 and PHYS329
PHYS326	Statistical Mechanics and Solid State Physics	300	6	3	PHYS201 and 211 <i>or</i> PHYS205, PHYS215 and PHYS235 <i>or</i> PHYS244	MATH301	Excludes PHYS311, PHYS315, PHYS316, PHYS321, PHYS322, PHYS324, PHYS327, PHYS328 <i>or</i> PHYS329

PHYS410	Honours Project	400	18	3	"	"	
PHYS441	Astro-, and Nuclear Physics	400	8	3	"	"	Excludes PHYS455 and PHYS465
PHYS443	Quantum Mechanics and Statistical Mechanics	400	12	3	"	"	
PHYS444	Quantum Mechanics	400	8	3	"	"	Excludes PHYS443
PHYS446	Solid State Physics	400	8	3	"	"	Excludes PHYS455 and PHYS465
PHYS455	Nuclear and Solid State Physics	400	12	3	"	"	Excludes PHYS441, 446 and 465
PHYS465	Astro-, and Solid State Physics	400	12	3	"	"	Excludes PHYS441, 446 and 455

### Department of Psychology

### FACULTY OF SOCIAL SCIENCES

#### 100-Level

PSYC111	Psychology IA	100	6	1			Not to count with PSYC101 or PSYC141
PSYC112	Psychology IB	100	6	2	PSYC111		Not to count with PSYC102 or PSYC142
PSYC141	Psychology IA (Science)	100	6	1			Not to count with PSYC102 or PSYC111
PSYC142	Psychology IB (Science)	100	6	2	PSYC141		Not to count with PSYC102 or PSYC112



PSYC237	Social Psychology	200	6	2	PSYC111 and 112 <i>or</i> PSYC141 and 142	Not to count with PSYC322 Social Psychology
PSYC246	Research Methods and Statistics In Psychology (Science)	200	6	1	PSYC111 and 112 <i>or</i> PSYC141 and 142	Not to count with PSYC232 Research Methods and Statistics
<i>300-Level</i>						
PSYC312	Counselling Psychology	300	6	1	PSYC231 and PSYC235	
PSYC315	Psychology of Abnormality	300	6	1	PSYC231	
PSYC316	Individual Differences	300	6	2	PSYC231	
PSYC322	Social Psychology	300	6	2		Not to count with PSYC237 Social Psychology
PSYC323	Industrial and Organizational Psychology	300	6	2	Desirable: PSYC322	Not to count with PSYC317
PSYC331	Psychological Theory*	300	6	2	PSYC231	
PSYC335	Humanistic Psychology*	300	6	1	PSYC231	
PSYC336	Experimental Psychology	300	6	1	PSYC232 Desirable: PSYC234	
PSYC338	Behaviour Modification*	300	6	2	PSYC234	

In the event that a student wishes to take a double major; i.e. major in another subject as well as psychology, and still proceed to take Honours in Psychology, the minimum number of credit points accumulated over 200- and 300-levels of psychology will be 60: PROVIDED THAT at least 12 credit points of 200- and 300-level non-psychology subjects being taken are recognised as appropriate and closely related to psychology, in which case the credit points for these subjects may be added to the 60 of psychology to make the necessary 72. In addition to the above credit point requirements, specific subjects must be taken. These are: (i) PSYC232 Research Methods and Statistics; (ii) at least one of PSYC231 Personality and PSYC234 Psychology of Learning; and (iii) MATH334 Design and Analysis is recommended for formal enrolment, and must at least be audited. A further requirement is that intending honours students should have gained a minimum credit average in psychology subjects at 100-, 200- and 300-levels.

++ The four year programme for students intending to do Joint Honours in Psychology and Geography must include the following:

	Psychology ** Credit Points	Geography Credit Points
100-level	12	12
200-level	at least 18	at least 16
300-level	at least 30+	24

+ MATH334 Design and Analysis must be included in this 30 points.

\*\*NOTE: Students who contemplate the joint honours programme should examine the total credit point load for Psychology, since accreditation for membership in the Australian Psychological Society may require more than the minimum number of credit points required by this programme.

For students planning to make a substantial and coherent (that is, a major) study of Psychology, for example, to satisfy the Bachelor Degree Regulations towards future associate membership of the Australian Psychological Society, students are required to take 12 credit points of psychology at 100-level, 18 credit points of psychology at 200-level, and 24 credit points of psychology at 300-level. **Note:** No more than 18 credit points at 300-level psychology can be taken until a minimum of 18 credit points of 200-level psychology have been completed.

The pre-requisite for all 200-level subjects is 12 credit points of 100-level psychology. The pre-requisite for all 300-level subjects is 12 credit points of 200-level psychology.



**Advanced Programme**

SOC222	Sociology II Advanced: Foundations of Sociological Thought	200	6	1	SOC100 <del>ø</del>	Normally SOC203
SOC223	Sociology II Advanced: Contemporary European Sociology	200	6	2	Credit in SOC222	Normally SOC218 or SOC219

**300-Level \*****Pass Level Programme†**

SOC302	Religion and Society	300	6	1	Normally SOC218 or SOC219 <i>and</i> either SOC231 or SOC232
SOC303	The Individual in Society	300	6	2	As for SOC302
SOC304	Military Sociology	300	6	2	As for SOC302
SOC305	Sociology of Migration	300	6	1	As for SOC302
SOC306	Sociological Measurement	300	6	1	As for SOC302
SOC307	Urban Sociology	300	6	2	As for SOC302
SOC308	Social Policy	300	6	1	As for SOC302
SOC312	Science, Technology and Society	300	6	2	As for SOC302
SOC313	The Individual in the Organisation	300	6	1	As for SOC302

SOC323	Sociology III Advanced: Sociology of Knowledge II	300	6	2	Normally Credit in SOC322	As for SOC322	
<i>400-Level</i>							
SOC400	Sociology IV Honours	400	48	3	Normally credit with- in courses totalling at least 36 credit points at Sociology 300-level including credit in SOC323		Entry into the 400-level pro- gramme will be determined by the Academic Senate on the advice of the Departmental Chairman.
SOC410	Sociology IV Honours (Part-time I)	400	24	3	As for SOC400		See SOC400

\* See note at the end of Sociology entry.

+ Some 300-level pass subjects listed may not be offered in any one year. For advice on subjects offered in 1981, students should consult with the Departmental Chairman.

∅ Normally credit in SOC100 and approval by the Departmental Chairman.

SOC420	Sociology IV Honours (Part-time II)	400	24	3	Credit in SOC410 and approval by the Department- al Chairman		
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ENGL330	Theatre Arts C	300	6	1	ENGL231
ENGL331	Theatre Arts D	300	6	2	ENGL330
ENGL332	Modern Media C	300	6	1	ENGL233
ENGL333	Modern Media D	300	6	2	ENGL332

*400-Level*

ENGL400	English IV Honours	400	48	3	
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Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman

**Department of European Languages**

**FACULTY OF HUMANITIES**

**French**

*100-Level*

EURO103	Introductory French	100	12	3	
EURO111	French IA	100	6	1	Prior study of French to an acceptable level*
EURO112	French IB	100	6	2	French IA

For beginners or near-beginners

**Italian***100-Level*

EURO153	Introductory Italian	100	12	3		For beginners or near-beginners
EURO161	Italian IA	100	6	1	Prior study of Italian to an acceptable level**	
EURO162	Italian IB	100	6	2	Italian IA	

*200-Level*

EURO251	Italian IIC	200	8	1	Introductory Italian	
EURO252	Italian IID	200	8	2	Italian IIC	
EURO261	Italian IIA	200	8	1	Italian IB	
EURO262	Italian IIB	200	8	2	Italian IIA	

*300-Level*

EURO361	Italian IIIA	300	12	1	Italian IID or IIB	
EURO362	Italian IIIB	300	12	2	Italian IIIA	



GENE150	The Art of Chemistry	100	6	3		This subject does not satisfy the pre-requisite for entry to 200-level Chemistry
GENE151	The Art of Physics	100	6	2		Excludes PHYS118, 119, 120, 121, 141, 142, and 151.
<i>200-Level</i>						
GENE203	The World of Language IA	200	8	1	24 credit points	
GENE204	TheWorld of Language IB	200	8	2	24 credit points and GENE203	
GENE213	Women in Society A	200	8	1	24 credit points	
GENE214	Women in Society B	200	8	2	24 credit points	
GENE220	Concepts of the Modern Universe	200	6	1	24 credit points	Excludes PHYS251
GENE221	Science, Technology and Social Progress	200	8	1	24 credit points	
GENE225	Computers in Society	200	8	2	24 credit points CSCI241 is also a desirable pre-requisite	Not to count with HPS228

GENE272	The Science and Art of Music C: Musical Acoustics	200	8	2	24 credit points and GENE270
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*300-Level*

GENE302	Industrial Relations 3B: Special Topics in Industrial Relations	300	8	2	GENE340
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GENE303	The World of Language IIA: The Structure of Language	300	8	1	GENE203 and GENE204
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GENE304	The World of Language IIB: Language in the Community	300	8	2	GENE203 and GENE204
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GENE340	Comparative Labour Studies	300	8	1	GENE240
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*400-Level*

GENE403	Epistemology and Comparative Methodology	400	6	3	Admission to an approved 400- level programme, plus permission from the Chair- man of the Department(s) in which that programme is undertaken
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\* Advise has been received that there may be a re-arrangement in the sessions offered: GENE231 Religious Studies A will be offered in 1st session while GENE232 will be offered in 2nd. These changes are waiting approval at the time of printing. Students are advised to contact Student Enquiries Office for confirmation of this re-arrangement.

GEOG220	Social Behaviour in Urban Space	200	8	2	Normally GEOG102	A knowledge of GEOG202 subject content will be assumed
GEOG261	Man, Culture and Environmental Impact	200	8	1	Normally GEOG102/ 193 or GEOG112/ 192	
GEOG291	Biogeography (Science)	200	8	1	GEOG192 or BIOL101	Not to count with GEOG212
GEOG296	Arid Landscapes (Science)	200	8	2	GEOG192 or 6 credit points of 100-level Geology or BIOL101	Not to count with GEOG206
<b><i>300-Level</i></b>						
GEOG311	Fluvial Geomorphology	300	12	1	Either GEOG206, GEOG212 or 6 credit points of 200-level Geology	
GEOG313	Coastal Geomorphology	300	12	2	Normally either GEOG206, GEOG212 or 6 credit points of 200-level Geology	

GEOG393	Coastal Geomorphology (Science)	300	12	2	Normally GEOG291 or GEOG296 or 6 credit points of 200-level Geology	Not to count with GEOG313
GEOG394	Evolution of Landscape (Science)	300	8	1	Normally GEOG212/291, or GEOG206/ 296	Not to count with GEOG314
<i>400-Level</i>						
GEOG402	Geography IV Honours	400	48	3		Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman
GEOG403	Geography Honours (Science)	400	48	3		
GEOG460	Joint Honours in Geography and Psychology	400	48	3	Refer to PSYC460	Entry into the Honours subject will be determined by the Academic Senate on the advice of the Chairmen of the Depart- ments of Psychology & Geography

**Department of Geology**

**FACULTY OF SCIENCE**

*100-Level*

GEOL103	Introductory Geology	100	12	3		Not to count with both of GEOL 101 and GEOL102; or with GEOL251, GEOL351, GEOL252, GEOL352
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*300-Level*

GEOL331	Mineralogy and Petrology	300	8	1	GEOL222 or GEOL202	Not to count with GEOL301 or GEOL302
GEOL332	Sedimentology	300	8	1	12 credit points of 200-level Geology and/ or Physical Geography	Not to count with GEOL211 or GEOL311
GEOL333	Geological Mapping and Stratigraphy II	300	8	1	GEOL223 or GEOL203	Not to count with GEOL303
GEOL334	Economic Geology	300	8	2	GEOL221 or GEOL201 or GEOL351 or GEOL352	Not to count with GEOL212/ 312 or GEOL213/313
GEOL335	Resource Geology II	300	8	2	24 credit points of 200-level Geology	Not to count with GEOL225
GEOL336	Geophysics	300	8	1	12 credit points of 200-level Geology or GEOL351 ; or GEOL352 or GEOL103 or (GEOL101 and GEOL102), and 12 credit	Not to count with GEOL207 or GEOL307

GEOL402	Geology Joint Honours	400	24	1,2 or 3	Normally 24 credit points of GEOL300-level subjects at an appropriate standard	This joint Honours subject would normally be taken with 24 credit points at 400-level from another department (commonly any Science department)
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### Department of History

#### FACULTY OF HUMANITIES

##### *100-Level*

HIST102	English Social History, 1815 - 1945	100	12	3		
HIST103	Italian History, 1849 - 1968	100	12	3		

##### *200-Level*

HIST204	History and Politics	200	8	2	HIST101, HIST102, HIST103 or PHIL143	For students without HIST101 HIST102, or HIST103, this subject does not satisfy the prerequisites for entry to 300-level, with the exception of HIST334
HIST221	Australian Social History, 1850 - 1939 A	200	16	3	HIST101, HIST102, or HIST103	Not to count with HIST235, HIST238, HIST310, HIST328, HIST330
HIST222	French History, 1700 - 1940 A	200	16	3	HIST101, HIST102, or HIST103	Not to count with HIST234, HIST240, HIST311, HIST327, HIST332

HIST234	French History, 1700 - 1799 A	200	8	1	HIST101, HIST102, or HIST103	Not to count with HIST222, HIST311, HIST327
HIST235	Australian Social History, 1850 - 1900 A	200	8	1	HIST101, HIST102, or HIST103	Not to count with HIST221, HIST310, HIST328
HIST236	Modern Indonesian and Malaysian History A	200	8	1	HIST101, HIST102, or HIST103	Not to count with HIST224, HIST312, HIST319
HIST237	History of Modern Mainland Southeast Asia A	200	8	2	HIST101, HIST102, or HIST103	Not to count with HIST224, HIST312, HIST320
HIST238	Australian Social History, 1900 - 1939 A	200	8	2	HIST101, HIST102, or HIST103	Not to count with HIST221, HIST310, HIST330
HIST 240	French History, 1800 - 1871 A	200	8	2	HIST101, HIST102, or HIST103	Not to count with HIST222, HIST311, HIST332
HIST241	Eurocommunism A	200	8	1	HIST101, HIST102, or HIST103	Not to count with HIST334

					HIST204, HIST224, HIST236, HIST227	
HIST313	Religion and Society from the Reformation B	300	24	3	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST223, HIST226, HIST227	Not to count with HIST223, HIST226, HIST227, HIST316, HIST317
HIST314	Australian Social History Since the Depression B	300	24	3	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST225	Not to count with HIST225
HIST316	Reformation and Revolution, 1517 - 1660 B	300	12	1	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST226, HIST223	Not to count with HIST223, HIST226, HIST313



HIST321	Russia, the Soviet Union and International Communism, 1885 - 1962 B	300	24	3	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST224, HIST237		Not to count with HIST220, HIST231, HIST232, HIST233, HIST309, HIST326, HIST333
HIST325	Theory and Method of History (Advanced)	300	8	2	Credit or better in a 100- or 200-level History subject	Any History subject at 300-level	Normally, this subject will be a pre-requisite for entry to History IV (Honours)
HIST326	The Soviet Union and International Communism, 1917 - 1970 B	300	12	2	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST220, HIST231, HIST232, HIST233		Not to count with HIST220, HIST231, HIST232, HIST233, HIST309, HIST321, HIST333

HIST330	Australian Social History, 1900 - 1939 B	300	12	2	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST221, HIST238	Not to count with HIST221, HIST238, HIST310
HIST331	English Political History, 1906 - 1914	300	12	2	16 credit points at 200-level in History subjects <i>except</i> HIST204	Not to count with HIST318
HIST332	French History, 1800 - 1871 B	300	12	2	16 credit points at 200-level in History subjects <i>except</i> HIST204, HIST222, HIST240	Not to count with HIST222, HIST240, HIST311
HIST333	History of Russia from the Earliest Times to the Present Day B	300	24	3	16 credit points at 200-level in History subjects <i>except</i>	Not to count with HIST220, HIST231, HIST232, HIST233, HIST309, HIST321, HIST326

HPS120	Technology and the Modern Industrial State A	100	6	2		
HPS130	The Origins of Modern European Science 1500 - 1700 A	100	12	3		
<i>200-Level</i>						
HPS210	The Industrial Revolution: Technology and Social Change B	200	8	1	*	Not to count with HPS110 The Industrial Revolution: Technology and Social Change A
HPS220	Technology and the Modern Industrial State B	200	8	2	*	Not to count with HPS120 Technology and the Modern Industrial State A
HPS230	The Origins of Modern European Science 1500 - 1700 B	200	16	3	*	Not to count with HPS130 The Origins of Modern European Science 1500 - 1700 A
HPS232	The Darwinian Revolution A	200	16	3		100-level HPS subject or other relevant 100-level subject determined by Chairman of Department.
HPS233	Knowledge and Power: The Politics of Science and Technology A	200	16	3		HPS110/210 The Industrial Revolution: Technology and Social Change A/B; or HPS120/220

HPS216	Scientific Explanation and Scientific Understanding (Science)	200	6	1	Enrolment in or completion of any 200-level subject offered by member departments of the Faculty of Science	Available only to students enrolled in the B. Sc. degree
HPS217	Materials in the Twentieth Century	200	12	3		It is desirable that students have completed successfully METL121
HPS234	Scientific Change in the Twentieth Century	200	12	3	100-level HPS subject or other relevant 100-level subject determined by Chairman of Department	Not to be counted with HPS233 The Integration of Biology and Chemistry in the Twentieth Century OR with HPS237 The Integration of Biology and Chemistry in the Twentieth Century
HPS237	The Integration of Biology and Chemistry in the Twentieth Century	200	6	3	Either BIOL102 or both CHEM 101 and CHEM102	Available only to students enrolled in the B.Sc degree
HPS228	Computers in Society	200	8	2	*	

\* Students are advised to contact the Department or the Student Enquiries Office for details of the Pre-Requisites required for these subjects; they were awaiting approval at the time of printing.



					determined by Chairman of Department
HPS319	The Politics of Energy	300	12	1	HPS120/220 Technology and the Modern Industrial State A/B; OR HPS233/333 Knowledge and Power: The Politics of Science and Technology A/B; OR other rele- vant 100-level subject deter- mined by Chairman of Department
HPS324	The Politics of Medicine and Health	300	12	2	100-level HPS subject or other rele- vant 100-level subject deter- mined by Chairman of Department
HPS317	Aristotelian Thought in the Middle Ages	300	12	1	Any 100-level subject offered by the Depart-

FACULTY OF MATHEMATICS

100-Level

MATH101 Mathematics IA

100 12 3

2 Unit Mathematics at N.S.W.  
H.S.C.: top 30% percentile bands provided the student has suitable aggregate score or the recommendation of the relevant high school principal;

3 Unit Mathematics at N.S.W.  
H.S.C.: top 90% percentile bands;

4 Unit mathematics at N.S.W.  
H.S.C.: either (a) top 90% percentile bands or (b) bottom 10% percentile bands, provided the student has a

Students who do not meet the requirements of the pre-requisite, and still wish to do Mathematics IA, may attempt a special entry examination offered by the Chairman of the Department of Mathematics. However, the assumed knowledge for MATH101 is the 3 Unit H.S.C. Mathematics course.

Not to count with MATH131 Mathematics IC or MATH132 Mathematics ID.

4 Unit Mathematics at N.S.W. H.S.C.: either (a) top 90% percentile bands or (b) bottom 10% percentile band, provided the student has a suitable aggregate score, or on the recommendation of the relevant high school principal.

MATH132 Mathematics ID 100 12 3

Assumed knowledge is the 2 Unit H.S.C. Mathematics course. Not to count with MATH101 Mathematics IA or MATH102 Mathematics IB or MATH131 Mathematics IC or MATH234 Statistical Methods or ECON122 Quantitative Methods I or ECON122 Quantitative Methods II or PSYC 232 Research Methods and Statistics.

*200-Level*

MATH201 Mathematics IIA 200 12 3

MATH101 Mathematics IA

Not to count with MATH281 Mathematics IIE or MATH282 Mathematics IIM

MATH234	Statistical Methods	200	6	3		Not to count with MATH102 Mathematics IB or MATH131 Mathematics IC or MATH132 Mathematics IC or MATH231 Mathematics IID or MATH233 Mathematics IIP or MATH331 Mathematics IIIG or PSYCH232 Research Methods and Statistics or PSYC101 Psychology IA or PSYC102 Psychology IB or ECON121 Quantitative Methods I or ECON122 Quantitative Methods II
MATH286	Mathematics IIZ	200	8	3	MATH201 Mathematics IIA	Not to count with MATH211 Mathematics IIB or MATH281 Mathematics IIE
<i>300-Level</i>						
MATH306	Mathematics Methods A: Integral Transforms and Special Functions	300	6	3	MATH201 Mathematics IIA and either MATH211 Mathematics IIB or MATH202 Mathematics IIS	Not to count with MATH301 Mathematics IIIA. TRANSITION SUBJECT AVAILABLE ONLY IN 1981.
MATH307	Mathematics Methods B: Complex Variables and Calculus of Variations	300	6	3	MATH201 Mathematics IIA and either MATH211 Mathematics IIB or MATH	Not to count with MATH301 Mathematics IIIA. TRANSITION SUBJECT AVAILABLE ONLY IN 1981.



MATH314	Ocean Dynamics	300	6	2	MATH211 Mathematics IIB	MATH311 Mathematical Methods
MATH315	Mathematical Modelling	300	6	1 or 2	MATH211 Mathematics IIB	
MATH316	Continuum Mechanics	300	6	1 or 2	MATH211 Mathematics IIB	
MATH321	Functional Analysis	300	6	1 or 2	MATH221 Mathematics IIC	
MATH322	Abstract Algebra	300	6	1 or 2	MATH102 Mathematics IB and any 12 credit point of 200 level Schedule F Mathematics subjects	
MATH323	Logic and Set Theory	300	6	1 or 2	MATH102 Mathematics IB and and 12 credit point of 200 level Schedule F Mathematics subjects	Not to count with PHIL222 Set Theory

MATH336	Applied Probability Models	300	6	1 or 2	MATH231 Mathematics IID
MATH337	Operations Research	300	6	1 or 2	Any 12 credit point of 200 level Mathe- matics subjects
MATH338	Population Dynamics	300	6	1 or 2	Either MATH102 Mathematics IB or any 12 credit points of 200-level Schedule F Mathematics Subjects

*400-Level*

MATH401	Mathematics IV (Honours)	400	48	3	
MATH411	Mathematics Honours Seminar	400	12	3	Candidature for MSc or DipMath

Entry to Honours year or Honours subject shall be determined by the Academic Senate on the advice of the Departmental Chairman

**Department of Mechanical Engineering**

**FACULTY OF ENGINEERING**

The Department of Mechanical Engineering does not offer subjects for inclusion in Schedule A.

PHIL193	History of Ideas	100	12	3		Not to count with PHIL163
<i>200-Level</i>						
PHIL203	Philosophy 203	200	16	3	At least 18 credit points	Not to count with PHIL103 or PHIL123 or PHIL133 or PHIL173 or PHIL273
PHIL211	Classical Philosophy	200	8	1	At least 18 credit points	
PHIL216	Logic B	200	8	2	At least 18 credit points	Not to count with PHIL112 or PHIL113 or PHIL153 or PHIL173 or PHIL253 or PHIL273
PHIL222	Set Theory 222	200	8	2	Either PHIL112 or PHIL153 or PHIL173 or PHIL216 or PHIL253 or PHIL273 or 12 credit points in Mathematics	
PHIL231	Formal Logic A	200	8	1	At least 6 credit points in Philosophy excluding PHIL193 or Mathematics	Not to count with PHIL361

PHIL254	Philosophy of Value A	200	16	3	At least 18 credit points in Philosophy	Not to count with PHIL201 or PHIL202 or PHIL251 or 252 or PHIL257 or PHIL259 or PHIL301 or PHIL302 or PHIL354 or PHIL357 or PHIL359
PHIL257	Moral and Social Philosophy A	200	16	3	At least 8 credit points in Philosophy	Not to count with PHIL201 or PHIL251 or PHIL254 or PHIL259 or PHIL292 or PHIL301 or PHIL354 or PHIL357 or PHIL359 or PHIL392
PHIL259	Moral and Political Philosophy A	200	16	3	At least 8 credit points in Philosophy	Not to count with PHIL201 or PHIL232 or PHIL251 or PHIL254 or PHIL257 or PHIL301 or PHIL332 or PHIL354 or PHIL357 or PHIL359
PHIL262	Empiricism A	200	8	2	At least 18 credit points of which at least 8 are in Philosophy or Psychology or H. P. S.	Not to count with PHIL212 or PHIL322
PHIL271	Special Philosophical Questions IA	200	8	1		Admission only on the recommendation of the Chairman of the Department of Philosophy
PHIL272	Special Philosophical Questions IIA	200	8	2		Admission only on the recommendation of the Chairman of the Department of Philosophy



PHIL302	Aesthetics B	300	12	2	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL202 or PHIL252 or PHIL254 or PHIL354
PHIL303	Immanuel Kant's Critique of Pure Reason	300	16	3	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL311
PHIL305	Special Philosophical Questions IB	300	12	1	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Admission only on the recommendation of the Chairman of the Department of Philosophy
PHIL306	Special Philosophical Questions IIB	300	12	2	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Admission only on the recommendation of the Chairman of the Department of Philosophy
PHIL315	History of Traditional Logic B	300	12	2	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL281. Students are expected to have some familiarity with either Logic or Greek Philosophy

PHIL342	Probability and Induction	300	12	1	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Students with a suitable background in H.P.S. and who do not otherwise meet the prerequisites may be admitted on the recommendation of the Chairman of Philosophy
PHIL354	Philosophy of Value B	300	24	3	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL201 or PHIL251 or PHIL254 or PHIL257 or PHIL259 or PHIL301 or PHIL357 or PHIL359 or PHIL252 or PHIL302
PHIL357	Moral and Social Philosophy B	300	24	3	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL201 or PHIL251 or PHIL254 or PHIL257 or PHIL259 or PHIL301 or PHIL354 or PHIL359 or PHIL292 or PHIL392
PHIL359	Moral and Political Philosophy B	300	24	3	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL201 or PHIL251 or PHIL254 or PHIL257 or PHIL259 or PHIL301 or PHIL354 or PHIL357 or PHIL232 or PHIL332
PHIL361	Formal Logic B	300	12	1	At least 16 credit points at 200-level of which at least 8 are in Philosophy	Not to count with PHIL231

*400-Level*

PHIL403	Philosophy Honours	400	48	3	Entry to the Honours year or Honours subjects shall be determined by the Academic Senate on the advice of the Departmental Chairman	Guidelines for prospective Honours candidates are set out in the general Preamble to the detailed descriptions of Philosophy subjects
PHIL413	Combined Philosophy Honours	400	24	3	Entry to combined Honours shall be determined by the Academic Senate on the advice of the Departments concerned.	Guidelines for prospective combined Honours candidates are set out in the general Preamble to the detailed descriptions of Philosophy subjects

**Department of Physics**

**FACULTY OF SCIENCE**

*100-Level*

PHYS141	Fundamentals of Physics A	100	6	3		Excludes PHYS118, 119 and 151, and GENE151
PHYS142	Fundamentals of Physics B	100	6	3		Excludes PHYS120, 151, 121, and GENE151

PHYS248	Astronomy	200	6	3	PHYS141 PHYS142		Approval for taking Astronomy at the 300-level is at the discretion of the Chairman of the Department of Physics
PHYS251	Concepts of the Modern Universe	200	6	1	24 credit points at 100-level		Excludes GENE220
<i>300-Level</i>							
PHYS301	Classical Mechanics and Electromagnetism	300	6	1	PHYS201 <i>or</i> PHYS225 and PHYS235	MATH301	Excludes PHYS302
PHYS302	Classical Mechanics, Electromagnetism and Plasma Physics	300	8	1	PHYS201 <i>or</i> PHYS225 and PHYS235	MATH301	Excludes PHYS301
PHYS306	Project in Physics A	300	6	1,2 or 3	24 credit points of Physics at 200-level		
PHYS307	Advanced Experimental Physics A	300	6	1	24 credit points of Physics at 200-level		Excludes PHYS309, and PHYS312
PHYS308	Advanced Experimental Physics B	300	6	2	24 credit points of Physics at 200-level		Excludes PHYS309, and PHYS312

PHYS317	Quantum Mechanics and Nuclear Physics	300	6	3	PHYS201 and 211 <i>or</i> PHYS205 and PHYS215 <i>or</i> PHYS244	MATH301	Excludes PHYS311, PHYS315, PHYS316, PHYS318, PHYS319, PHYS321, PHYS322 and PHYS327
PHYS318	Quantum Mechanics and High Energy Physics	300	6	3	PHYS201 and 211 <i>or</i> PHYS205 and PHYS215 <i>or</i> PHYS244	MATH301	Excludes PHYS311, PHYS315, PHYS316, PHYS317, PHYS319, PHYS322 and PHYS328
PHYS319	Quantum Mechanics and Astro-Physics	300	6	3	PHYS201 and 211 <i>or</i> PHYS 205 and PHYS 215 <i>or</i> PHYS244	MATH301	Excludes PHYS311, PHYS315, PHYS316, PHYS317, PHYS318, PHYS321, PHYS322 and PHYS329
PHYS321	Astro-, Nuclear and Solid State Physics	300	6	2	PHYS201 and 211 <i>or</i> PHYS205, 215, 225 and 235	PHYS311	Excludes PHYS322
PHYS322	Astro-, High Energy, Nuclear and Solid State Physics	300	8	2	Same as PHYS321	PHYS311	Excludes PHYS321
PHYS324	Role of Energy in Microscopic Physics and Chemistry	300	12	3	Same as for PHYS311 and CHEM324	Same as for PHYS311 and CHEM324	Excludes CHEM306, CHEM308, CHEM313, CHEM324, PHYS311, PHYS315, PHYS326, PHYS327, PHYS328 and PHYS329
PHYS326	Statistical Mechanics and Solid State Physics	300	6	3	PHYS201 and 211 <i>or</i> PHYS205, PHYS215 and PHYS235 <i>or</i> PHYS244	MATH301	Excludes PHYS311, PHYS315, PHYS316, PHYS321, PHYS322, PHYS324, PHYS327, PHYS328 <i>or</i> PHYS329



PHYS410	Honours Project	400	18	3	"	"	
PHYS441	Astro-, and Nuclear Physics	400	8	3	"	"	Excludes PHYS455 and PHYS465
PHYS443	Quantum Mechanics and Statistical Mechanics	400	12	3	"	"	
PHYS444	Quantum Mechanics	400	8	3	"	"	Excludes PHYS443
PHYS446	Solid State Physics	400	8	3	"	"	Excludes PHYS455 and PHYS465
PHYS455	Nuclear and Solid State Physics	400	12	3	"	"	Excludes PHYS441, 446 and 465
PHYS465	Astro-, and Solid State Physics	400	12	3	"	"	Excludes PHYS441, 446 and 455

### Department of Psychology

#### FACULTY OF SOCIAL SCIENCES

##### 100-Level

PSYC111	Psychology IA	100	6	1			Not to count with PSYC101 or PSYC141
PSYC112	Psychology IB	100	6	2	PSYC111		Not to count with PSYC102 or PSYC142
PSYC141	Psychology IA (Science)	100	6	1			Not to count with PSYC102 or PSYC111
PSYC142	Psychology IB (Science)	100	6	2	PSYC141		Not to count with PSYC102 or PSYC112

PSYC237	Social Psychology	200	6	2	PSYC111 and 112 <i>or</i> PSYC141 and 142	Not to count with PSYC322 Social Psychology
PSYC246	Research Methods and Statistics In Psychology (Science)	200	6	1	PSYC111 and 112 <i>or</i> PSYC141 and 142	Not to count with PSYC232 Research Methods and Statistics
<i>300-Level</i>						
PSYC312	Counselling Psychology	300	6	1	PSYC231 and PSYC235	
PSYC315	Psychology of Abnormality	300	6	1	PSYC231	
PSYC316	Individual Differences	300	6	2	PSYC231	
PSYC322	Social Psychology	300	6	2		Not to count with PSYC237 Social Psychology
PSYC323	Industrial and Organizational Psychology	300	6	2	Desirable: PSYC322	Not to count with PSYC317
PSYC331	Psychological Theory *	300	6	2	PSYC231	
PSYC335	Humanistic Psychology *	300	6	1	PSYC231	
PSYC336	Experimental Psychology	300	6	1	PSYC232 Desirable: PSYC234	
PSYC338	Behaviour Modification *	300	6	2	PSYC234	

In the event that a student wishes to take a double major; i.e. major in another subject as well as psychology, and still proceed to take Honours in Psychology, the minimum number of credit points accumulated over 200- and 300-levels of psychology will be 60: PROVIDED THAT at least 12 credit points of 200- and 300-level non-psychology subjects being taken are recognised as appropriate and closely related to psychology, in which case the credit points for these subjects may be added to the 60 of psychology to make the necessary 72. In addition to the above credit point requirements, specific subjects must be taken. These are: (i) PSYC232 Research Methods and Statistics; (ii) at least one of PSYC231 Personality and PSYC234 Psychology of Learning; and (iii) MATH334 Design and Analysis is recommended for formal enrolment, and must at least be audited. A further requirement is that intending honours students should have gained a minimum credit average in psychology subjects at 100-, 200- and 300-levels.

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The four year programme for students intending to do Joint Honours in Psychology and Geography must include the following:

	Psychology** Credit Points	Geography Credit Points
100-level	12	12
200-level	at least 18	at least 16
300-level	at least 30+	24

+

MATH334 Design and Analysis must be included in this 30 points.

\*\*NOTE: Students who contemplate the joint honours programme should examine the total credit point load for Psychology, since accreditation for membership in the Australian Psychological Society may require more than the minimum number of credit points required by this programme.

For students planning to make a substantial and coherent (that is, a major) study of Psychology, for example, to satisfy the Bachelor Degree Regulations towards future associate membership of the Australian Psychological Society, students are required to take 12 credit points of psychology at 100-level, 18 credit points of psychology at 200-level, and 24 credit points of psychology at 300-level. **Note:** No more than 18 credit points at 300-level psychology can be taken until a minimum of 18 credit points of 200-level psychology have been completed.

The pre-requisite for all 200-level subjects is 12 credit points of 100-level psychology. The pre-requisite for all 300-level subjects is 12 credit points of 200-level psychology.

**Advanced Programme**

SOC222	Sociology II Advanced: Foundations of Sociological Thought	200	6	1	SOC100 $\phi$	Normally SOC203
SOC223	Sociology II Advanced: Contemporary European Sociology	200	6	2	Credit in SOC222	Normally SOC218 or SOC219

*300-Level \****Pass Level Programme+**

SOC302	Religion and Society	300	6	1	Normally SOC218 or SOC219 <i>and</i> either SOC231 or SOC232
SOC303	The Individual in Society	300	6	2	As for SOC302
SOC304	Military Sociology	300	6	2	As for SOC302
SOC305	Sociology of Migration	300	6	1	As for SOC302
SOC306	Sociological Measurement	300	6	1	As for SOC302
SOC307	Urban Sociology	300	6	2	As for SOC302
SOC308	Social Policy	300	6	1	As for SOC302
SOC312	Science, Technology and Society	300	6	2	As for SOC302
SOC313	The Individual in the Organisation	300	6	1	As for SOC302

SOC323	Sociology III Advanced: Sociology of Knowledge II	300	6	2	Normally Credit in SOC322	As for SOC322
<i>400-Level</i>						
SOC400	Sociology IV Honours	400	48	3	Normally credit with- in courses totalling at least 36 credit points at Sociology 300-level including credit in SOC323	Entry into the 400-level pro- gramme will be determined by the Academic Senate on the advice of the Departmental Chairman.
SOC410	Sociology IV Honours (Part-time I)	400	24	3	As for SOC400	See SOC400
* See note at the end of Sociology entry.						
+ Some 300-level pass subjects listed may not be offered in any one year. For advice on subjects offered in 1981, students should consult with the Departmental Chairman.						
∅ Normally credit in SOC100 and approval by the Departmental Chairman.						
SOC420	Sociology IV Honours (Part-time II)	400	24	3	Credit in SOC410 and approval by the Department- al Chairman	



**SCHEDULE B****COMMERCE**

Set out below are the subjects that may be taken in the Commerce course. Additional details relating to the subjects listed - such as co- and pre-requisites - are set out in Schedule A.

**Schedule B - 1****PRESCRIBED SUBJECTS FOR ALL B COM CANDIDATES**

Number	Subject	Level	Credit Points	Session Offered
ACCY101	Accounting and Financial Management I	100	12	3
ECON101	Economics I	100	6	1
ECON111	Economics II	100	6	2
ECON121	Quantitative Methods I*	100	6	1
ECON122	Quantitative Methods II*	100	6	2

\*Accountancy students may substitute a mathematics course approved by the Chairman of the Department of Accountancy for Quantitative Methods I and II. Subjects approved for this purpose: MATH102 Mathematics IB or MATH121 Mathematics IC or MATH132 Mathematics ID.

**Schedule B - 2****FURTHER SUBJECTS REQUIRED FOR THE SPECIALISATION IN ACCOUNTANCY\*\***

ACCY163	Introduction to Law	100	12	3
ACCY214	Accounting and Financial Management IIA	200	8	1
ACCY204	Accounting and Financial Management IIB	200	8	2
ACCY224	Business Finance	200	8	2
ACCY234	Information Systems in Accounting	200	8	1
ACCY302	Accounting and Financial Management IIIA	300	12	1
ACCY312	Accounting and Financial Management IIIB	300	12	2

**Schedule B - 3****FURTHER SUBJECTS REQUIRED FOR THE SPECIALISATION IN ECONOMICS\*\***

ECON205	Macroeconomics	200	8	1
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Number	Subject	Level	Credit Points	Session Offered
ECON215	Microeconomics	200	8	1
Plus two of the following:				
ECON206	Public Finance	200	8	2
ECON216	International Economics	200	8	2
ECON225	Quantitative Analysis for Decision Making - A	200	8	1
ECON226	Quantitative Analysis for Decision Making - B	200	8	2
ECON227	Measurement of Economic Variables and Input/Output Analysis	200	8	1
Plus three of the following options:				
ECON302	Comparative Economic Systems	300	8	1
ECON303	Economic Development Issues	300	8	2
ECON304	Economic Policy	300	8	2
ECON305	Economic Development Planning***	300	8	-
ECON306	International Trade***	300	8	-
ECON307	International Monetary Economics***	300	8	-
ECON308	Labour Economics	300	8	1
ECON311	Natural Resource Economics	300	8	2
ECON312	Industrial Economics	300	8	2
ECON313	Transport Economics***	300	8	-
ECON314	Urban and Regional Economics***	300	8	-
ECON315	Applied Microeconomics	300	8	1
ECON316	History of Economic Thought	300	8	1
ECON321	Econometrics	300	8	1
ECON322	Mathematical Economics***	300	8	-
ECON323	Econometric Models	300	8	2
ECON331	Labour Managed Systems	300	8	2

\*\*The Chairman of the Department of Accountancy, in the case of Schedule B-2, or the Chairman of the Department of Economics, in the case of Schedule B-3, may approve a candidate enrolling for a subject with a value of at least 6 credit points from Schedule A in place of one of the subjects listed in the relevant Schedule B-2 or B-3.

\*\*\*These subjects will not be offered in 1981.

## Schedule B - 4

## COMBINED SPECIALISATION: ACCOUNTANCY AND ECONOMICS

Number	Subject	Level	Credit Points	Session Offered
ACCY101	Accounting and Financial Management I	100	12	3
ACCY163	Introduction to Law	100	12	3
ECON101	Economics I	100	6	1
ECON111	Economics II	100	6	2
ECON121	Quantitative Methods I	100	6	1
ECON122	Quantitative Methods II	100	6	2
ACCY214	Accounting and Financial Management IIA	200	8	1
ACCY204	Accounting and Financial Management IIB	200	8	2
ECON205	Macroeconomics	200	8	1
ECON215	Microeconomics	200	8	1
<i>and either</i>				
ACCY224	Business Finance	200	8	2
<i>or</i>				
ACCY234	Information Systems in Accounting	200	8	1
<i>and one of the following Economics 200-level subjects:</i>				
ECON206	Public Finance	200	8	2
ECON216	International Economics	200	8	2
ECON225	Quantitative Analysis for Decision Making - A	200	8	1
ECON226	Quantitative Analysis for Decision Making - B	200	8	2
ECON227	Measurement of Economics Variables and Input/Output Analysis	200	8	2
<i>and</i>				
ACCY302	Accounting and Financial Management IIIA	300	12	1
ACCY312	Accounting and Financial Management IIIB	300	12	2

*and three of the Economics 300-level options in Schedule B - 3.*

## Schedule B - 5

**FURTHER SUBJECTS REQUIRED FOR THE SPECIALISATION IN INDUSTRIAL RELATIONS**

Number	Subject	Level	Credit Points	Session Offered
ACCY163	Introduction to Law	100	12	3
GENE102	Industrial Relations A: Wage Determination in Australia	100	6	2
ACCY265	Law of Employment	200	6	1
ECON215	Microeconomics	200	8	1
GENE240	Trade Unions, Employer Organisations and their Environment	200	8	1
ACCY365	Labour Relations Law	300	6	2
ECON308	Labour Economics	300	8	1
GENE340	Comparative Labour Studies	300	8	1

Plus at least one additional subject selected from the following 300-level subjects:

ACCY362	Industrial Property Law	300	6	1
ECON312	Industrial Economics	300	8	2
PSYC322	Social Psychology	300	6	1
PSYC323	Industrial and Organisational Psychology	300	6	2
SOC312	Science, Technology and Society	300	6	2
SOC313	The Individual in the Organisation	300	6	1
HPS333	Knowledge and Power: The Politics of Science and Technology	300	24	3

## Schedule B - 6

**FURTHER SUBJECTS REQUIRED FOR THE SPECIALISATION IN MANAGEMENT STUDIES***Further compulsory 100-level*

ACCY163	Introduction to Law	100	12	3
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*200-level*

ACCY212	Business Organisation and Policy	200	6	2
ACCY213	Marketing Policy	200	6	1

Plus two subjects selected from:

ACCY214	Accounting and Financial Management IIA	200	8	1
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Number	Subject	Level	Credit Points	Session Offered
ACCY215	Small Business Management	200	6	1 or 2
ACCY216	Operations Management	200	6	1 or 2
ACCY224	Business Finance	200	8	2
ACCY234	Information Systems in Accounting	200	8	1
ACCY254	Taxation Law	200	8	2
ACCY264	Business Law II	200	8	1
ACCY265	Law of Employment	200	6	1
ACCY281	Government Accounting and Financial Management	200	6	1
ECON205	Macroeconomics	200	8	1
ECON215	Microeconomics	200	8	1
ECON225	Quantitative Analysis for Decision Making - A	200	8	1
ECON226	Quantitative Analysis for Decision Making - B	200	8	2
GENE102	Industrial Relations A: Wage Determination in Australia	100	6	2
GENE240	Trade Unions, Employer Organisations and their Environment	200	8	1
HPS210	The Industrial Revolution: Technology and Social Change B	200	8	1
HPS220	Technology and the Modern Industrial State B	200	8	2
PSYC237	Social Psychology	200	6	2
<i>300-level</i>				
ACCY314	Organisation Planning and Strategy	300	6	1
ACCY315	Marketing Strategy	300	6	2
Plus subjects aggregating not less than 12 credit points selected from the following:				
ACCY312	Accounting and Financial Management IIIB	300	12	2
ACCY322	Advanced Business Finance	300	6	1
ACCY362	Industrial Property Law	300	6	1
ACCY363	Administrative Law	300	6	2
ACCY364	Business Law III	300	6	2



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Number	Subject	Level	Credit Points	Session Offered
ACCY365	Labour Relations Law	300	6	2
ECON304	Economic Policy	300	8	2
ECON306	International Trade	300	8	-
ECON308	Labour Economics	300	8	1
ECON312	Industrial Economics	300	8	2
HPS333	Knowledge and Power: The Politics of Science and Technology	300	24	3
PSYC323	Industrial and Organisational Psychology	300	6	2
SOC312	Science, Technology and Society	300	6	2
SOC313	The Individual in the Organisation	300	6	1

## SCHEDULE C

## ENGINEERING

### 1. BACHELOR OF ENGINEERING - CIVIL ENGINEERING

The course offered by the Department of Civil Engineering is designed to give a general academic training for the professional Civil Engineer. The course normally extends from a minimum 8 sessions to a maximum of 16 sessions extending over a period of from 4 to 8 years.

In the earlier sessions of the course students are given further training in the basic sciences - Mathematics, Chemistry, Physics - together with an introduction to Civil Engineering, including practice areas of surveying, construction and design. Subsequent sessions of the course are increasingly devoted to Civil Engineering subjects and the design of Engineering structures, while the final sessions of the course are professionally oriented including Construction, Management, Town Planning and Public Health Engineering. Each student, whether completing the course in minimum time (8 sessions) or longer, is required to prepare a thesis within some area of specialization. A feature of the course is the optional areas of study available and students can include various areas of specialization depending upon their interests and abilities. Professional experience is a necessary part of the course. All students must complete twelve weeks of professional experience during the vacation one year before the completion of their course unless exempted by the Department due to the student's full-time professional employment.

The course offers a number of units each of one session duration which are classified either as core subjects or electives. The study of the core subjects, which are shown in Schedule C, is mandatory.

Generally the course requires the satisfactory completion of 54 units of study, identified in the schedule by a disparate number, the selection of the units being constrained by the pre- and co-requisite requirements. Two patterns of study which meet these requirements are shown, but, as progression within the course is by subject, variation of these programmes may occur subject to approval by the Chairman of the Department.

The subjects Town Planning, Roads Engineering and Public Health Engineering, are recognized by the Local Government Examination Committee as giving exemption from those three areas when applying for a certificate as Engineer under the Local Government Act 1919. Full recognition of the course for the pre- and post-1980 periods has been granted by the Institution of Engineers, Australia.

The Wollongong course may be taken at various rates to suit the individual student. In general, most students with full-time professional employment may complete their course within 12 sessions.

All students must take particular notice of the Bachelor Degree Requirements regarding minimum rate of progress: Requirement 13.2 and Restriction on Enrolment; Requirements 14. For the purposes of Requirement 13.2 a prescribed course in Civil Engineering is that course

which has been prescribed for a particular student by the Chairman of the Department.

Honours are awarded at the end of the course on the basis of overall performance throughout the course.

- NOTE: (1) Attendance is mandatory at lectures, tutorials, laboratory classes and excursions unless given specific exemption by the Departmental Chairman.  
 (2) For subjects listed below, pre-requisites and co-requisites are indicated where applicable.

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
<i>100-Level Core Subjects</i>						
CIVL111	Introduction to Design	100	2			
CIVL122	Mechanics and Structures	100	1			
CIVL123	Dynamics	100	2			
CIVL142	Materials I	100	2			
CIVL171	Surveying I	100	1			
CIVL172	Survey Camp	100	1		CIVL171	
CIVL191	Building Construction	100	1			
CIVL192	Construction I	100	2			
CIVL193	Excursions I	100	2			
CHEM101	Chemistry IA	100	1			See Schedule A - Chemistry
MATH101	Mathematics IA	100	3	See Schedule A-Mathematics		See Schedule A - Mathematics

PHYS120	Fundamentals of Electricity and Magnetism	100	1 or 2			Not to count with PHYS142
PHYS121	The Physics of Waves and Particles	100	2		PHYS120	Not to count with PHYS142
<i>100-Level Elective Subjects</i>						
ECON111	Economics II	100	2			
<i>200-Level Core Subjects</i>						
CIVL213	Structural Design I	200	2	CIVL111 or MECH122	CIVL251	
CIVL225	Mechanics I	200	1	CIVL123		
CIVL226	Mechanics 2	200	2		CIVL281 or MATH281	
CIVL231	Hydraulics I	200	2			
CIVL243	Materials 2	200	2		CIVL251	
CIVL251	Strength of Materials I	200	1	CIVL122 or MECH101	CIVL281 or MATH281	
CIVL252	Strength of Materials 2	200	2		CIVL251 or CIVL295 or MECH251	
CIVL273	Surveying 2	200	1		CIVL171	
CIVL281	Computational Techniques I	200	1	MATH101		Depending upon resources, students may be required to enrol in MATH281 in lieu of CIVL281 and CIVL282

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
CIVL282	Computational Techniques 2	200	2	CIVL281	CIVL281	
CIVL294	Construction 2	200	1		CIVL192	
CIVL295	Experimental Engineering	200	1	CIVL111, CIVL122		
CIVL296	Excursions 2	200	1		Attending predominantly 200-level subjects	
<i>200-Level Elective Subjects</i>						
MECH241	Thermodynamics I	200	1		MATH281	
ECON215	Microeconomics	200	1			
ELEC296	Applied Electricity IA	200	1		PHYS142 or PHYS120 and PHYS121	Not to count with ELEC291 Applied Electricity I
ELEC297	Applied Electricity IB	200	2		ELEC296	Not to count with ELEC291 Applied Electricity I
GEOG202	Urban Location and Structure	200	1			
<i>300-Level Core Subjects</i>						
CIVL312	Civil Engineering Design	300	1		CIVL252, 326	



CIVL326	Mechanics 3	300	1	CIVL251	
CIVL332	Hydraulics 2	300	1	CIVL231	
CIVL334	Hydraulics 3	300	2	CIVL332	
CIVL344	Materials 3	300	2		
CIVL353	Structures I	300	1	CIVL251	
CIVL362	Soil Mechanics I	300	1		CIVL251
CIVL374	Surveying 3	300	2	CIVL273	
CIVL397	Construction 3	300	1	CIVL294	
CIVL398	Excursions 3	300	1		Attending predominantly 300-level subjects

*300-Level Elective Subjects*

CIVL314	Structural Design 2*	300	2	CIVL312	*Required core subjects if not in full-time professional employment
CIVL327	Mechanics 4*	300	2	CIVL226, 282 or MATH281	
CIVL354	Structures 2*	300	2	CIVL353	*Required core subjects if not in full-time professional employment
CIVL363	Soil Mechanics 2*	300	2	CIVL362	
ECON312	Industrial Economics	300	2		
MECH391	Heat Transfer for Civil Engineers	300	2		

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
<i>400-Level Core Subjects</i>						
CIVL401	Thesis	400	3		Completed 90% of 300- level subjects	
CIVL481	Engineering Management I	400	1			
CIVL482	Engineering Management 2	400	2			
CIVL490	Excursions 4	400	1			
CIVL499	Professional Experience	400	1			
<i>400-Level Elective Subjects *</i>						
CIVL411	Professional Practice 1	400	3			*Not all electives will be offered in any one year.
CIVL412	Professional Practice 2	400	3			
CIVL413	Professional Practice 3	400	3			
CIVL414	Professional Practice 4	400	3			
CIVL415	Professional Practice 5	400	3			
CIVL416	Professional Practice 6	400	3			
CIVL434	Hydraulic Engineering	400	2	CIVL334		
CIVL445	Materials 4	400	1	CIVL344		
CIVL455	Structures 3	400	2	CIVL353		

CIVL456	Structures 4	400	2	CIVL353	
CIVL464	Soil Mechanics 3	400	1	CIVL363	
CIVL486	The Civil Engineer and the Environment	400	1	Enrolled in predominantly 400-level subjects	
CIVL487	Town Planning	400	1	Enrolled in predominantly 400-level subjects	
CIVL488	Traffic and Transport Systems	400	2	Enrolled in predominantly 400-level subjects	
CIVL491	Computer Applications	400	2	CIVL282, or MATH281	CIVL488
CIVL493	Public Health Engineering	400	1		Attending predominantly 400-level subjects
CIVL494	Coastal Engineering	400	1	CIVL332	
CIVL495	Geology for Civil Engineers	400	2		Attending predominantly 300-level subjects
CIVL496	Roads Engineering	400	1		

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
CIVL497	Introductory Modern Languages	400	1			

## 2. BACHELOR OF ENGINEERING - ELECTRICAL ENGINEERING

The Department offers a course leading to a Bachelor of Engineering in Electrical Engineering which may be completed in a minimum of four years of full-time study. Subjects are so scheduled that it may also be undertaken on a part-time basis, in which case the duration will depend upon the particular circumstances of the student. Progression is by subject but the various subject pre- and co-requisites must be satisfied. The degree of Bachelor of Engineering (Honours) is awarded for meritorious performance over the course and particularly in the final year thesis projects. The classes of honours awarded are defined in the Bachelor Degree Requirements.

Details of the recommended programme for a full-time four year minimum course are set out in Section (i); Section (ii) shows details of the preferred programme for students in approved, full-time industrial employment, while Section (iii) sets out a recommended programme for students holding appropriate Technical College Certificates.

### (i) RECOMMENDED FULL-TIME PROGRAMME

						Year 1
CHEM101	Chemistry 1A	100	1			See Schedule A - Chemistry
ELEC131	Computers 1	100	1 or 2			
ELEC151	Instrum. and Measurements	100	1 and 2			
MATH101	Mathematics 1A	100	3	See Schedule A-Mathematics		See Schedule A - Mathematics
PHYS141	Fundamentals of Physics A	100	1 or 3		MATH101	See Schedule A - Physics
PHYS142	Fundamentals of Physics B	100	2 or 3		MATH101	See Schedule A - Physics

ELEC101	Electrical Engineering 1	100	2 or 3		PHYS142, MATH101
	Engineering Option 1A*	100	1		
	Engineering Option 1B*	100	1 or 2		

\*See "Notes" at the End of full-time programme

### Year 2

ELEC203	Circuit Theory 2A	200	3	ELEC101	
ELEC211	Electronics 1	200	3	ELEC101	ELEC203
ELEC221	E. C. & D. 1	200	3	ELEC101	MATH201, 286, ELEC203
ELEC251	Laboratory 2A	200	1, 2 or 3	ELEC151	ELEC211
ELEC252	Laboratory 2B	200	3	ELEC151	ELEC221
MATH201	Mathematics 2A**	200	3	MATH101	See Schedule A - Mathematics
MATH286	Mathematics 2Z**	200	3		MATH201 See Schedule A - Mathematics
PHYS220	Inter. Physics for Engineering	200	3	PHYS141, 142	MATH201, 286 See Schedule A - Physics
	Engineering Option 2A*		1		
	Engineering Option 2B*		2		

### Year 3

ELEC311	Electronics 3A	300	3	ELEC211, 203	
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Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
ELEC331	Computers 2	300	3			
ELEC343	Control Systems	300	3	MATH201, 202, ELEC203	ELEC322	
ELEC352	Laboratory 3A	300	3 & 1 or 2		ELEC331	
ELEC353	Laboratory 3B	300	3 & 1 or 2		ELEC311	
ELEC322	E. C. & D. 2	300	3	ELEC221, 203	ELEC343	
ELEC301	Circuit Theory 3A	300	3	ELEC203		
ELEC354	Laboratory 3C	300	3 & 1 or 2		ELEC322	
ELEC355	Laboratory 3D	300	3 & 1 or 2		ELEC343	
MATH301	Mathematics 3A**	300	3	MATH201 and MATH211 or MATH202		See Schedule A - Mathematics
<i>or</i>						
ELEC393	Engineering Design Methods	300	3	MATH201 and MATH211 or MATH202		This subject is offered as an alternative to MATH301
	Engineering Option 3A*		1			
	Engineering Option 3B*		2			

Year 4

ELEC423	E. C. & D. 3	400	1	ELEC322	
ELEC431	Computers 3	400	1	ELEC331	
ELEC456	Laboratory 4	400	1	300-level subjects	ELEC461, ELEC463
ELEC461	Communications 1	400	1	300-level subjects	
ELEC463	Signal Transmission	400	1	300-level subjects	
	4 Final Year Electives*	400	2	300-level subjects	
ELEC457	Thesis	400	3	300-level subjects	400-level core subjects
	General Elective*		1, 2 or 3		

\*Notes:

*Engineering Options*

For 1981 the Engineering Options subjects for the various years (of the course) are as follows:

YEAR 1: Stage 2, Part-time

MECH103	Statics	100	2
MECH121	Eng. Drawing and Graphics	100	1

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
YEAR 2: Stage 4, Part-time						
CIVL254	Strength of Materials	200	1	100-level subjects	200-level subjects	
METL201	Materials 1	200	1			
YEAR 3: Stage 5, Part-time						
MECH392	Introd. Thermofluid Dynamics	300	1		MECH201, 286 or 281	
MECH344	Heat Transfer	300	2	MECH392		

\*\* Changes in Mathematics Transition Programme.

**Full-time Students:**

- (a) Mathematics 2A and 2S in 1980 do Mathematics 3A in 1981
- (b) Mathematics 1A in 1980 do Mathematics 2A and 2Z in 1981 and 300 level Mathematics in 1982.

**Part-time Students:**

- (a) Mathematics 2A (ii) and 2S in 1980 do Mathematics 3A in 1981.
- (b) Mathematics 1A in 1980 do Mathematics 2A in 1981 and Mathematics 2Z in 1982 and 300-level Mathematics in 1983.
- (c) Mathematics 2A(i) in 1980 do Mathematics 3A in 1981 and Mathematics 2Z in 1982.

### *Final Year Electives*

These will be selected from the following list of subjects. Unless class numbers warrant, only four electives will be offered in any year.

ELEC404	Circuit Theory 4	400	1 or 2
ELEC424	Electrical Energy Syst.	400	1 or 2
ELEC425	Generalised Mach. Thy.	400	1 or 2
ELEC426	Electromechanical Dyn.	400	1 or 2
ELEC427	Static Converters	400	1 or 2
ELEC432	Computers 4	400	1 or 2
ELEC443	Control 3	400	1 or 2
ELEC462	Communications 2	400	1 or 2
ELEC472	Elect. Prop. of Mats.	400	1 or 2
ELEC475	Composite Elective 1	400	1 or 2
ELEC476	Composite Elective 2	400	1 or 2
ELEC477	Composite Elective 3	400	1 or 2
ELEC481	Probab. and Rand. Proc.	400	1 or 2
ELEC482	System Reliability	400	1 or 2

With the approval of the Departmental Chairman, one Electrical Engineering elective may be replaced by a suitable equivalent subject offered by another department.

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
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*General Electives*

With the approval of the Departmental Chairman, subjects to the value of not less than 6 credit points may be selected from any Schedule.

*Industrial Experience*

Full-time BE students must accumulate at least 12 weeks of approved industrial experience, documented in the form of employment reports and preferably in the period between third and fourth year.

*(ii) RECOMMENDED PART-TIME PROGRAMME FOR STUDENTS IN FULL-TIME APPROVED INDUSTRIAL EMPLOYMENT*

Students in approved, full-time industrial employment become eligible to include Industrial Options in their programme in place of an equivalent amount of core subjects, in Science and Engineering.

Each Option is worth 6 credit points and with the approval of the Departmental Chairman, a student may include Industrial Option 1 in his programme after he has completed at least one full year of suitable industrial experience. Similarly, Industrial Options 2, 3, 4 and 5 may be included after 2, 3, 4 and 5 years respectively of approved experience.

Thus a student completing his course after five years of part-time study and one year of full-time study could include in his course, Industrial Options to the value of 24 credit points.

Industrial Options are related to the student's current full-time employment and a student enrolled in an Industrial Option subject is required to submit written reports to his University Departmental supervisors and to participate in seminars as scheduled from time to time.

In addition to the University supervisor, the student's employer will be asked to nominate an industrial supervisor to advise the student in report and seminar preparation and to ensure that company policy on confidentiality is observed.

The written submissions and seminars will deal with a critical analysis and reporting of general (or nominated specific) aspects of the student's employment. Subject to confidentiality requirements these may cover technical, organisational and management aspects of the employer's industry.



**Stage 1**

MATH101	Mathematics 1A	100	3	See Schedule A Mathematics	See Schedule A - Mathematics
PHYS142	Fundamentals of Physics B	100	2 or 3		MATH101 See Schedule A - Physics
ELEC101	Electrical Engineering 1	100	2 or 3		PHYS142, MATH101

**Stage 2**

ELEC131	Computers 1	100	1 or 2		
ELEC151	Instruments & Measurements	100	1 & 2		
PHYS141	Fundamentals of Physics A	100	1 or 3		MATH101 See Schedule A - Physics
MATH201	Mathematics 2A**	200	3	MATH101	See Schedule A - Mathematics
ELEC181	Industrial Option 1	100	3		
	Engineering Option 1A*	100	1		
	Engineering Option 1B*	100	1 or 2		

\* See "Notes" at the end of Full-time programme

\*\*See "Notes" at the end of Full-time programme

**Stage 3**

ELEC203	Circuit Theory 2A	200	3	ELEC101	
ELEC211	Electronics 1	200	3	ELEC101	ELEC203
ELEC251	Laboratory 2A	200	1, 2, or 3	ELEC151	ELEC211

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
ELEC286	Mathematics 2Z**	200	3		MATH201	See Schedule A - Mathematics
ELEC282	Industrial Option 2	200	3			
PHYS205	Modern Physics	200	3	PHYS141, 142	MATH201, and 286 or MATH301	See Schedule A - Physics
<b>Stage 4</b>						
ELEC311	Electronics 3A	300	3	ELEC211, 203		
ELEC221	E. C. & D. 1	200	3	ELEC101	MATH201, 286, ELEC203	
ELEC331	Computers 2	300	3			
ELEC353	Laboratory 3B	300	3 or 2			
MATH301	Mathematics 3A**	300	3	MATH201 and 211 or MATH202		
<i>or</i>						
ELEC393	Engineering Design Methods	300	3	MATH201 and 211 <i>or</i> MATH202		This subject is offered as an alternative to MATH301
ELEC283	Industrial Option 3	200	3			

Engineering Option 2A\* 1

**Stage 5**

ELEC343 Control Systems 300 3 MATH201, 202, ELEC203 ELEC322

ELEC322 E. C. & D. 2 300 3 ELEC221, 203 ELEC343

ELEC301 Circuit Theory 3A 300 3 ELEC203

ELEC354 Laboratory 3C 300 3 & 1 or 2 ELEC322

ELEC355 Laboratory 3D 300 3 & 1 or 2 ELEC343

ELEC384 Industrial Option 4 300 3

Engineering Option 3A\* 1

Engineering Option 3B\* 2

**Year 4 of Full-time or Stage 6**

ELEC423 E. C. & D. 3 400 1 ELEC322

ELEC461 Communications 1 400 1 300-level Subjects

ELEC463 Signal Transmission 400 1 300-level Subjects

ELEC431 Computers 3 400 1 ELEC331

4 Final Year Electives\* 400 2 300-level Subjects

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
ELEC485	Industrial Option 5***	400	3			<b>Stage 7</b>
ELEC456	Laboratory 4	400	1	300-level Subjects	ELEC461, 463	
ELEC457	Thesis	400	3	300-level subjects	400-level core subjects	
<i>(iii)</i>	<i>RECOMMENDED PROGRAMME FOR PART-TIME STUDENTS HOLDING N.S.W. DEPARTMENT OF TECHNICAL EDUCATION ELECTRICAL OR ELECTRONICS AND COMMUNICATIONS CERTIFICATES</i>					
						<b>Year 1</b>
						<b>(Replacing Stages 1 and 2)</b>
MATH101	Mathematics 1A	100	3	See Schedule A - Mathematics		See Schedule A - Mathematics
PHYS142	Fundamentals of Physics B	100	2 or 3		MATH101	See Schedule A - Physics
ELEC203	Circuit Theory 2A	200	3	ELEC101		
						<b>Stage 3</b>
MATH201	Mathematics 2A	200	3	MATH101		See Schedule A - Mathematics
PHYS205	Modern Physics	200	3	PHYS142		
ELEC211	Electronics 1	200	3	ELEC101	ELEC203	
ELEC251	Laboratory 2A	200	3		ELEC211	

ELEC282	Industrial Option 2	200	3		
MATH286	Mathematics 2Z**	200	3	MATH201	See Schedule A - Mathematics

Stages 4 and later are identical to those in the normal part-time programme.

\* See "Notes" at the end of Full-time programme

\*\* See "Notes" at the end of Full-time programme

\*\*\*With the approval of the Departmental Chairman, Industrial Option 5 may be substituted for 84 hours of 400-level electives.

NOTE: Engineering Option subjects and Electives are as for Full-time course except that one of the second year Options and the General Electives have been replaced by Industrial Options.

### 3. BACHELOR OF ENGINEERING - MECHANICAL ENGINEERING

The aim of the course offered by the Department of Mechanical Engineering is to give high academic training in Mechanical Engineering over a minimum period of 4 years (8 sessions). The course can also be taken on a part-time basis.

Introductory subjects from the first year of the course after which the course is divided into streams consisting of the following Mechanical Engineering subjects: Fluid Mechanics, Thermodynamics, Design, Dynamics, Mechanics of Solids, Materials, Control and Systems, Environmental Engineering and Experimental Engineering. The final year of the course consists of a wide selection of electives allowing students to choose subjects within their own areas of specialisation. These electives include the subjects mentioned above, together with subjects of an applications nature including Materials Handling Systems, Refrigeration and Air Conditioning, Lubrication etc.

During the final year each student is required to prepare a thesis on a topic approved by the Chairman of the Department.

The course has been fully recognised for the pre- and post-1980 periods by The Institution of Engineers, Australia, which is the professional accrediting body. This recognition exempts graduates from examinations for admission to the grade of Member of the Institution.

Industrial training and experience is an essential part of the course at Wollongong. Full-time students are required to obtain an aggregate of at least 12 weeks of practical experience during the summer recesses. For part-time students, each year of appropriate full-time industrial employment will be credited as one elective up to a maximum of six electives.

On the following pages three programmes of study are presented: a full-time programme; a part-time programme; and a further part-time programme for those students entering the University with a Mechanical Engineering Certificate qualification from the N.S.W. Department of Technical and Further Education or an approved equivalent. The sessional sequence of subjects is arranged to satisfy the pre- and co-requisite requirements.



Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
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However, since progression within the course is by subject, individual variations to these programmes may be necessary. All study programmes are subject to approval by the Chairman of Department.

All students must take particular notice of the Bachelor Degree Requirements regarding Minimum Rate of Progress: Requirement 13.2 and Restriction on Enrolment: Requirement 14. For the purposes of Requirement 13.2 a prescribed course in Mechanical Engineering is interpreted as that course which has been prescribed for a particular student by the Chairman of Department.

In addition to the stipulations of Requirements 12, 13 and 14 a student's performance in the course is assessed by a grade point system. For this purpose the final grades in each subject are assigned the following numerical grade values: High Distinction - 5, Distinction - 4, Credit - 3, Pass - 2, Pass - Conceded - 1, Fail - 0. Also, the relative content of each subject of the course, i.e. its weighting, is expressed as a credit point rating. The grade point score in a given subject is determined by multiplying its credit point rating by the grade value corresponding to the grade obtained. A cumulative grade point average is computed by dividing the total grade point score by the sum of the credit points of all subjects attempted. For graduation a final CGPA of 2.0 is mandatory, i.e. an overall grade average of a Pass for the course. A student who fails to achieve a 2.0 overall score will be required to make up the deficiency by completing additional 400-level elective subjects. Further details of the grade point system are available from the Chairman of the Department.

Honours are awarded at the end of the course on the basis of overall performance throughout the course.

Note: Attendance in all classes including lectures, tutorials and laboratory classes is mandatory by the Departmental Chairman.

### **FULL-TIME PROGRAMME**

### **Year 1**

CHEM101	Chemistry IA	100	1			See Schedule A - Chemistry
MECH101	Statics	100	1			
MECH121	Eng. Drawing & Graphics	100	1			
MECH131	Eng. Processes & Practice	100	1			
PHYS120	Fundamentals of Electricity and Magnetism	100	1 or 2		MATH101	

CIVL142	Materials IC	100	2		
ELEC131	Computers I	100	1 or 2		
MECH102	Dynamics	100	2		
MECH122	Introduction to Design	100	2		MECH121
PHYS121	The Physics of Waves and Particles	100	2		MATH101
MATH101	Mathematics IA	100	3	See Schedule A - Mathematics	See Schedule A - Mathematics
<b>Year 2</b>					
MECH201	Mechanics of Solids I	200	1	MECH101	
MECH223	Engineering Dynamics	200	1	MECH102	
MECH231	Fluid Mechanics I	200	1		MATH281
MECH251	Experimental Engineering I	200	1		
MECH281	Environmental Engineering I	200	1		
ELEC296	Applied Electricity IA	200	1		PHYS120
MECH202	Engineering Materials I	200	2		MECH201
MECH213	Mechanical Engineering Design I	200	2	MECH122	MECH201
MECH214	Structural Design for Mechanical Engineers	200	2	MECH122	MECH201
MECH224	System Dynamics	200	2		MATH281

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
MECH241	Thermodynamics I	200	2		MATH281	
ELEC297	Applied Electricity IB	200	2		ELEC296	
MATH281	Mathematics IIE	200	3	MATH101		
<b>Year 3</b>						
MECH313	Mechanical Engineering Design II	300	1	MECH213		
MECH325	Machine Dynamics	300	1	MECH223		
MECH332	Fluid Mechanics II	300	1	MECH231		
MECH342	Thermodynamics II	300	1	MECH241		
MECH361	Control Systems I	300	1		MECH224	
MECH364	Mechanical Engineering Applications of Computers	300	1			
MECH333	Fluid Mechanics III	300	2	MECH332		
MECH344	Heat Transfer	300	2	MECH241	MECH332	
MECH353	Experimental Engineering II	300	2	MECH251	MECH342	
MECH362	Control Systems II	300	2		MECH361	
MECH363	Systems Analysis I	300	2		MECH364	
	3 Electives		1 and 2			

CIVL481	Engineering Management I	400	1
MECH497	Industrial Training	400	1
CIVL482	Engineering Management II	400	2
MECH401	Thesis	400	3
	Electives	400	1 and 2

Plus at least 7 electives (spread over two sessions) selected from the following electives subject to the approval of the Chairman of the Department.

*List of Electives which may be taken in Third or Fourth Year*

MECH402	Engineering Materials II	400	2	MECH202	
MECH404	Mechanics of Solids II	300	1	MECH201	
MECH423	Applied Dynamics I	400	2	MECH325	
MECH425	Hydraulic and Pneumatic Systems	400	1	MECH224	
MECH434	Fluid Mechanics IV	400	2	MECH332	
MECH473	Materials Handling Systems I	400	1		
MECH474	Materials Handling systems II	400	2		MECH473
MECH483	Environmental Engineering II	400	1	MECH281	MECH241 and MECH231
MECH484	Environmental Engineering III	400	1	MECH281	MECH241 and MECH231

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
MECH485	Environmental Engineering IV	400	2	MECH281		
<i>List of Electives which may be taken in Fourth Year</i>						
MECH403	Mechanics of Solids III	400	1	MECH404		
MECH413	Mechanical Engineering Design III	400	2	MECH213	MECH344 and MECH342 and MECH333	
MECH415	Optimum Design	400	2	MECH364		
MECH424	Applied Dynamics II	400	1		MECH423	
MECH433	Lubrication	400	2	MECH332		
MECH443	Thermodynamics III	400	1	MECH342		
MECH444	Thermodynamics IV	400	2	MECH342		
MECH445	Refrigeration and Air Conditioning	400	1	MECH342		
MECH451	Experimental Engineering III	400	2	MECH353		
MECH463	Control Systems III	400	2		MECH361	
MECH464	Systems Analysis II	400	1		MECH363 and MECH364	
MECH465	Systems Analysis III	400	2		MECH363	
MECH475	Fluid Transport of Bulk Solids	400	2	MECH332		



MECH481	Special Topics in Mechanical Engineering I	400	1
MECH482	Special Topics in Mechanical Engineering II	400	2
MECH486	Special Topics in Mechanical Engineering III	400	2

**PART-TIME PROGRAMME**

MECH101	Statics	100	1
MECH121	Engineering Drawing and Graphics	100	1
MECH102	Dynamics	100	2
MECH122	Introduction to Design	100	2
MECH198	Industrial Experience I	100	3
MATH101	Mathematics IA	100	3

See Schedule A  
- Mathematics

CHEM101	Chemistry IA	100	1
MECH131	Engineering Processes and Practice	100	1
PHYS120	Fundamentals of Electricity and Magnetism	100	1
ELEC131	Computers I	100	2

MECH121

MATH101

**Stage 1**

**Stage 2**

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
CIVL142	Materials IC	100	2			
PHYS121	The Physics of Waves and Particles	100	2		MATH101	
MECH199	Industrial Experience II	100	3			
<b>Stage 3</b>						
MECH201	Mechanics of Solids I	200	1	MECH101		
MECH223	Engineering Dynamics	200	1	MECH102		
MECH202	Engineering Materials I	200	2		MECH201	
MECH213	Mechanical Engineering Design I	200	2	MECH122	MECH201	
MECH298	Industrial Experience III	200	3			
MATH281	Mathematics IIE	200	3	MATH101		
<b>Stage 4</b>						
MECH231	Fluid Mechanics I	200	1		MATH281	
MECH251	Experimental Engineering I	200	1			
MECH281	Environmental Engineering I	200	1			
ELEC296	Applied Electricity IA	200	1		PHYS120	
MECH224	System Dynamics	200	2		MATH281	

MECH214	Structural Design for Mechanical Engineers	200	2	MECH122	MECH201
MECH241	Thermodynamics I	200	2		MATH281
ELEC297	Applied Electricity IB	200	2		ELEC296
MECH299	Industrial Experience IV	200	3		
MECH332	Fluid Mechanics II	300	1	MECH231	
MECH342	Thermodynamics II	300	1	MECH241	
MECH361	Control Systems I	300	1		MECH224
MECH364	Mechanical Engineering Applications of Computers	300	1		
MECH333	Fluid Mechanics III	300	2	MECH332	
MECH344	Heat Transfer	300	2	MECH241	MECH332
MECH353	Experimental Engineering II	300	2	MECH251	MECH342
MECH363	Systems Analysis I	300	2		MECH364
MECH398	Industrial Experience V	300	3		
MECH313	Mechanical Engineering Design II	300	1	MECH213	

**Stage 5**

**Year 6**

**(Full-time or two Part-time Stages)**

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
MECH325	Machine Dynamics	300	1	MECH223		
MECH399	Industrial Experience VI	300	3			
MECH401	Thesis	400	3			

Plus at least twelve electives (spread over two sessions) selected from the following electives subject to the approval of the Chairman of the Department.

Note that part-time students will be allowed a maximum of six electives exemptions for satisfactory completion of MECH198, 199, 298, 398 and 399.

*List of Electives*

MECH404	Mechanics of Solids II	300	1	MECH201		
MECH444	Thermodynamics IV	400	2	MECH342		
MECH423	Applied Dynamics I	400	2	MECH325		
MECH425	Hydraulic and Pneumatic Systems	400	1	MECH224		
MECH473	Materials Handling Systems I	400	1			
MECH483	Environmental Engineering II	400	1	MECH281	MECH241 and MECH231	
MECH464	Systems Analysis II	400	1		MECH363 and MECH364	
MECH465	Systems Analysis III	400	2		MECH363	

CIVL481	Engineering Management I	400	1		
MECH481	Special Topics in Mechanical Engineering I	400	1		
MECH403	Mechanics of Solids III	400	1	MECH404	
MECH413	Mechanical Engineering Design III	400	1	MECH213	MECH344, MECH342 and MECH333
MECH445	Refrigeration and Air Conditioning	400	1	MECH342	
MECH362	Control Systems II	300	2		MECH361
MECH443	Thermodynamics III	400	1	MECH342	
MECH424	Applied Dynamics II	400	1		MECH423
MECH415	Optimum Design	400	2	MECH364	
MECH474	Materials Handling Systems II	400	2		MECH473
MECH484	Environmental Engineering III	400	1	MECH281	MECH241 and MECH231
MECH434	Fluid Mechanics IV	400	2	MECH332	
MECH463	Control Systems III	400	2		MECH361
MECH433	Lubrication	400	2	MECH332	
MECH475	Fluid Transport of Bulk Solids	400	2	MECH332	
CIVL482	Engineering Management II	400	2		



Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
MECH402	Engineering Materials II	400	2	MECH202		
MECH451	Experimental Engineering III	400	2	MECH353		
MECH482	Special Topics in Mechanical Engineering II	400	2			
MECH485	Environmental Engineering IV	400	2	MECH281		
MECH486	Special Topics in Mechanical Engineering III	400	2			

*PART-TIME PROGRAMME FOR STUDENTS ENTERING THE UNIVERSITY WITH A MECHANICAL ENGINEERING CERTIFICATE QUALIFICATION FROM THE N.S.W. DEPARTMENT OF TECHNICAL AND FURTHER EDUCATION OR AN APPROVED EQUIVALENT.*

### Stage 1

**(To replace Stages 1 and 2 of the normal Part-time Programme)**

PHYS120	Fundamentals of Electricity and Magnetism	100	1		MATH101	
PHYS121	The Physics of Waves and Particles	100	2		MATH101	
MECH102	Dynamics	100	2			
MATH101	Mathematics IA	100	3			See Schedule A - Mathematics
MECH199	Industrial Experience II	100	3			

Stages 3, 4 and 5, and Year 6 will be identical to the normal part-time programme (listed above), except that in Year 6, eleven subjects are to be chosen from the list of electives instead of twelve subjects.

#### 4. BACHELOR OF ENGINEERING - MINING ENGINEERING

The Mining Engineering course offered is designed to give a general academic training for the professional Mining Engineer and to meet all statutory requirements. The course normally extends from a minimum of 8 sessions to a maximum of 16 sessions over a period of from 4 to 8 years.

In the earlier sessions of the course students are given further training in the basic sciences - Mathematics, Chemistry, Physics - together with an introduction to Civil Engineering, including practice areas of surveying, construction and design. Subsequent sessions are increasingly devoted to Mining Engineering subjects and the design of Engineering structures, while the final sessions are completely professionally oriented. Each student, whether completing the course in minimum time (8 sessions) or longer, is required to prepare a thesis within some area of specialization. A feature of the course is the optional areas of study available and students can include various areas of specialization depending upon their interests and abilities. Professional experience is a necessary part of the course. All students should complete at least 2 half-years professional experience before the completion of their course.

The course offers a number of units each of 1 session duration which are classified either as core subjects or electives. The study of the core subjects is mandatory.

Generally the course requires the satisfactory completion of 53 units of study, identified in the schedule by a disparate number, the selection of the units being constrained by the pre- and co-requisite requirements. Two patterns of study which meet these requirements shown, but, as progression within the course is by subject, variation of these programmes occur subject to approval by the Chairman of the Department.

All students must take particular notice of the Bachelor Degree Requirements regarding Minimum Rate of Progress: Requirement 13.2 and Restriction on Enrolment: Requirement 14. For the purposes of Requirement 13.2 a prescribed course in Mining Engineering is that course which has been prescribed for a particular student by the Chairman of Department.

Honours are awarded at the end of the course on the basis of overall performance throughout the course.

NOTE: (1) Attendance is mandatory at lectures, tutorials, laboratory classes and excursions unless given specific exemption from the Departmental chairman.

(2) For subjects listed below, pre-requisites and co-requisites are indicated where applicable.

##### *100-Level Core Subjects*

CIVL111	Introduction to Design	100	2
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Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
CIVL122	Mechanics and Structures	100	1			
CIVL123	Dynamics	100	2			
CIVL142	Materials 1	100	2			
CIVL171	Surveying 1	100	1			
CIVL172	Survey Camp	100	2		CIVL171	
CIVL191	Building Construction	100	1			
CIVL192	Construction I	100	1 or 2			
CIVL193	Excursions I	100	2			
CHEM101	Chemistry IA	100	1			See Schedule A - Chemistry
MATH101	Mathematics IA	100	3	See Schedule A - Mathematics		See Schedule A - Mathematics
PHYS120	Fundamentals of Electricity and Magnetism	100	1 or 2			Not to count with PHYS142
PHYS121	The Physics of Waves and Particles	100	2		PHYS120	Not to count with PHYS142
<i>200-Level Core Subjects</i>						
MINE231	Construction Operations	200	2	CIVL192		
CIVL213	Structural Design I	200	2	CIVL111 or MECH122	CIVL251	

CIVL225	Mechanics I	200	1	CIVL123		
CIVL226	Mechanics 2	200	2		CIVL281 or MATH281	
CIVL231	Hydraulics I	200	2	MATH101		
CIVL243	Materials 2	200	2		CIVL251	
CIVL251	Strength of Materials I	200	1	CIVL122 or MECH101	CIVL281 or MATH281	
CIVL281	Computation Techniques I	200	1	MATH101		Depending upon available resources students may be required to enrol in MATH281 in lieu
CIVL282	Computation Techniques 2	200	2	CIVL281		Depending upon available resources students may be required to enrol in MATH281 in lieu
GEOL252	Geology for Engineers I	200	1			
CIVL295	Experimental Engineering	200	1	CIVL111, 122		
CIVL296	Excursions 2	200			Attending predominantly 200-level subjects	
CIVL273	Surveying 2	200	1			
<i>200-Level Electives</i>						
ELEC296	Applied Electricity IA	200	1		PHYS142 or PHYS120 and PHYS121	Not to count with ELEC291 Applied Electricity I

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
ELEC297	Applied Electricity IB	200	2		ELEC296	Not to count with ELEC291 Applied Electricity I
ECONIII	Economics II	200				
<i>300-Level Core Subjects</i>						
CIVL332	Hydraulics 2					
GEOL352	Geology for Engineers 2					
MINE314	Professional Practice 4	300	2			
MINE342	Surveying (Mining)	300	2			
MINE362	Mining Process Engineering	300	1			
MINE363	Mining Economics	300	1			
MINE364	Management of Mining Projects	300	2			
MINE365	Simulation of Mining Operations	300	2			
MINE366	Mining Equipment	300	2			
MINE367	Mine Resources	300	2			
MINE368	Environmental Control	300	2			
MINE371	Mining Methods and Ventilation	300	1			
MINE372	Transportation	300	1			



*300-Level Elective Subjects*

MECH241	Thermodynamics
ECON215	Microeconomics
CIVL491	Computer Applications
GEOG202	Urban Location and Structure

*400-Level Core Subjects*

CIVL362	Soil Mechanics I	400	1
MINE471	Power Control	400	1
MINE472	Rock Mechanics and Explosives	400	2
MINE491	Thesis	400	3
CIVL481	Engineering Management 2	400	2
CIVL482	Engineering Measurement 2	400	2
MINE473	Regulations and Safety	400	1
MINE474	Mining Projects and Reports	400	1

*400-Level Elective Subjects*

CIVL486	The Civil Engineer and the Environment	400	1
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Enrolled in Pre-dominantly 400-level subjects

Number	Subject	Level	Session Offered	Pre-Requisite	Co-Requisite	Remarks
CIVL488	Traffic and Transportation Systems	400	2			Enrolled in Pre-dominantly 400-level subjects
CIVL491	Computer Applications	400	2			Enrolled in Pre-dominantly 400-level subjects
CIVL493	Public Health Engineering	400	1			Enrolled in Pre-dominantly 400-level subjects
MINE111	Professional Practice 1	400	3			
MINE112	Professional Practice 2	400	3			
MINE213	Professional Practice 3	400	3			
CIVL496	Roads Engineering	400	1			
CIVL363	Soil Mechanics 2	400				
CIVL464	Soil Mechanics 3	400	1	CIVL363		
ECON312	Industrial Economics					
GEOL225	Resource Geology					
GEOL334	Economic Geology					
GEOL336	Geophysics					
GEOL337	Structure Geology and Mathematical Geology					

## SCHEDULE D

## METALLURGY

### BACHELOR OF METALLURGY

The course offered by the Department of Metallurgy leads to the honours degree of Bachelor of Metallurgy, normally after four years of full-time study, but a longer period with part-time study is possible. After completion of the first three years of the four year course a qualified candidate may graduate with the degree of Bachelor of Metallurgy.

To be qualified, a candidate shall satisfactorily complete the prescribed subjects in the course and in addition have a weighted average of at least 50% for all metallurgy (METL) subjects. The weighted average is determined as

$$\frac{\sum (mw)}{\sum w}$$

where  $m$  is the subject mark (best mark gained in multiple attempts), and  $w$  is the subject weighting factor.

Progression to qualification is monitored by the value of the weighted average at the end of each academic session. A candidate with weighted average of at least 50% progresses normally; a candidate with weighted average of less than 50% may not progress and must repeat subjects recommended by the Chairman of Department.

A candidate who satisfactorily completes the course and attains a weighted average of at least 50% for the year 4 subjects graduates with honours, the class of which is determined by the performance in all subjects in the course.

Number	Subject	Level	Session Offered	W	Pre-Requisite	Co-Requisite
						Year 1
CHEM101	Chemistry IA	100	1	6		
CHEM102	Chemistry IB	100	2	6		
CIVL111	Introduction to Design C	100		3		
CIVL122	Mechanics and Structures	100	1	3		

<b>Number</b>	<b>Subject</b>	<b>Level</b>	<b>Session Offered</b>	<b>W</b>	<b>Pre-Requisite</b>	<b>Co-Requisite</b>
MATH101	Mathematics IA	100	3	12	See Schedule A - Mathematics	
PHYS141	Fundamentals of Physics A	100	3	6		MATH101
PHYS142	Fundamentals of Physics B	100	3	6		MATH101
METL105	Nature of Materials	100	2	6		
METL195	Technical Communications I	100	1 or 2	1		
<b>Year 2</b>						
MATH233	Mathematics IIP	200	3	4		MATH201 or MATH282
MATH282	Mathematics IIM*	200	1	4	MATH101	
CIVL216	Design M	200	3	6		
METL196	Technical Communications 2	100	1 or 2	1		
METL211	Thermodynamics I	200	1 or 2	3	CHEM101	
METL225	Mechanical Behaviour I	200	1 or 2	3		
METL245	Transport Processes I	200	1 or 2	3		
METL255	Structure of Metals I	200	1 or 2	4	METL105	
METL265	Computers in Metallurgy	200	3	6	MATH101	
METL335	Mechanics of Deformation I	300	1 or 2	4		METL225

METL345	Transport Processes 2	300	1 or 2	3	METL245
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Together with two additional  
300-level subjects \*\*

Option\*\*\*

(6 credit points)

**Year 3**

FLEC291	Applied Electricity 1	200	3	6	PHYS142
METL197	Technical Communications 3	100	1	1	
METL311	Thermodynamics 2	300	1 or 2	3	METL211
METL325	Mechanical Behaviour 2	300	1	3	METL225
METL326	Mechanical Behaviour 3	300	1 or 2	3	METL225
METL346	Transport Processes 3	300	1 or 2	4	METL245
METL355	Structure of Metals 2	300	1 or 2	3	METL255
METL375	Transformations 1	300	1 or 2	3	METL255
METL385	Extractive Metallurgy 1	300	1	3	METL211
METL456	Alloy Design	400	2	3	METL355, 375
METL485	Extractive Metallurgy 2	400	2	3	METL311, 345, 346, 385
METL495	Metallurgy Project 1	400	2	10	METL456, 485



Number	Subject	Level	Session Offered	W	Pre-Requisite	Co-Requisite
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Together with five additional  
300-level subjects\*\*

\*In consultation with the Chairman of Department a student wishing to take full Mathematics II may be permitted to do so as part of the option requirement.

\*\*See list below.

\*\*\*Selected after consultation with Chairman of Department; for example HPS217 Materials in the Twentieth Century

**Year 4**

METL496	Metallurgy Project 2 Options***	400	3	24	METL495	
	Together with seven of the following 400-level subjects:				(6 credit points)	
METL421	Diffraction Techniques	400	1 or 2	3	METL321	
METL431	Fracture	400	1 or 2	3	METL325, 335	
METL435	Mechanics of Deformation 2	400	1 or 2	4	METL335	
METL436	Mechanical Testing Processes	400	1 or 2	3		METL435, 325
METL455	Recrystallisation	400	1 or 2	3	METL355	
METL457	Metal Joining	400	1 or 2	3	METL375	
METL465	Process Modelling I	400	1 or 2	3	METL265	
METL471	Transformations 2	400	1 or 2	3	METL375	

METL472	Solidification 2	400	1 or 2	4	METL376
METL486	Extractive Metallurgy 3	300	1 or 2	3	METL385
<i>ADDITIONAL 300-LEVEL SUBJECTS</i>					
METL301	Ceramics	300	1 or 2	2	METL255
METL305	Metallurgical Resources I	300	1 or 2	3	METL105, 211
METL306	Polymeric Materials	300	1 or 2	2	METL105
METL307	Metallurgical Fuels	300	1 or 2	2	METL211
METL308	Materials Selection	300	1 or 2	3	METL255
METL315	Corrosion	300	1 or 2	3	METL211
METL321	Physics of Metals	300	1 or 2	3	METL105
METL376	Solidification I	300	1 or 2	3	METL255
METL386	Chemical Reaction Engineering	300	1 or 2	3	CHEM102
METL387	Mineral Processing	300	1 or 2	3	

\*\*\*Selected after consultation with Chairman of Department; for example HPS217 Materials in the Twentieth Century

**SCHEDULE E****SCIENCE**

Set out below in Schedule E are the subjects that may be taken in the Science Course. Additional details relating to the subjects listed, such as co- and pre-requisites, are set out in Schedule A.

<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>	<b>Session Offered</b>
<b>SUBJECTS APPROVED BY THE FACULTY OF SCIENCE</b>			
<i>100-Level</i>			
BIOLOGY			
BIOL102	General Biology	12	3
CHEMISTRY			
CHEM101	Chemistry IA: Introductory Physical and General Chemistry	6	1
CHEM102	Chemistry IB: Introductory Organic and Physical Chemistry	6	2
CHEM150	The Art of Chemistry	6	3
COMPUTING SCIENCE			
CSCI101	Computing Science I	12	3
GEOGRAPHY			
GEOG192	The Physical Environment (Science)	6	1
GEOG193	The Human Environment: An Australian Perspective (Science)	6	2
GEOLOGY			
GEOL103	Introductory Geology	12	3
MATHEMATICS			
MATH101	Mathematics IA	12	3
PHYSICS			
PHYS141	Fundamentals of Physics A	6	3
PHYS142	Fundamentals of Physics B	6	3
PHYS151	The Art of Physics	6	2
PSYCHOLOGY			
PSYC141	Psychology IA (Science)	6	1
PSYC142	Psychology IB (Science)	6	2

Number	Subject	Credit Points	Session Offered
<i>200-Level</i>			
BIOLOGY			
BIOL201	Metabolism: Bioenergetics I	8	1
BIOL202	Cell Physiology: Bioenergetics II	8	2
BIOL203	Animal Physiology: Bioenergetics III*	8	1
BIOL204	Ecology: Bioenergetics IV	8	2
BIOL211	Introductory Biochemistry	6	1
BIOL212	Plant Physiology	6	1
BIOL224	Plant and Animal Diversity	6	2
BIOL281	Evolution and Ecology of Man	6	1
GEOG291	Biogeography (Science)	8	2
CHEM213	Physical Chemistry II	6	1
ELEC294	Intro. Systems Theory	6	2
MATH234	Statistical Methods	6	3
*Will not be offered in 1981			
CHEMISTRY			
CHEM211	Inorganic Chemistry II	6	2
CHEM212	Organic Chemistry II	6	1
CHEM213	Physical Chemistry II	6	1
CHEM214	Analytical Chemistry II	6	2
CHEM219	The Computer in Science	6	3
COMPUTING SCIENCE			
CSCI201	Computing Science II	12	3
GEOGRAPHY			
GEOG291	Biogeography (Science)	8	2
GEOG296	Arid Landscapes (Science)	8	1
GEOLOGY			
GEOL221	Mineralogy	6	1
GEOL222	Petrology	6	2
GEOL223	Geological Mapping and Stratigraphy I	6	2

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Number	Subject	Credit Points	Session Offered
GEOL224	Palaeontology	6	1
GEOL225	Resource Geology I	6	2
HISTORY AND PHILOSOPHY OF SCIENCE			
HPS216	Scientific Explanation and Scientific Understanding (Science)	6	1
HPS233	The Integration of Biology and Chemistry in the Twentieth Century	6	3
MATHEMATICS			
MATH201	Mathematics IIA	12	3
MATH211	Mathematics IIB	12	3
MATH234	Statistical Methods	6	3
MATH286	Mathematics IIZ	8	3
PHYSICS			
PHYS201	Intermediate Physics A	12	3
PHYS205	Modern Physics	6	3
PHYS211	Intermediate Physics B	12	3
PHYS215	Vibrations, Waves and Optics	6	3
PHYS220	Intermediate Physics for Engineers	12	3
PHYS225	Intermediate Electricity and Magnetism	6	3
PHYS235	Mechanics and Thermodynamics	6	3
PHYS244	Modern Physics, Vibrations, Waves and Optics	8	3
PHYS248	Astronomy	6	3
PSYCHOLOGY			
PSYC246	Research Methods and Statistics in Psychology (Science)	6	1
PSYC234	Psychology of Learning	6	2
<i>300-Level</i>			
BIOLOGY			
BIOL301	Metabolism: Bioenergetics I	8	1
BIOL302	Cell Physiology: Bioenergetics II	8	2



Number	Subject	Credit Points	Session Offered
BIOL303	Animal Physiology: Bioenergetics III*	8	1
BIOL304	Ecology: Bioenergetics IV	8	2
BIOL311	Neurobiology	8	1
BIOL312	Plant Physiology 2	8	2
BIOL381	Evolution and Ecology of Man	6	1
BIOL391	Advanced Biology	16	1 or 2
<b>CHEMISTRY</b>			
CHEM311	Inorganic Chemistry III	8	1
CHEM314	Analytical Chemistry III	8	1
CHEM321	Organic Stereochemistry and Heterocyclics III	8	1
CHEM322	Organic Spectroscopy and Natural Products III	8	2
CHEM323	Physical Chemistry III	8	2
CHEM324	Theoretical Chemistry	8	2
CHEM327	Chemistry and The Environment	8	2
<b>COMPUTING SCIENCE</b>			
CSCI301	Advanced Data Structures and Hardware	12	3
<b>GEOGRAPHY</b>			
GEOG382	Directed Studies in Geography (Science)	6	3
GEOG391	Fluvial Geomorphology (Science)	12	1
GEOG393	Coastal Geomorphology (Science)	12	2
GEOG394	Evolution of Landscape (Science)	8	2
<b>GEOLOGY</b>			
GEOL331	Mineralogy and Petrology	8	1
GEOL332	Sedimentology	8	1
GEOL333	Geological Mapping and Stratigraphy II	8	1
GEOL334	Economic Geology	8	2
GEOL335	Resource Geology II	8	2
GEOL33E	Geophysics	8	1

\* Will not be offered in 1981.

Number	Subject	Credit Points	Session Offered
GEOL337	Structural Geology and Mathematical Geology	8	2
GEOL360	Special Topics in Geology A	6	1
GEOL361	Special Topics in Geology B	6	1
GEOL362	Special Topics in Geology C	6	2
GEOL363	Special Topics in Geology D	6	2
MATHEMATICS			
MATH306	Mathematical Methods A: Integral Transforms and Special Functions *	6	3
MATH307	Mathematical Methods B: Complex Variables and Calculus of Variations *	6	3
MATH308	Mathematical Methods C: Ordinary Differential Equations *	6	1
MATH309	Mathematical Methods D: Partial Differential Equations*	6	2
MATH334	Design and Analysis	6	3
PHYSICS			
PHYS301	Classical Mechanics and Electromagnetism	6	1
PHYS302	Classical Mechanics, Electromagnetism and Plasma Physics	8	1
PHYS306	Project in Physics A	6	1, 2 or 3
PHYS307	Advanced Experimental Physics A	6	1
PHYS308	Advanced Experimental Physics B	6	2
PHYS309	Advanced Experimental Physics	12	3
PHYS311	Quantum and Statistical Mechanics	8	3
PHYS312	Advanced Experimental Physics with Electronics	16	3
PHYS315	Quantum Mechanics and Statistical Mechanics with Electronics	12	3
PHYS316	Quantum Mechanics and Solid State Physics	6	3
PHYS317	Quantum Mechanics and Nuclear Physics	6	3
PHYS318	Quantum Mechanics and High Energy Physics	6	3

Number	Subject	Credit Points	Session Offered
PHYS319	Quantum Mechanics and Astrophysics	6	3
PHYS321	Astro-, Nuclear and Solid State Physics	6	2
PHYS322	Astro-, High Energy, Nuclear and Solid State Physics	8	2
PHYS324	Role of Energy in Microscopic Physics and Chemistry	12	3
PHYS326	Statistical Mechanics and Solid State Physics	6	3
PHYS327	Statistical Mechanics and Nuclear Physics	6	3
PHYS328	Statistical Mechanics and High Energy Physics	6	3
PHYS329	Statistical Mechanics and Astrophysics	6	3
PHYS348	Astronomy	6	3
PSYCHOLOGY			
PSYC336	Experimental Psychology	6	1
PSYC338	Behaviour Modification	6	2
<i>400-Level</i>			
BIOLOGY			
BIOL401	Biology Honours	48	3
CHEMISTRY			
CHEM411	Selected Topics in Chemistry	16	3
CHEM420	Chemistry Honours Project for Full-time Students	32	3
CHEM421	Honours Project Part I for Part-time Students	8	3
CHEM422	Honours Project Part II for Part-time Students	24	3
GEOGRAPHY			
GEOG403	Geography Honours (Science)	48	3
GEOLOGY			
GEOL401	Geology Honours	48	3
GEOL402	Geology Joint Honours	24	1, 2 or 3

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Number	Subject	Credit Points	Session Offered
PHYSICS			
PHYS401	Theoretical Mechanics and Electromagnetism	8	1
PHYS410	Honours Project	18	3
PHYS441	Astro- and Nuclear Physics	8	3
PHYS443	Quantum Mechanics and Statistical Mechanics	12	3
PHYS444	Quantum Mechanics	8	3
PHYS446	Solid State Physics	8	3
PHYS455	Nuclear and Solid State Physics	12	3
PHYS465	Astro- and Solid State Physics	12	3

\*Transitional Subject - Available only in 1981.

## SCHEDULE F

## MATHEMATICS

Set out below in Schedule F are the subjects that may be taken in the Mathematics course. Additional details relating to the subjects listed, such as co- and pre-requisites, are set out in Schedule A.

Number	Subject	Credit Points	Session Offered
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## SUBJECTS APPROVED BY THE FACULTY OF MATHEMATICS

## COMPUTING SCIENCE

*100-Level*

CSCI101	Computing Science I	12	3
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*200-Level*

CSCI201	Computing Science II	12	3
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*300-Level*

CSCI301	Advanced Data Structures and Hardware	12	3
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CSCI321	Software Project	6	2
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CSCI322	Operations Systems	6	1
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*400-Level*

CSCI401	Computing Science IV (Honours)	48	3
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## MATHEMATICS

*100-Level*

MATH101	Mathematics IA	12	3
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MATH102	Mathematics IB	12	3
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*200-Level*

MATH201	Mathematics IIA	12	3
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MATH211	Mathematics IIB	12	3
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MATH221	Mathematics IIC	12	3
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MATH231	Mathematics IID	12	3
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*300-Level*

MATH306	Mathematical Methods A: Integral Transforms and Special Functions*	6	3
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MATH307	Mathematical Methods B: Complex Variables and Calculus of Variations*	6	3
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Number	Subject	Credit Points	Session Offered
MATH308	Mathematical Methods C: Ordinary Differential Equations*	6	1
MATH309	Mathematical Methods D: Partial Differential Equations*	6	2
MATH311	Mathematical Methods: Differential Equations and Special Functions**	6	1
MATH312	Numerical Analysis A	6	1 or 2
MATH313	Numerical Analysis B	6	1 or 2
MATH314	Ocean Dynamics	6	2
MATH315	Mathematical Modelling	6	1 or 2
MATH316	Continuum Mechanics	6	1 or 2
MATH321	Functional Analysis	6	1 or 2
MATH322	Abstract Algebra	6	1 or 2
MATH323	Logic and Set Theory	6	1 or 2
MATH324	Topology and Complex Analysis	6	1 or 2
MATH325	Differential Equations**	6	1 or 2
MATH331	Time Series	6	1 or 2
MATH332	Multiple Regression and Analysis of Variance	6	1 or 2
MATH333	Decision Theory	6	1 or 2
MATH335	Advanced Topics in Statistics	6	1 or 2
MATH336	Applied Probability Models	6	1 or 2
MATH337	Operations Research	6	1 or 2
MATH338	Population Dynamics	6	1 or 2
<i>400-Level</i>			
MATH401	Mathematics IV (Honours)	48	3

\*\*Not available until 1982

\*Transition Subject - Available only in 1981.

## DEFINITIONS

The terms used to categorize publications listed in the Description of Subjects section have been defined as follows:

### *TEXTBOOK*

A textbook is a publication considered an essential aid in the study of a subject. A student is required to have a textbook available for regular reference in class and during private study. The University reserves the right to change textbooks where difficulties of supply occur.

(The textbooks listed in this Calendar may be purchased from the University Co-operative Bookshop.)

### *PRELIMINARY READING*

Publications listed under the heading - *PRELIMINARY READING* - supply the background knowledge required by a student *before* he can properly understand and participate in the classes conducted in a subject or in certain parts of a subject.

NOTE: Publications additional to those listed in this Calendar under *PRELIMINARY READING* or *TEXTBOOKS* may be recommended by tutors and lecturers during the year. Students are advised to check with the relevant Department whether a list of *RECOMMENDED READING* is available for each subject being studied.

Students *are not required* to purchase publications listed as *PRELIMINARY READING* but may be advised, in some cases, to own major references. These publications are available for borrowing and/or for consultation in the University Library.

## DESCRIPTION OF SUBJECTS

### ACCOUNTANCY

The Accountancy Department offers a three-year sequence of subjects which may be studied full time or part time, for the BA or BCom degrees. The subjects required for the BCom degree specialising in Accountancy are shown in Schedules B-1 and B-2. The accountancy content necessary in order to obtain "a substantial and coherent study at 300-level" for a BA degree requires subjects aggregating 52 credit points, which is less than that prescribed for the BCom degree in accountancy. Students may also study accountancy subjects in the BMath degree. Students with good academic records, particularly in third year, are encouraged to enrol in the Honours degree, completion of which requires a further year of full time study or equivalent. Studies may also be undertaken for the MCom degree which, for students holding an Honours degree, requires a further year of full time study, and may include additional subjects or a thesis. A graduate Diploma in Accountancy, comprising one year of full time study or equivalent, is also available for graduates from other disciplines or for accountancy students wishing to take further subjects from the Department.

The sequence of accounting subjects is designed to provide a comprehensive understanding of the conceptual basis of accounting and the application of these ideas to the management and accountability of both business and government enterprises. Concurrent studies in law give a broad introduction to the legal environment - a necessity for today's managers in commerce and industry.

Commencing in 1981 students may specialise in management studies for the BCom degree. Details of the subjects required for the specialisation are shown in Schedule B-5.

Throughout the subjects emphasis is upon mastery of ideas and stimulation of ability, thus providing a foundation for personal and professional development. While a BCom degree course including appropriate accounting and legal subjects is a suitable preparation for entry into the accountancy profession, the scope and orientation is much broader than for this purpose alone.

In addition to the two main streams of financial accounting (external financial reporting) and management accounting (internal financial reporting), advanced courses in business finance, information systems in accounting, taxation and legal studies, together with other electives are offered, subject to availability of staff and student demand. Students are also encouraged to complement their main area of study by selection of relevant subjects from other departments, particularly Computing Science, Economics, Mathematics, Psychology and Sociology. A combined specialisation in Accountancy and Economics is available for the BCom degree.

The following combinations of subjects provide a "substantial and coherent study" at 300-level for the BA degree:

- (a) Either Accounting & Financial Management IIIA or IIIB plus any other 300-level subjects offered by the Accountancy Department aggregating not less than 12 credit points.
- (b) Either Accounting & Financial Management IIIA or IIIB plus any subject at 300-level aggregating not less than 12 credit points offered by either the Economics Department or the Mathematics Department.
- (c) Either Accounting & Financial Management IIIA or IIIB together with other subjects at 300-level offered by the Department aggregating not less than 18 credit points PLUS subjects aggregating not less than 6 credit points selected from any of the following:

- (i) subjects at 300-level offered by the Psychology Department,
- (ii) Geography of Transport Systems; Population Geography; Regional Planning and Development,
- (iii) any other subjects at 300-level approved by the Chairman of Department.

*Note:* Textbook references below refer to the latest edition unless otherwise specified.

### *Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A and many are included specifically in Schedule B.

### 100-LEVEL

#### **ACCY101 ACCOUNTING AND FINANCIAL MANAGEMENT I**

*Double session; 12 credit points (2 lectures, 1 tutorial per week, 1 workshop per week)*

*Assessment:* Assignment(s), essay(s) and examination(s)

An introduction to financial and management accounting, including the double entry recording system, the accounting cycle, profit measurement, financial reporting, cost accounting and management accounting.

#### **TEXTBOOKS**

Thacker, R. J. *Accounting Principles*. Prentice Hall.

Hornigren, C. T. *Cost Accounting*. Prentice Hall.

Norkett, P. T. C. & Norkett, C.A. *Questions and Answers in Accountancy*. Longman.

#### **ACCY163 INTRODUCTION TO LAW**

*Double Session; 12 credit points (2 lectures, 2 tutorials per week)*

*Assessment:* Assignment(s), essay(s) and examination(s)

A study of the overall framework of law in Australia, the sources, classifications and terminology of law, the judicial process, legal reasoning, materials and methodology; an introduction to the law of property including trusts; a detailed examination of the common law governing contractual relationships together with an outline of relevant statutory modifications, including an introduction to the sale of goods and consumer law; the special contract of insurance and the law of principal and agent.

#### **TEXTBOOKS**

Lane, P.H. *An Introduction to the Australian Constitution*. 2nd ed. Law Book Co., 1977.

Collinge, J. *Tutorials in Contract*. 2nd ed. Law Book Co., 1974.

Vermeesch, R.B. and Lindgren, K.E. *Business Law in Australia*. Butterworths.

### 200-LEVEL

#### **ACCY214 ACCOUNTING AND FINANCIAL MANAGEMENT IIA**

*First session; 8 credit points (2 lectures, 2 tutorials per week)*

*Assessment:* assignments, essay(s) and examination(s)

The design, production and use of accounting and other quantitative information

in the planning and control of organisations, with particular reference to manufacturing activities and to long and short-term decision-making and financial planning.

**TEXTBOOKS**

Chase, R.B. & Aquilano, N.J. *Production and Operations Management*. Irwin.  
Dopuch, N., Birnberg, J.G. & Kemski, J. *Cost Accounting*. Harcourt Brace Jovanovich Inc.  
Horngren, C. T. *Cost Accounting: A Managerial Emphasis*. Prentice-Hall.

**ACCY204 ACCOUNTING AND FINANCIAL MANAGEMENT IIB**

*Second session; 8 credit points (2 lectures, 2 tutorials per week)*  
*Assessment:* assignments, essay(s) and examination(s)

A critical examination of concepts and problems in income measurement and financial reporting for various forms of undertaking with particular reference to corporate organisations, including associated aspects of auditing and taxation.

**TEXTBOOKS**

Johnston, T.R., Jager, M.O. & Taylor, R.B. *Company Accounting*. Butterworths.  
Ryan, J.B., Heazlewood, C.T., & Andrew, B.H. *Australian Company Financial Reporting: 1980*. Australian Accounting Research Foundation.  
Taylor, R.B. & O'Shea, B.P. *Questions on Company Accounting*. Butterworths.  
*The Companies Act 1961 (as amended)*. Government Printer, Sydney.

**ACCY212 BUSINESS ORGANISATION AND POLICY**

*Second session; 6 credit points (2 lectures, 1 tutorial per week)*  
*Assessment:* assignments, essay(s) and examination(s)

The relationship of organisation theories and behavioural considerations to the functions of management and of accounting, with particular reference to organisation structures, communication, motivation, inter-personal and inter-group relationships and decision processes. Corporate strategy, policy formulation and integration of business functions.

**TEXTBOOKS**

Hampton, D.R., Summer, C.E. & Webber, R.A. *Organisational Behaviour and the Practice of Management*. Scott, Foreman & Co.  
Huse, E.F. *The Modern Management*. West Publishing Co.  
Lawless, D.J. *Organisational Behaviour*. Prentice-Hall.

**ACCY213 MARKETING POLICY**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*  
*Assessment:* Assignments, essay(s), case studies, and examination(s)

Marketing as an integrated strategy including re-examination of existing products; opportunities and problems of new products; sales organisation, and sales promotion, packaging and pricing.

**TEXTBOOKS**

To be advised.

**ACCY215 SMALL BUSINESS MANAGEMENT**

*First or second session; 6 credit points (2 seminars per week)*  
*Assessment:* assignments, case studies, examination(s)



An examination of the determinants of performance levels in small business including functional skills, personal characteristics of owner/managers, key problem areas and corrective strategies; steps to be taken in setting up a small business; and the provision of assistance to small business managers.

### TEXTBOOKS

Cohn, T. & Lindberg, R.A. *Survival and Growth: Management Strategies for the Small Firm*. American Management Association.  
Meredith, G.G. *Small Business Management*. McGraw Hill.

## ACCY216 OPERATIONS MANAGEMENT

*First or second session; 6 credit points*

*Assessment:* Assignments, essay(s) and examination(s)

A study of the different types of production and operations and their implications for management - including an overview of capacity, facility and layout planning, problems of job design and work measurement, production scheduling, inventory and quality control and management of the conversion process in a time of change.

### TEXTBOOK

Gaither, Norman. *Production and Operations Management*. The Dryden Press, 1980.

## ACCY224 BUSINESS FINANCE

*Second session; 8 credit points (2 lectures, 2 tutorials per week)*

*Assessment:* assignments, essay(s) and examination(s)

The finance function, with particular reference to corporate financing, financial policy and financial management including aspects of Australian financial institutions and the development of theories of financial structure.

### TEXTBOOKS

Boudreaux, K.J. & Long, H.W. *The Basic Theory of Corporate Finance*. Prentice-Hall.  
Peirson, C.G. & Bird, R.G. *Business Finance*. McGraw-Hill.

## ACCY234 INFORMATION SYSTEMS IN ACCOUNTING

*First session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Management information systems, including data collection and processing, internal control and internal reporting. System design and computer applications.

### TEXTBOOKS

Jeffrey, D.R. & Dale, B. *Computer Based Business Systems*. Prentice-Hall, 1980.  
Page, J.R. & Hooper, H.P. *Accounting and Information Systems*. Reston Publishing Co., 1979.

## ACCY254 TAXATION LAW

*Second session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Income tax law and practice.

### TEXTBOOKS

Barrett, R. *Principles of Income Taxation*. Butterworths.

*Income Tax Assessment Act, 1936 - 1980.* Australian Government Printer.  
Mannix, E.F. *Australian Income Tax Leading Cases.* Butterworths.  
Mannix, E.F. & Harris, D.W. *Australian Income Tax Guide.* Butterworths.

## ACCY264 BUSINESS LAW II

*First session; 8 credit points (2 lectures, 1 tutorial per week)*  
*Assessment:* assignments, essay (s) and examination(s)

Business Law of Partnerships and Companies.

### TEXTBOOKS

Afterman, H.B. & Baxt, R. *Cases and Materials on Corporations and Associations.* Butterworths.  
Ford, H.A.J. *Principles of Company Law.* Butterworths.  
*N.S.W. Companies Act and Regulations* (latest edition), CCH.  
Vermeesch, R. & Lindgren, K. *Business Law of Australia.* Butterworths.

## ACCY265 LAW OF EMPLOYMENT

*First session; 6 credit points (2 lectures, 1 tutorial per week)*  
*Assessment:* assignments, essay (s) and examination(s)

Formation, content and termination of employment contract; common law duties of employees and employers including their liability to third parties. Workers compensation legislation. Annual, sick and long service leave.

### TEXTBOOKS

Macken, J.J., McCarry, G.J., & Moloney, C. *The Common Law of Employment.* The Law Book Co.  
Marks, F. *Workers Compensation Law in New South Wales. . . .An Outline.* CCH, Australia.  
Sykes, E.J. & Yerbury, D. *Labour Law in Australia.* Butterworths, 1979. Vol. 1.  
Sykes, E.J. *The Workers Compensation Act. 1926 (N.S.W.) as amended.*

## ACCY281 GOVERNMENT ACCOUNTING AND FINANCIAL MANAGEMENT

*First session; 6 credit points (2 lectures, 1 tutorial per week)*  
*Assessment:* assignments, essay (s) and examination(s)

An introduction to federal, state, regional and local government accounting and financial management including the accounts of government trading corporations and statutory bodies.

### TEXTBOOKS

Jay, W.R.C. & Mathews, R.L. eds. *Government Accounting in Australia.* Cheshire.  
Levy, V.M. *Public Financial Administration.* The Law Book Co.  
*The Audit Act 1901 (as amended).* The Australian Government Printer, Canberra.

## ACCY282 ACCOUNTING FOR SELECTED ENTITIES

*First session; 6 credit points (2 lectures, 1 tutorial per week)*  
*Assessment:* assignments, essay (s) and examination(s)

Accounting for certain entities to be selected by Chairman of Department. (N.B. The selection would be made from entities such as building societies, finance companies, governmental units, primary producers, trusts, etc. on the basis of staff available).

**TEXTBOOKS**

To be advised by the Departmental Chairman.

**300-LEVEL****ACCY302 ACCOUNTING AND FINANCIAL MANAGEMENT IIIA**

*First session; 12 credit points (2 lectures, 2 tutorials per week)*

*Assessment:* assignments, essay(s) and examination(s)

Financial Accounting: Advanced aspects of financial accounting and reporting with particular reference to development in accounting theory and professional standards, including the financial and accounting aspects of mergers and group companies.

**TEXTBOOKS**

Johnston, T.R., Jager, M.O. & Taylor, R.B. *Company Accounting*. Butterworths.  
Taylor, R.B. & O'Shea, B.P. *Questions on Company Accounting*. Butterworths.  
*The Companies Act 1961 (as amended)*. Government Printer, Sydney.

The Institute of Chartered Accountants in Australia. *Statements of Accounting Standards and Statements on Accounting Practice and (current) Preliminary Exposure Drafts*. Sydney.

*Note:* Reading is required from a wide range of references, including books and journal articles. Details will be provided in the subject programme.

**ACCY303 SELECTED ISSUES IN FINANCIAL ACCOUNTING**

*First session; 6 credit points (2 seminars, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Selected issues in external reporting, including issues in international accounting and comparative accounting standards.

**TEXTBOOKS**

As for Accounting & Financial Management IIIA

plus

Bedford, N.M. *Income Determination Theory: An Accounting Framework*. Addison-Wesley.

Berg, K.B., Mueller, G.G. & Walker, L.M. eds. *Readings in International Accounting*. Houghton Mifflin Co., Boston.

Cowan, T.K. & Kenley, W.J. *Case Studies in Financial Accounting*. Butterworths.

**ACCY312 ACCOUNTING AND FINANCIAL MANAGEMENT IIIB**

*Second session; 12 credit points (2 lectures, 2 tutorials per week)*

*Assessment:* assignments, essay(s) and examination(s)

Management Accounting: An advanced treatment of management accounting theory and applications including statistical cost analysis, cost accounting control systems, budgetary and strategic planning and decision models.

**TEXTBOOKS**

Dopuch, N., Birnberg, J.G. & Demski, J. *Cost Accounting*. Harcourt Brace Jovanovich Inc.

Fatseas, V.A. *Operations Research in Business - An Introduction*. School of Accountancy, University of N.S.W.

Lawler, E.E. & Rhode, J.G. *Information and Control in Organisations*. Goodyear.

Miller, D.W. & Starr, M.K. *Structure of Human Decisions*. Prentice-Hall.

### **ACCY313 SELECTED ISSUES IN MANAGEMENT ACCOUNTING**

*Second session; 6 credit points (2 seminars, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Selected issues in management accounting, including international management accounting.

#### **TEXTBOOKS**

As for Accounting and Financial Management IIIB

*plus*

Anthony, R.N., Dearden, J. & Vancil, R.F. *Management Control Systems*. Irwin.

### **ACCY 314 ORGANISATION PLANNING AND STRATEGY**

*First session; 6 credit points*

*Assessment:* assignments, essay(s) and examinations

Policy formulation and planning functions in business enterprise.

#### **TEXTBOOKS**

Andrews, K. *The Concept of Corporate Strategy*. Irwin, 1980.

Christensen, R.C., Berg, N. and Salter, M.S. *Policy Formulation and Administration*. 8th ed., Irwin, 1980.

### **ACCY315 MARKETING STRATEGY**

*Second session; 6 credit points (2 seminars per week)*

*Assessment:* Seminar papers, case studies, examination(s)

In depth studies of several diverse marketing problems covering a variety of markets, such as capital goods, services, consumable products and household durables.

#### **TEXTBOOKS**

To be advised.

### **ACCY322 ADVANCED BUSINESS FINANCE**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Advanced aspects of corporate financial management, growth strategies, combinations and reorganisations; theories and models of capital structure and cost of capital.

#### **TEXTBOOKS**

No prescribed textbooks.

### **ACCY332 ADVANCED INFORMATION SYSTEMS IN ACCOUNTING**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Advanced aspects of communication and information theory, system evaluation, design, implementation and management, accounting and associated computer applications, and software development.



**TEXTBOOKS**

- Davis, G.B. *Management Information Systems: Conceptual Foundations, Structure and Development*. McGraw-Hill.  
 Jeffery, D.R. & Dale, B. *Computer Based Business Systems*. Prentice-Hall.  
 Orilia, L.S., Stern, N. & Stern, R.A. *Business Data Processing Systems*. Wiley.

**ACCY342 ADVANCED AUDITING**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Advanced aspects of auditing, including auditing standards and responsibilities, problems of valuation and verification, organisation and application to various forms of accounting systems including computer systems, and investigations.

**TEXTBOOKS**

- Fraser, D.J. & Aiken, M.E. *Stettler's Systems Based Audits*. Prentice-Hall.  
 Mautz, R.K. & Sharaf, H.A. *The Philosophy of Auditing*. American Accounting Association.

**ACCY352 ADVANCED TAXATION LAW**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Advanced aspects of taxation law and an examination of other taxes including sales tax, stamp duty, payroll tax, death duty and estate duty.

**TEXTBOOKS**

- Income Tax Assessment Act 1936-78*. Australian Government Printer, Canberra.  
*Income Tax (International Agreements) Act 1953-69*.  
 Irving, H.R. *The Value on which Sales Tax is Payable*. Taxation Institute of Australia.  
 Mannix, E.F. & Harris, D.W. *Income Tax Guide*. Butterworths.  
 Sweeney, C.A. & Telfer, J.H. *Revenue Law in Australia*. Butterworths.

**ACCY362 INDUSTRIAL PROPERTY LAW**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

Copyright, patents, trademarks, industrial design, trade secrets.

**TEXTBOOKS**

- Vermeesch, R.B. & Lindgren, K.E. *Business Law of Australia*. Butterworths.  
*Copyright Act 1968* (Commonwealth). Australian Government Printer, Canberra.  
*Designs Act 1906* (Commonwealth). Australian Government Printer, Canberra.  
*Patents Act 1952* (Commonwealth). Australian Government Printer, Canberra.  
*Trade Marks Act 1955* (Commonwealth). Australian Government Printer, Canberra.

**ACCY363 ADMINISTRATIVE LAW**

*Second session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* assignments, essay(s) and examination(s)

The role of administration in controlling relationships between individuals, the state and public authorities, including the constitutional setting; legislation and delegated legislation; "Henry VIII" clauses, privative clauses; rules of natural justice, judicial review of administrative action, prerogative writs; injunctions and declaratory judgments; administrative tribunals; public authorities; legal



position of the Crown; privilege; Ombudsmen, etc.

#### TEXTBOOKS

Brett, P. & Hogg, P.W. *Cases and Materials on Administrative Law with 1978 supplement*. Butterworths.  
*Commonwealth Administrative Review Committee Report*. August 1971, Parliamentary Paper No. 144, Commonwealth Government Printing Office.  
Whitmore, H. & Aronson, M. *Review of Administrative Action*. The Law Book Co.

### ACCY364 BUSINESS LAW III

*Second session; 6 credit points (2 lectures, 1 tutorial per week)*  
*Assessment*: assignments, essay(s) and examination(s)

Business law encompassing consumer protection, trade practices, banker and customer, bankruptcy, insurance, guarantee and suretyship.

#### TEXTBOOKS

Sale of Goods Act, 1923. N.S.W. Government Printer.  
Taperell, G.Q., Vermeesch, R.B., Harland, D.J. *Trade Practices and Consumer Protection*. Butterworths, Sydney.  
*Trade Practices Act, 1974*. Commonwealth Government Printer.  
Vermeesch, R.B., & Lindgren, K.E. *Business Law of Australia*. Butterworths, Sydney.

### ACCY365 LABOUR RELATIONS LAW

*Second session; 6 credit points (2 lectures, 1 tutorial per week)*  
*Assessment*: assignments, essay(s) and examination(s)

Constitutional background. Collective relationships of employees/employers. Commonwealth and State industrial tribunals. Trade Unions. Strikes and Lock-outs.

#### TEXTBOOKS

*Conciliation and Arbitration Act 1904* (Commonwealth). Australian Government Printer, Canberra.  
Cullen, C.L. & Peterson, R.J. *An Outline of Industrial Law*. The Law Book Co.  
*Industrial Arbitration Act 1904 (N.S.W.)* Government Printer, Sydney.  
Macken, J.J. *Australian Industrial Law: The Constitutional Basis*. The Law Book Co.  
McCallum, R.C. & Tracey, R.R.S. *Cases and Materials on Industrial Law*. Butterworths, 1979.  
Sykes, G.I. & Yerbury, D. *Labour Relations Law in Australia*. Butterworths, 1979, Vol. II. by Yerbury.  
*Trade Union Act 1881 (N.S.W.)*. Government Printer, Sydney.

### ACCY366 SELECTED ISSUES IN LEGAL STUDIES

*First and/or second session; 6 credit points (3 tutorials/seminars per week)*  
*Assessment*: assignments, essay(s) and examination(s)

Topics for in-depth study may be selected from legal subjects appearing in the Calendar. (N.B. The selection would be made by the Departmental Chairman, taking into account the expertise of academic staff, including visiting staff, and the interests of students).

#### TEXTBOOKS

References will be provided for individual students according to the area of study selected.

**ACCY372 TOPICS IN ACCOUNTING HISTORY**

*First or second session; 6 credit points*

*Assessment:* Assignments, essay(s) and examination(s)

Topics in the history and development of accounting thought.

**TEXTBOOKS**

No prescribed textbooks.

400-LEVEL \*

**ACCY403 ACCOUNTING THEORY**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

The nature of research, theory formation and validation. The nature of accounting. A study of the methods used in accounting theory formation, and of attempts to formulate theories of accounting.

**ACCY404 FINANCIAL ACCOUNTING**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

The objectives and functions of external financial reporting, including periodic profit measurement. Evaluation of accounting measurement methods including historical cost, general price level, current value and relative price change models. Communication in accounting reports.

**ACCY405 INTERNATIONAL ACCOUNTING**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

Differences in accounting thought and standards between countries. Influence of national outlook and policies and of economic infra-structure on accounting practice. Accounting developments in State-controlled economies and in developing countries. Comparative study of accounting in developed nations. Uniform systems of accounting. Corporate growth and its impact on accounting and auditing. Comparative study of auditing and reporting standards, and international aspects of public accounting practice. The multi-national corporation. The effect of changing price levels on accounting for international operations.

**ACCY406 ISSUES IN FINANCIAL ACCOUNTING**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

Contemporary issues in financial reporting to external parties, including accounting for different classes of assets, liabilities and equities. Legal, institutional and professional reporting requirements including proposals for improvement in accounting principles applied in practice.

\* There are no prescribed textbooks. Reading is required from a wide variety of references, including books and journal articles. Specific recommendations may be obtained from the Accountancy Department.

### **ACCY413 MANAGEMENT ACCOUNTING**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

The conceptual basis of management accounting and information systems. Management systems and the management process. Business objectives: multiple and conflicting goals. Qualification of objectives. Information theory and communication within organisation. Developments in decision models, project and period planning, budgetary models and control systems, and measurement of performance, including motivation and behavioural considerations.

### **ACCY414 MANAGEMENT PLANNING AND CONTROL**

*6 credit points(1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

Planning and control problems of decentralised organisations. Budgeting for and control of expense centres. Evaluation of managerial performance. Non-profit measures of performance. Inter-divisional arrangements. Internal profit measurement and transfer pricing. Administration of the capital budget. Organisation, staffing and appraisal of the accounting and information services.

### **ACCY415 CAPITAL INVESTMENT**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

An in-depth study of capital investment decision analysis. The theoretical bases of net present value and internal rate of return selection criteria. The application of investment selection criteria under diverse conditions such as capital rationing, mutually exclusive choice situations, buy/lease decisions, fluctuating rates of capital and inflation. The incorporation of risk into capital investment decision analysis, including the application of capital asset pricing models to investment evaluation.

### **ACCY416 STUDIES IN CONTROLLERSHIP**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

The role and functions of the Chief Accounting Officer. Designing, installing and managing accounting systems - both financial and managerial. Specific problem areas in controllership, as depicted in selected case studies.

### **ACCY423 SECURITY EVALUATION AND PORTFOLIO MANAGEMENT**

*6 credit points ( 1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

The theory of optimal investment decisions. Cost of capital. Introduction to portfolio theory and capital markets. Portfolio analysis. Sources of investment information. Investment media and strategies. Analysis of corporate performance and securities.

### **ACCY424 CORPORATE FINANCIAL INFORMATION ANALYSIS**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A survey of methods for the appraisal and prediction of corporate financial

performance from such publicly available information as accounting numbers, industry and economic statistics, and stock market data. Equal emphasis is placed upon the development of theoretical constructs, and appraisal of the results of empirical research, especially Australian studies.

### **ACCY433 STUDIES IN INFORMATION SYSTEMS IN ACCOUNTING**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

Studies of particular computer applications in accounting. Specific problem areas as depicted in selected case studies.

### **ACCY443 AUDITING AND ACCOUNTING INFORMATION SYSTEMS**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

The general principles of auditing applied to the audit of computer-based accounting systems and the use of computers as an auditing tool.

Particular emphasis on the positive aspects of auditing and internal control, including their contribution towards improvements in:

- (a) management functions such as planning, and
- (b) the quality (both real and perceived) of information flows within an entity and between it and external parties.

### **ACCY453 STUDIES IN TAXATION**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

The statutory and common law foundations of the Federal Income tax system. Common law concepts of income and capital and statutory modifications and interpretations of these concepts. Legal and accounting approaches to taxable income. Tax and estate planning concepts. Tax avoidance and evasion. Tax incidence and equity. An examination of tax policies, provisions and problems relating to special entities - and special provision areas, such as primary producers, mining and petroleum industries, non-residence, foreign-controlled companies and royalty provisions. International aspects of Australian income tax including double tax agreements.

### **ACCY463 JURISPRUDENCE**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A study of theories on the nature and purpose of law.

### **ACCY464 STUDIES IN BUSINESS LAW**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A detailed examination of the law relating to selected aspects of business organisation, including the law relating to the nature and formation of partnership, mergers and takeovers, insider trading, and securities.



### **ACCY465 STUDIES IN ADMINISTRATIVE LAW**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations.

A detailed examination of the legal problems raised for individual citizens in the exercise of Governmental or other public powers. Particular topics include delegated legislation, ministerial responsibility, statutory corporations and administrative tribunals, Crown proceedings; and the statutory and common law procedures which may be invoked to counter allegations of maladministration or illegality including the Administrative Appeals Tribunals, judicial review and ombudsmen.

### **ACCY466 STUDIES IN INDUSTRIAL LAW**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A detailed examination of the law (including some comparative law) relating to selected aspects of employment relationships including industrial accidents, job security, registration and control of trade unions, picketing, the right to work and closed shop agreements, and conciliation and arbitration and collective bargaining.

### **ACCY467 STUDIES IN TRADE PRACTICES AND CONSUMER LAW**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A detailed examination of restrictive trade practices and the development of the law to counter them including the role of the Commonwealth and New South Wales agencies which administer the relevant Acts.

### **ACCY473 HISTORY OF ACCOUNTING THOUGHT**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

An examination of the environmental factors and processes by which accounting thought, practices and institutions originated and developed in the ancient, mediaeval and modern eras. Ancient accounts. Special-purpose account-keeping in the Middle Ages. Philosophy, influence and constraints of the double-entry system. Development of basic concepts of continuity, accrual accounting and limited liability. Impact of the Industrial Revolution and changing corporate environment on accounting development. Legislation and institutional influences on accounting.

### **ACCY483 STUDIES IN GOVERNMENT ACCOUNTING**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A detailed examination of selected areas in federal, state, regional or local government accounting.

### **ACCY485 SPECIAL TOPIC IN ACCOUNTING – A**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A special topic to be selected from any area of financial accounting, management accounting, business finance, information systems or government accounting. (N.B. The selection would be made by the Departmental Chairman, taking into



account the expertise of academic staff, including visiting staff, and the interest of students.)

### **ACCY486 SPECIAL TOPIC IN ACCOUNTING – B**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A special topic to be selected from any area of financial accounting, management accounting, business finance, information systems or government accounting. (N.B. The selection would be made by the Departmental Chairman, taking into account the expertise of academic staff, including visiting staff, and the interest of students.)

### **ACCY487 SPECIAL TOPIC IN LAW – A**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A special topic to be selected from any area of commercial law. (N.B. The selection would be made by the Departmental Chairman taking into account the expertise of academic staff, including visiting staff, and the interest of students.)

### **ACCY488 SPECIAL TOPIC IN LAW – B**

*6 credit points (1 seminar per week)*

*Assessment:* seminars, essay(s) and examinations

A special topic to be selected from any area of commercial law. (N.B. The selection would be made by the Departmental Chairman taking into account the expertise of academic staff, including visiting staff, and the interest of students.)

### **ACCY493 RESEARCH ESSAY**

*12 credit points*

Information may be obtained from the Departmental Chairman regarding the research essay.

**BIOLOGY**

The Department of Biology offers a first year course which assumes no previous experience in biology. This course is intended to provide both a general biological education for those who do not proceed further in the subject, as well as an adequate background for those who do. At the present time, the second and third year syllabus deals largely with biochemistry, physiology and ecology with emphasis on biological energetics, biological regulation and, to some extent, on environmental biology. Honours and higher degree research projects can be undertaken within the general areas of animal physiology, microbial physiology, plant physiology, biochemistry and ecology. Expansion of the Department will extend the scope of the syllabus and the range of specialization within the Department, but emphasis will continue to be placed on functional rather than descriptive biology.

Career opportunities exist in most of the major outlets for graduates in the biological sciences.

The structure and organisation of the Biology syllabus will be changed in 1982. Students should consult Academic Advisers about the effects of these changes on their selection of 200-level subjects in 1981.

*General Statement of Assessment Methods*

Students are assessed on performance in practical work, written assignments, short written examinations during the session and one written examination at the end of each session.

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedules A and E.

**100-LEVEL****BIOL102 GENERAL BIOLOGY**

*Double session; 12 credit points (2 hrs lectures, 4 hrs practical/tutorial per week)*

*Syllabus:* Properties and characteristics of living systems. Introduction to the classification of living organisms. Introduction to genetics, biochemistry and cell physiology. The anatomy and physiology of higher plants and animals. Growth and differentiation; life cycles. The biology of microorganisms and viruses. Evolution Ecology.

**TEXTBOOK**

Curtis, H. *Biology*. 3rd ed. Worth, 1979.

*Requirements for Practical Work:* Students will be notified of equipment required for practical work. This must be purchased before the first practical class.

**200-LEVEL****CHEM213 PHYSICAL CHEMISTRY II**

Recommended for Bioenergetics I and II. Refer to "Description of Subjects - Chemistry."

**ELEC294 INTRODUCTORY SYSTEMS THEORY**

A subject given by the Department of Electrical Engineering primarily for Biology students and is recommended for progression in Biology.

Refer to "Description of Subjects - Electrical Engineering."

## GEOG291 BIOGEOGRAPHY (SCIENCE)

Refer to "Description of Subjects - Geography."

### BIOL201 METABOLISM: BIOENERGETICS I

*First session; 8 credit points (2 lectures, 4 hrs practical/tutorial per week)*

Cellular methods of energy conservation (oxidation-reduction potentials, electrochemical gradients, "high energy" compounds). Phosphorylation mechanisms (Photophosphorylation, oxidative phosphorylation, substrate-level phosphorylation). Aerobic energy metabolism in autotrophic and heterotrophic organisms. Anaerobic metabolism in autotrophic and heterotrophic organisms. Regulation of energy metabolism. Energy requirements for biosynthesis and growth.

#### TEXTBOOK

Lehninger, A.L. *Biochemistry*. 2nd ed. Worth Publishers, N.Y., 1975.

### BIOL202 CELL PHYSIOLOGY: BIOENERGETICS II

*Second session; 8 credit points (2 lectures, 4 hrs practical/tutorial per week)*

Structure of microbial, plant and animal cells. Maintenance of the intracellular environment. Diffusion across membranes. Water relations of cells. Distribution of ions across membranes. Active and passive transport. Cell membrane transport systems. Energy processing within cells, the function of organelles, fluxes of metabolites. Mechanical work by cells. Entropy and information in cells.

#### TEXTBOOK

Nobel, P.S. *Introduction to Biophysical Plant Physiology*. W.H. Freeman, 1974.

### BIOL203 ANIMAL PHYSIOLOGY: BIOENERGETICS III

*First session; 8 credit points (2 lectures, 4 hrs practical/tutorial per week)*

Energy metabolism of multicellular organisms, the effect of body size. Nutrition in animals. Digestion and absorption of food. Respiration and the transport of oxygen. Blood circulation. Energetics of locomotion and the physiology of muscle. Poikilothermy and homeothermy. Water and solute metabolism. Environmental adaptation. Energy balance and the physiology of starvation and obesity.

#### TEXTBOOK

Schmidt-Nielsen, K. *Animal Physiology - Adaptation and Environment*. Cambridge University Press, 1975.

### BIOL204 ECOLOGY: BIOENERGETICS IV

*Second session; 8 credit points (2 lectures, 4 hrs practical/tutorial per week plus a 4-day field camp in the mid-session break.)*

Properties of terrestrial and aquatic environments. Homeostasis, distribution and evolution of individual organisms. Population ecology. Ecological energetics. Some specific aspects of ecology including microbial ecology, behavioural ecology and wildlife management.

#### TEXTBOOK

Ricklefs, R.E. *The Economy of Nature*. Chiron Press, 1976.

or

Ricklefs, R.E. *Ecology*. 2nd ed. Nelson, 1979.

### **BIOL211 INTRODUCTORY BIOCHEMISTRY**

*First session; 6 credit points (2 lectures, 4 hrs practical/tutorial per week)*

*Assessment:* Assessment of practical work, two 30-minute written tests, one final 2-hour written examination.

This subject is intended to serve primarily as an introduction to Bioenergetics I and II. It is, nevertheless, a self-contained course in biochemistry and can be taken without an intention to progress further in biology. Major topics covered include the chemistry and biochemistry of proteins, carbohydrates, lipids and nucleic acids; properties of lipoproteins membranes; enzymes and enzyme catalysis; intermediary metabolism; biochemical evolution.

#### **TEXTBOOKS**

Conn, E.E. & Stumpf, P.K. *Outlines of Biochemistry*. 4th ed. John Wiley and Sons Inc., New York, 1976.

or

Lehninger, A.L. *Biochemistry*. 2nd ed. Worth Publishers, New York, 1975. (Lehninger is recommended for students intending to proceed to Bioenergetics I).

### **BIOL212 PLANT PHYSIOLOGY**

*First session; 6 credit points (2 lectures, 4 hrs practical/tutorial per week)*

*Syllabus:* The processes of growth and development in flowering plants. Interaction with aerial and soil environments. Regulatory factors; quality, duration and intensity of light; temperature; limiting nutrients. The hormone concept and plant growth substances. The emphasis of this subject will be on structure-function relations at every level: molecular, cellular, tissue and whole organism.

#### **TEXTBOOK**

Salisbury, F.B. & Ross, C.W. *Plant Physiology*. 2nd ed. Wadsworth, 1979.

### **BIOL224 PLANT AND ANIMAL DIVERSITY**

*Second session; 6 credit points (2 lectures, 4 hrs practical/tutorial per week)*

The course provides a broad survey of the animal and plant kingdoms emphasising the unity of structure and diversity of form of living things. The co-evolution of plants and animals is examined. Attention is paid to the principles of phylogenetic classification based on comparative anatomy and morphology of the major phyla. Practical sessions are concerned with examining and identifying representative examples. Field trips provide the opportunity to gain familiarity with the local fauna and flora. Pre-requisite or co-requisite for BIOL204/304 Ecology: Bioenergetics IV.

#### **TEXTBOOK**

Beadle, N.C.W., Evans, O.D. & Carolin, R.C. *Flora of the Sydney Region*. Reed, 1976.

### **BIOL281 EVOLUTION AND ECOLOGY OF MAN**

*First session; 6 credit points (3 lectures, 1 tutorial per week)*

*Assessment:* Two written assignments. One final 3-hour written exam.

This is a broadly based subject which is not an alternative to Ecology: Bioenergetics IV. It is intended for mature students but there are no formal pre-

requisites other than 48 credit points in any subjects. Enrolment at 200- or 300-level will be determined by the number of credit points already achieved.

The subject will cover the following areas:

*Principles of evolution:* Darwin and natural selection; mechanisms of inheritance; diversity; population genetics.

*Human evolution:* The fossil record; neurobiological and behavioural evolution; reproduction in man; cultural evolution and human diversity.

*Concepts of ecology:* Food webs and energetics of ecosystems; species interactions and stability of natural communities.

*Human ecology:* (a) effects of environment on man; nutrition, disease, pollution. (b) effects of man on environment: population, resources, pollution and conservation. An ecological perspective of man. (c) global interactions between man and the biosphere.

### TEXTBOOK

Tullar, R.M. *The Human Species*. McGraw Hill, 1977.

### 300-LEVEL

## MATH234 STATISTICAL METHODS

Refer to "Description of Subjects - Mathematics."

## BIOL301 METABOLISM: BIOENERGETICS I

*Details:* As for BIOL201.

## BIOL302 CELL PHYSIOLOGY: BIOENERGETICS II

*Details:* As for BIOL202.

## BIOL303 ANIMAL PHYSIOLOGY: BIOENERGETICS III

*Details:* As for BIOL203.

## BIOL304 ECOLOGY: BIOENERGETICS IV

*Details:* As for BIOL204.

## BIOL311 NEUROBIOLOGY

*First session; 8 credit points (2 lectures, 4 hrs practical/tutorial per week)*

*Assessment:* One written examination and assessment of practical work

*Syllabus:* The subject covers basic neuroanatomical, neurophysiological and pharmacological concepts, with particular reference to the autonomic nervous system and neural regulatory mechanisms. Other topics covered will be reflexes, sensory systems and selected invertebrate systems.

### TEXTBOOK

Eckert, R. and Randall, D. *Animal Physiology*. Fallman, 1978.



## **BIOL312 PLANT PHYSIOLOGY 2**

*Second session; 8 credit points (2 lectures, 4 hrs practical/tutorial per week)*  
*Assessment:* One written examination and reports on practical work

The lectures will treat in depth a number of areas including osmoregulation, compartmentation of hydrolytic enzymes, comparative studies of photosynthesis, nitrogen metabolism, storage and mobilization of reserve compounds in seeds.

## **BIOL381 EVOLUTION AND ECOLOGY OF MAN**

*Details:* As for BIOL281.

## **BIOL391 ADVANCED BIOLOGY**

*First or second session; 16 credit points (12 hrs practical per week plus all departmental seminars)*

*Assessment:* Two seminars, two written assignments, two written project reports, one 3-hour written examination based on a reading list and departmental seminars

A student will be assigned to two academic staff members who will each supervise a project for half the session. The projects will be selected primarily to extend and intensify both practical and theoretical experience. Emphasis will be placed on developing competence in a range of laboratory and field techniques not already familiar to the student. The reading list is intended to enhance previous understanding of biological phenomena and to introduce the student to areas of biology not treated elsewhere in the course.

### **TEXTBOOKS**

A reading list will be provided at the beginning of the course.

### **400-LEVEL**

## **BIOL401 BIOLOGY HONOURS**

*Double session; 48 credit points*

Information may be obtained from the Departmental Chairman.

## CHEMISTRY

The Chemistry Department offers two 100-level, four 200-level, four 300-level single session and one 200-level and one 300-level double session subjects. Entry to Chemistry IV Honours course is determined by the Academic Senate on the advice of the Chairman of the Department of Chemistry.

A student wishing to take out a Bachelor of Science degree with a major sequence in Chemistry must obtain at least 36 credit points at the 300-level of which at least 24 credit points must be from subjects offered by the Department of Chemistry.

No reference books are listed for the Chemistry subjects. Students will be provided with a list of recommended reading at the commencement of each course.

*Schedule Entries.*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedules A and E. Subjects also appear in other schedules are:

<i>Subject</i>	<i>Schedules</i>
CHEM101	C & D
CHEM102	D

**100-LEVEL****CHEM101 CHEMISTRY IA (INTRODUCTORY PHYSICAL AND GENERAL CHEMISTRY)**

*First session; 6 credit points (28 hrs lectures, 14 hrs tutorials and 42 hrs practical)*  
*Assessment:* Practical and tutorial assignments plus written examination

Atomic theory and structure, chemical bonding, shapes of molecules. Particle theory of matter, gases and liquids, thermodynamics and thermochemistry.

**TEXTBOOKS**

Boikess, R.S. & Edelson, E. *Chemical Principles*. Harper & Row, 1978.  
 Pierce, C. & Smith, R.N. *General Chemistry Workbook*. 4th ed. Freeman, 1971.

**CHEM102 CHEMISTRY IB (INTRODUCTORY ORGANIC AND PHYSICAL CHEMISTRY)**

*Second session; 6 credit points (28hrs lectures, 14 hrs tutorials and 42hrs practical)*  
*Assessment:* Practical and tutorial assignments plus written examination.

Chemical equilibrium and equilibrium constants. Acids and bases. Kinetics and electrochemistry. Nomenclature, preparation and reactions of carbon compounds. Stereochemistry.

**TEXTBOOKS**

Boikess, R.S. & Edelson, E. *Chemical Principles*. Harper & Row, 1978.  
 Pierce, C. & Smith, R.N. *General Chemistry Workbook*. 4th ed. Freeman, 1971.  
 Fessenden, R.J. & Fessenden, J.S. *The Basic of Organic Chemistry*. Allyn & Bacon, 1971.

**CHEM150 THE ART OF CHEMISTRY**

*Double session; 6 credit points (28 hrs lectures, 28 hrs demonstration/practicals)*  
*Assessment:* Continual assessment by means of quizzes, essays and projects

This subject is intended to provide, primarily for non-science students, an insight into the way modern Chemistry is enabling man not only to understand but also to change his environment. Both the beneficial and the detrimental aspects of these changes will be discussed.

This subject complements PHYS151 Art of Physics or may be taken as an independent unit.

**200-LEVEL****CHEM211 INORGANIC CHEMISTRY II**

*Second session; 6 credit points (28 hrs lectures, 14 hrs tutorials, 42 hrs practical)*  
*Assessment:* Practical and tutorial assignments plus written examination

Systematic chemistry of some transition elements and non-metals. Introduction to co-ordination chemistry. The co-ordinate bond, stereoisomerism. Elementary magnetochemistry. Molecular orbital theory of bonding. Symmetry.

**TEXTBOOKS**

Basolo, F. & Johnson, R.C. *Co-ordination Chemistry*. Benjamin, 1964.  
 Huheey, J.E. *Inorganic Chemistry*. 2nd ed. Harper & Row, 1978.

**CHEM212 ORGANIC CHEMISTRY II**

*First session; 6 credit points (28 hrs lectures, 14 hrs tutorials plus 42 hrs practical classes)*  
*Assessment:* Practical and tutorial assignments plus written examination

Survey of the more important organic reactions classified from the viewpoint of reaction mechanism. Nucleophilic substitution of carbonyl and related compounds. Electrophilic substitution. Oxidation and reduction. Molecular rearrangements. Organic synthesis.

**TEXTBOOKS**

Landgrebe, J.A. *Theory and Practice in the Organic Laboratory*. 2nd ed. Heath, 1977.  
 Meislich, H., Nechamkin, H. & Sharefkin, J. *Schaums Outline Series. Theory and Problems of Organic Chemistry*. McGraw-Hill, 1977.  
 Solomons, T.W.G. *Organic Chemistry*. J. Wiley & Sons, 1976.

**CHEM213 PHYSICAL CHEMISTRY II**

*First session; 6 credit points (28 hrs lectures, 14 hrs tutorials plus 42 hrs practical classes)*  
*Assessment:* Practical and tutorial assignments plus written examination

*Introductory Quantum Chemistry:* Applications of quantum theory to the extra-nuclear structure of atoms. Applications to other chemical and physical systems. Molecular energies from both quantum mechanical and classical viewpoints.

*Kinetic Theory:* The study of rate processes. Collision theory and transition state theory. Applications to chemical systems.

*Chemical Thermodynamics:* Review of 1st, 2nd and 3rd laws. Application of thermodynamics to chemical systems.

## TEXTBOOKS

Atkins, P.W. *Physical Chemistry*. OUP, 1978.

Barrow, G.M. *Physical Chemistry*. 3rd ed. McGraw-Hill, 1973.

## CHEM214 ANALYTICAL CHEMISTRY II

*Second session; 6 credit points (28 hrs lectures, 14 hrs tutorials plus 42 hrs practical classes)*

*Assessment:* Practical and tutorial assignments plus written examination

Ionic equilibrium in analytical chemistry: acid base, oxidation-reduction, precipitation. Introductory analytical spectroscopy, separation techniques: chromatography, solvent extraction etc.

## TEXTBOOK

Dick, J.G. *Analytical Chemistry*. McGraw-Hill, 1973.

## CHEM219 THE COMPUTER IN SCIENCE

*Double session; 6 credit points (56 hrs lectures, 28 hrs tutorial/practical)*

*Assessment:* Continual assessment plus written examination

Applications of the computer: Data handling. Regression Analysis. Numerical Integration. Matrix manipulation. Solution of simultaneous equations.

## TEXTBOOKS

Bennett, W. R. Jr. *Scientific and Engineering Problem Solving with the Computer*. Prentice-Hall, 1976.

Dickson, T.W. *The Computer and Chemistry*. Freeman, 1968.

Forsythe, G.E., Malcolm, M.A. & Moler, C.P. *Computer Methods for Mathematical Computations*. Prentice-Hall, 1977.

## 300-LEVEL

## CHEM314 ANALYTICAL CHEMISTRY III

*Second session; 8 credit points (42 hrs lectures and tutorials plus 42 hrs practical classes)*

*Assessment:* Practical and tutorial assignments plus written examination

Electrochemistry and chemical analysis, electrodeposition, potentiometry, polarography, anodic stripping voltammetry. Techniques of trace analysis, sampling, solution concentration, selection of method.

Instrumentation and trace analysis, mass spectrometry, atomic absorption spectroscopy, fluorescence analysis, emission spectroscopy, radiochemistry.

## TEXTBOOKS

Dick, J.G. *Analytical Chemistry*. McGraw Hill, 1973.

Ewing, G. *Instrumental Methods of Chemical Analysis*. 3rd ed. McGraw-Hill, 1969.

McLafferty, F.W. *Interpretation of Mass Spectra*. 2nd ed. Benjamin.

## CHEM311 INORGANIC CHEMISTRY III

*First session; 8 credit points (42 hrs lectures and tutorials plus 42 hrs practical classes)*

*Assessment:* Practical and tutorial assignments plus written examination



Chemistry of the transition elements, systematic study of selected elements. Complexes of  $\pi$ -acceptor ligands. Interaction of metals, ligands and metal complexes in biological systems. Organometallic compounds. Electronic spectra of transition metal compounds. Energy level diagrams. Jahn-Teller effect. Magnetochemistry, the magnetic properties of the free ion. X- and gamma-ray techniques in chemistry.

#### TEXTBOOK

Huheey, J.E. *Inorganic Chemistry*. 2nd ed. Harper & Row, 1978.

### CHEM321 ORGANIC STEREOCHEMISTRY AND HETEROCYCLICS III

*First session; 8 credit points (42 hrs lectures and tutorials, 42 hrs practical)*

*Assessment:* Practical and tutorial assignments, and written examination

Stereochemistry of organic compounds. Resolution, relationships between stereochemistry and reactivity. Asymmetric syntheses. Reactions and stereochemistry of pentoses, hexoses, di- and polysaccharides, and ascorbic acid.

Heteroethylenics, polyketides and flavanoids.

Comparative heterocyclic chemistry of 5- and 6-membered heterocyclic systems containing one heteroatom, their benzologues and azologues.

#### TEXTBOOKS

Acheson, R.M. *An Introduction to the Chemistry of Heterocyclic Compounds*. 3rd ed. Wiley, 1977.

Eliel, E.L. *Stereochemistry of Carbon Compounds*. I.S.E. McGraw Hill, 1962.

Landgrebe, J.A. *Theory and Practice in the Organic Laboratory*. 2nd ed. Heath, 1977.

Meislich, H., Nechamkin, H. & Sharefkin, J. *Schaums Outline Series. Theory and Problems of Organic Chemistry*. McGraw-Hill, 1977.

Solomons, T.W.G. *Organic Chemistry*. J. Wiley & Sons, 1976.  
and either

Tedder, J.M., Nechvatal, A., Murray, A.W., & Carnduff, J. *Basic Organic Chemistry*. Part A, Wiley, 1972.

or

Mann, J. *Secondary Metabolism*. Clarendon Press, 1978.

### CHEM322 ORGANIC SPECTROSCOPY AND NATURAL PRODUCTS III

*Second session; 8 credit points (42 hrs lectures and tutorials and 42hrs practical)*

*Assessment:* Practical and tutorial assignments, and written examination

Synthesis and reactivity of  $\alpha$ -amino acids, peptides and proteins. End-group analysis and sequencing. Chemistry and biosynthesis of terpenoids and steroids from mevalonate. Chemistry and biosynthesis of alkaloids.

Ultraviolet, infrared, and nuclear magnetic resonance spectroscopy in organic chemistry.

#### TEXTBOOKS

Landgrebe, J.A. *Theory and Practice in the Organic Laboratory*. 2nd ed. Heath, 1977.

Meislich, H., Nechamkin, H. & Sharefkin, J. *Schaums Outline Series. Theory and Problems of Organic Chemistry*. McGraw-Hill, 1977.

Pavia, D.L., Lampman, G.M. & Kriz, G.S. *Introduction to Spectroscopy*. W.B. Saunders, 1979.

Solomons, T.W.G. *Organic Chemistry*. J. Wiley & Sons, 1976.  
and either



Tedder, J. M., Nechvatal, A., Murray, A.W. & Carnduff, J. *Basic Organic Chemistry*. Part 4, Wiley, 1972.

or

Mann, J. *Secondary Metabolism*. Clarendon Press, 1978.

### CHEM323 PHYSICAL CHEMISTRY III

*Second session; 8 credit points (42 hrs lectures and tutorials plus 42 hrs practical classes)*

*Assessment:* Practical and tutorial assignments plus written examination

Chemical Dynamics; correlation of Chemical Reactivity with Molecular Structure; Surface Chemistry and Applications; Transport Processes in Solution; Electrochemistry.

#### TEXTBOOKS

Avery, H.E. *Basic Reaction Kinetics and Mechanisms*. Macmillan, 1974.

Aveyard & Haydon. *An Introduction to the Principles of Surface Chemistry*. Cambridge University Texts, 1973.

Crow, D.R. *Principles and Applications of Electrochemistry*. Chapman & Hall, 1974.

### CHEM324 THEORETICAL CHEMISTRY

*Second session; 8 credit points (56 hrs lectures and tutorials plus 28 hrs practical classes)*

*Assessment:* Practical and tutorial assignments plus written examination

The Concepts of Quantum Chemistry; Molecular Orbital Theory of Electronic Structure; Symmetry in Quantum Chemistry and Molecular Spectroscopy; Statistical Mechanics.

#### TEXTBOOKS

Atkins, P.W. *Molecular Quantum Mechanics: An Introduction to Quantum Chemistry*. Oxford University Press, 1970.

Cotton, F.A. *Chemical Applications of Group Theory*. 2nd ed. Wiley, 1971.

Karplus, M. & Porter, R.N. *Atoms and Molecules*. W.A. Benjamin, 1970.

### CHEM327 CHEMISTRY AND THE ENVIRONMENT

*First session; 8 credit points (56 hrs lectures and tutorials, 28 hrs practical)*

*Assessment:* Laboratory and field work 20%. Two submitted essays 20%. Written examination 60%

The environment as we know it depends on complex interactions of chemical, physical and biological processes both natural and anthropogenic in origin. Environmental chemistry interprets these processes and applies this understanding to such areas as pollution measurement, pollution control and the recycling and conservation of resources. A chemical description of evolution and behaviour in the environment: rates and equilibria, transport processes, natural regulatory mechanisms, geochemical cycling of the elements. Chemical pollution arising from exploitation of resources and disposal of wastes. Environmental trace analysis: detection and measurement of pollutants in air and water. Chemistry of water and air pollution control.

#### TEXTBOOK

Stoker, H.S. & Seager, S.L. *Environmental Chemistry - Air and Water Pollution*. 2nd ed. Scott-Foresman, (Wiley), 1976.

400-LEVEL

**CHEM411 SELECTED TOPICS IN CHEMISTRY**

*Double session; 16 credit points (56 hrs lectures and 56 hrs tutorials)*

*Assessment:* Written examination and seminar

Theories concerning the creation of life on Earth; Organic and Inorganic Geochemistry and its effect on the environment; Vitamins, hormones and important common drugs; Introduction to Digital Instrumentation; The Basic Nature and desirable properties of Materials (e.g. ceramics, glasses, polymeric and composite materials); Chemistry Through the Ages; Chemical Literature; Chemistry and Society; Computer Simulation of Complex Systems; and others added as required.

**TEXTBOOKS**

A reading list will be provided by the Department at the beginning of each year.

**CHEM420 CHEMISTRY HONOURS PROJECT  
FOR FULL-TIME STUDENTS**

*Double session; 32 credit points*

A list of topics available for study in any year will be provided by the Department of Chemistry.

**TEXTBOOKS**

A reading list will be provided by the supervisor allocated to each student.

**CHEM421 CHEMISTRY HONOURS PROJECT  
PART I FOR PART-TIME STUDENTS**

*Double session; 8 credit points (Contact: 8 hrs per week)*

*Assessment:* Written report

A list of topics available for study in any year will be provided by the Department of Chemistry.

**CHEM422 CHEMISTRY HONOURS PROJECT  
PART II FOR PART-TIME STUDENTS**

*Double session; 24 credit points (Contact: 24 hrs per week)*

*Assessment:* Minor thesis and seminar as in CHEM420 but without the CHEM421 component.

A list of topics available for study in any year will be provided by the Department of Chemistry.

**CIVIL ENGINEERING***Normal Structure and Study Patterns*

In the operation of the course, subjects are scheduled so that it may be completed within a period of 4 to 8 years. Common patterns are the 4 years pattern (I) and the 6 years pattern (II) but progression within the course is by subject with the restriction of meeting pre-requisite and co-requisite requirements.

Patterns (I) and (II) are shown below.

*Professional Electives*

Students in approved full-time employment may become eligible to include the subjects of Professional Practice in their programme as electives. The inclusion of such work will enable students to complete the course under Pattern (II). Students wishing to be eligible to attain Honours Class I or Class II can only credit a maximum of three professional electives and will be required to select alternative (or additional) 300 and 400-level electives.

*Professional Experience*

As part of the course requirements, students are required to obtain 12 weeks of approved professional experience; such experience to be obtained in the summer vacation prior to their final year, unless exempted by the Department due to the student's full-time professional employment.

*Excursions* form an integral part of the course and are mandatory.

*Transitional Arrangements*

Students enrolled in the B.E. in Civil Engineering prior to January, 1976 will be required to complete the course as prescribed in Schedule C - B.E. in Civil Engineering - of the Bachelor Degree Requirements approved as at 1st January, 1975.

The Chairman of the Department of Civil Engineering has the authority to approve any variations to this prescribed programme for the B.E. in Civil Engineering in the event of students enrolled under the 1975 requirements seeking to change over to the 1976 course.

*Assessment*

All subjects offered for the degree of Bachelor of Engineering in the Department of Civil Engineering normally are assessed by means of a final examination. Set project work, laboratory reports and tutorial assignments may be taken into account in this assessment.

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule C (with the exception of CIVL112, 113, 114, 115, 116). Subjects which also appear in other schedules are:

<i>Subject</i>	<i>Schedule</i>
CIVL111	D
CIVL112	A
CIVL113	A
CIVL114	A
CIVL115	A

40	CIVL116	A
	CIVL122	D
	CIVL216	D

**D. BACHELOR OF ENGINEERING - CIVIL ENGINEERING**

**Suggested Pattern I: With 4 Year Attendance (Honours)**

**YEAR 1 OF ATTENDANCE**

T i c h c o d e m S	<i>Session 1</i>	<i>Hours per Week</i>
	CHEM101 Chemistry IA	6
T	PHYS120 Fundamentals of Electricity and Magnetism	3
	CIVL171 Surveying I	3
A	MATH101 Mathematics IA	6
	CIVL172 Survey Camp	-
	CIVL122 Mechanics and Structures	3
	CIVL191 Building Construction	3
L A C 7 A	<i>Session 2</i>	
	CIVL111 Introduction to Design	3
	CIVL123 Dynamics	3
	MATH101 Mathematics IA	6
	CIVL142 Materials 1	6
	CIVL193 Excursions 1	-
	CIVL192 Construction 1	3
	PHYS121 The Physics of Waves and Particles	3

**YEAR 2 OF ATTENDANCE**

L A A C	<i>Session 1</i>	
	CIVL294 Construction 2	3
	CIVL281 Computational Techniques 1	5
	CIVL225 Mechanics 1	3
	CIVL295 Experimental Engineering	3
	CIVL251 Strength of Materials 1	3
	CIVL273 Surveying 2	3
	CIVL296 Excursions 2	-
	ELEC296 Applied Electricity 1A*†	3
L A C	<i>Session 2</i>	
	CIVL282 Computational Techniques 2	5
	CIVL226 Mechanics 2	3
	CIVL231 Hydraulics I	3
	CIVL243 Materials 2	3
	CIVL252 Strength of Materials 2	3
	CIVL213 Structural Design I	4
	ELEC297 Applied Electricity 1B*†	3

**YEAR 3 OF ATTENDANCE**

L A C	<i>Session 1</i>	
	CIVL332 Hydraulics 2	3
	CIVL326 Mechanics 3	3
	CIVL362 Soil Mechanics I	3

\* Subjects marked with an asterisk are electives.

† ECON111 Economics II or GEOG202 Urban Location and Structure, may be taken in lieu of ELEC296 and ELEC297.

CIVL312	Civil Eng. Design	3
CIVL353	Structures 1	3
CIVL397	Construction 3	3
CIVL398	Excursions 3	-
CIVL496	Roads Engineering*	4

*Session 2*

CIVL344	Materials 3	3
CIVL327	Mechanics 4	3
CIVL374	Surveying 3	3
CIVL334	Hydraulics 3	3
CIVL363	Soil Mechanics 2	3
CIVL314	Structural Design 2	3
CIVL354	Structures 2	3
CIVL495	Geology for Civil Engineers*	3

## YEAR 4 OF ATTENDANCE

*Session 1*

CIVL401	Thesis	6
CIVL481	Engineering Management 1	2
CIVL490	Excursions 4	-
CIVL499	Industrial Experience	-
CIVL487	Town Planning*	4
CIVL493	Public Health Engineering*	4
CIVL464	Soil Mechanics 3*	3

*Session 2*

CIVL401	Thesis	10
CIVL482	Engineering Management 2	2
CIVL455	Structures 3*	3
CIVL456	Structures 4*	3
CIVL491	Computer Applications*	3

## YEAR 2 ELECTIVES\*

ELEC296	Applied Electricity IA	3
ELEC297	Applied Electricity IB	3
ECON111	Economics II	4 (for one session)
ECON202	Urban Location and Structure	5 (for one session)

## YEAR 3 ELECTIVES\*

(May also be taken as Year 4 Electives)

CIVL494	Coastal Engineering	3
CIVL495	Geology for Civil Engineers	3
CIVL496	Roads Engineering	4
CIVL497	Introductory Modern Languages (if available, e.g. French, Italian.)	-
ECON215	Microeconomics	3
MECH241	Thermodynamics I	3
MECH391	Heat Transfer for Civil Engineers	3

\* Subjects marked with an asterisk are electives.



## YEAR 4 ELECTIVES\*

CIVL411	Professional Practice 1	
CIVL412	Professional Practice 2	
CIVL413	Professional Practice 3	
CIVL414	Professional Practice 4	
CIVL415	Professional Practice 5	
CIVL416	Professional Practice 6	3
CIVL434	Hydraulic Engineering	3
CIVL445	Materials 4	3
CIVL455	Structures 3	3
CIVL456	Structures 4	3
CIVL464	Soil Mechanics 3	3
CIVL486	The Civil Engineer and the Environment	3
CIVL487	Town Planning	4
CIVL488	Traffic and Transport Systems	3
CIVL491	Computer Applications	3
CIVL493	Public Health Engineering	4
ECON312	Industrial Economics	3

## Suggested Pattern II: With 6 Year Attendance

## YEAR 1 OF ATTENDANCE

<i>Session 1</i>		<i>Hours per Week</i>
CIVL122	Mechanics and Structures	3
CIVL191	Building Construction	3
MATH101	Mathematics IA	6
<i>Session 2</i>		
CIVL111	Introduction to Design	3
CIVL123	Dynamics for Civil Engineers	3
MATH101	Mathematics IA	6

## YEAR 2 OF ATTENDANCE

<i>Session 1</i>		
PHYS120	Fundamentals of Electricity and Magnetism	3
CIVL171	Surveying 1	3
CHEM101	Chemistry IA	6
CIVL172	Survey Camp	-
<i>Session 2</i>		
CIVL142	Materials IC	6
PHYS121	The Physics of Waves and Particles	3
CIVL193	Excursions I	-
CIVL192	Construction 1	3

## YEAR 3 OF ATTENDANCE

<i>Session 1</i>		
CIVL281	Computational Techniques 1	5
CIVL251	Strength of Materials 1	3
CIVL225	Mechanics 1	3
CIVL296	Excursions 2	-

\* Subjects marked with an asterisk are electives.

Total number of year 3 and Year 4 electives in Pattern 1 required is at least 8.  
Normally not to include CIVL411, 412, 413, 414, 415, 416

*Session 2*

CIVL282	Computational Techniques 2	5
CIVL213	Structural Design 1	4
CIVL226	Mechanics 2	3

## YEAR 4 OF ATTENDANCE

*Session 1*

ELEC296	Applied Electricity 1A†	3
CIVL295	Experimental Engineering	3
CIVL273	Surveying 2	3
CIVL294	Construction 2	3

*Session 2*

ELEC297	Applied Electricity 1B†	3
CIVL231	Hydraulics 1	3
CIVL243	Materials 2C	3
CIVL252	Strength of Materials 2	3

## YEAR 5 OF ATTENDANCE

*Session 1*

CIVL332	Hydraulics 2	3
CIVL353	Structures 1	3
CIVL362	Soil Mechanics 1	3
CIVL397	Construction 3	3
CIVL398	Excursions 3	-

*Session 2*

CIVL334	Hydraulics 3	3
CIVL344	Materials 3	3
CIVL374	Surveying 3	3
CIVL495	Geology for Civil Engineers*	3

## YEAR 6 OF ATTENDANCE \*\*

*Session 1*

CIVL312	Civil Engineering Design	3
CIVL326	Mechanics 3	3
CIVL401	Thesis	6
CIVL481	Engineering Management I	2
CIVL490	Excursions 4	-
CIVL487	Town Planning*	4
CIVL493	Public Health Engineering*	4
CIVL494	Coastal Engineering*	3
CIVL496	Roads Engineering*	4

\* Subjects marked with an asterisk are electives.

† ECON111 Economics II or GEOG202 Urban Location and Structure, may be taken in lieu of ELEC296 and ELEC297.

\*\* May be taken over 1 or 2 years; vacation at end of year 5 may be used for thesis commencement.

## 276 DESCRIPTION OF SUBJECTS - CIVIL ENGINEERING

### Session 2

CIVL401	Thesis	10
CIVL482	Engineering Management 2	2
CIVL327	Mechanics 4*	3
CIVL314	Structural Design 2*	3
CIVL354	Structures 2*	3
CIVL363	Soil Mechanics 2*	3
CIVL434	Hydraulic Engineering*	3
CIVL488	Traffic and Transport Systems	3
CIVL455	Structures 3	3

### ELECTIVES\*

CIVL314	Structural Design 2	3
CIVL327	Mechanics 4	3
CIVL354	Structures 2	3
CIVL363	Soil Mechanics 2	3
MECH391	Heat Transfer for Civil Engineers	3
CIVL411	Professional Practice 1	
CIVL412	Professional Practice 2	
CIVL413	Professional Practice 3	
CIVL414	Professional Practice 4	
CIVL415	Professional Practice 5	
CIVL416	Professional Practice 6	
CIVL434	Hydraulic Engineering	3
CIVL445	Materials 4	3
CIVL455	Structures 3	3
CIVL456	Structures 4	3
CIVL464	Soil Mechanics 3	3
CIVL486	The Civil Engineer and the Environment	3
CIVL487	Town Planning	4
CIVL488	Traffic and Transport Systems	3
CIVL491	Computer Applications	3
CIVL493	Public Health Engineering	4
CIVL494	Coastal Engineering	3
CIVL495	Geology for Civil Engineers	3
CIVL496	Roads Engineering	4
CIVL497	Introductory Modern Languages	3

### 100-LEVEL

## CIVL111 INTRODUCTION TO DESIGN

### Second session

- Drawing Practice* with examples take from trusses, space frames, urban systems, transportation.
- Design* of bolted and welded attachments. Introduction to structural design, design loads, factor of safety, codes of practice.
- Materials in design* including classification of civil engineering materials, occurrence, processing, manufacture and their properties.
- Workshop Practice* including elementary workshop exercises and practice in the use of simple machine tools and welding.

\* Subjects marked with an asterisk are electives. Total number of electives in Pattern II required is 11. If 6 Practice Electives are attained (thus leaving 5) then it is usual to read for 2 in Session 1 and 3 in Session 2.

**CIVL112 BUILDING\***

*First session; 6 credit points*

The design and construction of buildings and their environment, landscaping, estimating and building organization.

**CIVL113 PUBLIC WORKS AND CONSTRUCTION\***

*Second session; 6 credit points*

Principles of construction and fabrication of public works including consideration of operating costs, comparative performance of large scale equipment, purchase and operation of plant, job administration and construction labour. The public work to include irrigation and water supply schemes, harbour and river works, pipelines.

**CIVL114 SURVEYING\***

*First session; 6 credit points*

Construction, adjustment and use of surveying instruments; methods of plane traverse and plane table surveying; levelling and contouring; adjustment of surveying errors.

**CIVL115 PHOTO-INTERPRETATION AND MEASUREMENT\***

*Second session; 6 credit points*

Introduction to Photogrammetric techniques and their application in land utilization, planning and development.

**CIVL116 THE BUILT ENVIRONMENT\***

*Double session; 6 credit points*

The interchange between man and his artificial environment including the management of natural resources, air movement, shelter and noise. Maintenance of towns, buildings and roads.

**CIVL122 MECHANICS AND STRUCTURES**

*First session*

Forces and equilibrium; axial forces in trusses; shear forces and bending moments in beams; stresses and strains at a point; bending and shear stresses; introduction to the deflection of beams.

**CIVL123 DYNAMICS**

*Second session*

Graphical and analytical analysis of velocity and acceleration. Relative motion. Energy conservation. Kinematics. Particle dynamics. Introduction to vibrations, noise. Isolation.

**CIVL142 MATERIALS 1**

*Second session*

Introduction to the study of the mechanical properties of metals and non-metals; introduction to non-metallic engineering materials including wood, concrete,

\* Subjects included in Schedule A.

ceramics. Energy concepts.

### **CIVL171 SURVEYING 1**

*First session*

Linear measurements, corrections, chain surveying, simple levelling. Earthworks. Theodolite and compass traversing; simple curves, transition curves, vertical curves, setting out.

### **CIVL172 SURVEY CAMP**

*First session*

An area of land will be surveyed. Experience will be gained in carrying out linear measurements, chain surveys; level circuits; traverse surveys and computations; tacheometrical surveys; setting out of horizontal curves; plane tabling.

### **CIVL191 BUILDING CONSTRUCTION**

*First session*

Single and ridged roofs; solid and framed walls; footings; stone, brick, tiles, sheets, timber; roof coverings; ventilation ducting; heating and cooling appliances; basements; procedures; quality and management control; economics.

### **CIVL192 CONSTRUCTION 1**

*Second session*

The classification, selection and use of plant, its organisation and costs; site establishment, drilling, blasting, quarrying, tunnelling, pipe lines, pile driving, hoisting and conveying. Project planning, construction and analysing networks. Estimating. Preservation of structures.

### **CIVL193 EXCURSIONS 1**

*Second session*

Visits to selected works and establishments.

*200-LEVEL*

### **CIVL213 STRUCTURAL DESIGN 1**

*Second session*

- (a) Steel structures, bolted and welded connections; simple and built up beams; trusses and columns.
- (b) Introduction to design with timber and bricks.

### **CIVL216 DESIGN M**

*Double session*

Moving loads; influence lines for beams; design loads and stresses, deflection of beams; combined loading; various design projects associated with heavy engineering and metallurgical practices and processes.

### **CIVL225 MECHANICS 1**

*First session*

Theory of vibrations and its applications; Lagrangian equations of motion.



**CIVL226 MECHANICS 2***Second session*

Introduction to systems analysis; modelling and simulation; introduction to decision theory; optimization techniques; linear programming; Markov chain and Monte-Carlo method.

**CIVL231 HYDRAULICS 1***Second session*

Properties of fluids. Hydrostatics, stability of floating bodies. Continuity equation. Impulse-momentum principle, application to channels. Equations of motion; Euler and Bernoulli equations. Hydrodynamics, streamlines, flowfields, flow patterns for overflow structures. Flow measurement. Flow over weirs and spillways. Dimensional analysis.

**CIVL243 MATERIALS 2***Second Session*

Failure and fracture theories; fatigue; impact strength - approximate methods; stress concentration; notch sensitivity; welding processes and residual stresses.

**CIVL251 STRENGTH OF MATERIALS 1***First session*

Deflection of beams; flexibility and stiffness concepts; statically indeterminate beams, torsion of circular and thin wall sections. Combined loading; strain energy; elastic and non-elastic behaviour.

**CIVL252 STRENGTH OF MATERIALS 2***Second session*

Experimental methods including dynamic loadings; strain gauge techniques; photo-elasticity; testing machines and procedures; methods of non-elastic analysis; applications; buckling of compression members.

**CIVL254 STRENGTH OF MATERIALS***First session*

Components of stress and strain; two dimensional stress systems; torsion of circular shafts; springs; structures; strain energy; frame structures; flexure and deflexion of beams; slope deflexion equation.

**CIVL273 SURVEYING 2***First session*

Optical distance measurement; electronic distance measurement; precise levelling; precise levelling equipment; triangulation surveys; theory of errors; Geodetic surveying; Geodetic computations; techniques used in the development of mineral properties; tunnel and borehole surveys.

**CIVL281 COMPUTATIONAL TECHNIQUES 1***First session*

Taylor Series and its applications; Fourier methods of analysis; complex variable and contour integration; matrix analysis and its use in Civil Engineering. Computer use

## CIVL282 COMPUTATIONAL TECHNIQUES 2

### *Second session*

Introduction to statistical methods, quality control; finite differences; concepts of finite elements in relation to two and three dimensions. Computer applications using finite elements.

## CIVL294 CONSTRUCTION 2

### *First session*

- (a) Contracts, specifications, Bill of quantities, economic evaluation, Management, Personnel management;
- (b) Introduction to transportation engineering; roads and pavements; airport engineering; railroad engineering; river and coastal engineering; pipeline transportation; belt conveyors; undersea transportation; transportation planning.

## CIVL295 EXPERIMENTAL ENGINEERING

### *First session*

Basic concepts, instrumentation for the measurement of temperature, pressure, stress, strain, displacement, deflection, velocity, fluid flow under static and dynamic conditions; data acquisition and analysis; error analysis; model analysis; photoelastic technique; brittle coating method.

## CIVL296 EXCURSIONS 2

### *First session*

Visits to selected works and establishments.

### *300-LEVEL*

## CIVL312 CIVIL ENGINEERING DESIGN

### *First session*

- (a) Topics to be selected from: location and design of earth and rock-fill dams, pipelines. Treatment works.
- (b) Design of reinforced concrete elements.

## CIVL314 STRUCTURAL DESIGN 2

### *Second session*

- (a) Steel Structures - design of continuous structures; rigid mill building frames; plastic design.
- (b) Concrete Structures - design of retaining walls, pre-stressed beams and slabs.
- (c) Use of Computers.

## CIVL326 MECHANICS 3

### *First Session*

Working stress methods in reinforced concrete; the transformed section concept; singly and doubly reinforced beams. Ultimate strength methods in reinforced concrete; the Whitney stress block; singly and doubly reinforced beams; bond and shear stresses; columns; one-way and two-way slabs. Deflection. Theory of pre-stressed concrete: critical stress state equations; load balancing method. Australian Standards.

**CIVL327 MECHANICS 4***Second session*

Numerical and statistical methods including -

- (a) Finite element methods; variational formulation for field problems with special cases.
- (b) Probability theory, discrete and continuous data, probability density functions, statistical parameters, correlation and regression analysis, sampling theory, statistical inference, data generation using mathematical models, analysis of variance, goodness of fit tests.

**CIVL332 HYDRAULICS 2***First session*

Similitude and modelling. Flow about immersed objects. Surface resistance in flow past plane boundaries and in ducts and channels. Flow of real fluids in pipes. Pipe networks. Unsteady pipe flow, waterhammer, surge tanks. Steady flow in uniform channels. Turbo-machinery. Inspection of hydraulic model.

**CIVL334 HYDRAULICS 3***Second session*

Water resources and climate, Precipitation processes, time and space variations of rainfall, rainfall losses, Groundwater, Hydrograph analysis, hydrograph synthesis, design flood estimation and recurrence interval, Flood routing in rivers and reservoirs, Urban drainage design, Open channel hydraulics.

**CIVL344 MATERIALS 3***Second session*

Non-destructive testing; properties of concrete - plastic and hardened; structure and composition; cement; aggregates; mix design; additives; concrete manufacture, field control and acceptance. Introduction to highway materials.

**CIVL351 STRUCTURES**

Analysis of statically indeterminate structures; shells; plastic analysis of steel structures; introduction to two-dimensional elasticity; approximate methods.

**CIVL353 STRUCTURES 1***First session*

Deflection of structures; analysis of indeterminate structures, including space trusses, cables and arches; influence lines; energy methods. Slope deflection equations; moment distribution; flexibility and stiffness methods.

**CIVL354 STRUCTURES 2***Second session*

Advanced beam theory: composite and curved beams; beam-columns; beams on elastic foundations. Limit analysis. Experimental structural analysis: direct and indirect techniques. Introduction to computer packages for structural analysis.

**CIVL362 SOIL MECHANICS 1***First session*

Principal types of soil; mechanical analysis and index properties of soils, perm-

ability and Darcy's law of flow; isotropic and anisotropic soil; compressibility; settlement computations; shearing resistance and conditions; shearing resistance and conditions of failure for soils; desiccation of soil; flow nets and quantity of seepage; introduction to the one-dimensional theory of consolidation; simple approaches to slope stability; experimental work.

### **CIVL363 SOIL MECHANICS 2**

#### *Second session*

Concepts of active and passive earth pressure; Rankine and Coulomb theories; earth pressures due to cohesionless and cohesive soils; bearing capacity of shallow footings, piers and piles; earth pressure against bracing in cuts; stresses beneath loaded areas; contact pressure and subgrade reaction; construction and use of Newmark's chart; cantilever sheet piles; experimental work.

### **CIVL374 SURVEYING 3**

#### *Second session*

Photogrammetry: Radial line plotting; stereoscopy; applications to Cadastre; land utilization; route location; town planning and estate development.

### **CIVL397 CONSTRUCTION 3**

#### *First session*

To encompass coffer dams; underpinning and dewatering systems; design of formwork, modular building.

### **CIVL398 EXCURSIONS 3**

#### *First session*

Visits to selected works and establishments.

### **CIVL499 PROFESSIONAL EXPERIENCE**

#### *First session*

As part of the course requirements, students are required to obtain 12 weeks of approved professional experience; such experience to be obtained in the summer vacation prior to their final year, unless exempted by the Department due to the student's full-time professional employment.

#### *400-LEVEL*

### **CIVL401 THESIS**

#### *Double session*

Each student is required to prepare a thesis on a subject or topic approved by the Chairman of the Department.

The subject of a thesis may cover:

- (a) a report of original work performed by the student in the laboratory or field;
- (b) a theoretical and/or experimental investigation of a Civil Engineering problem;
- (c) a set of drawings and calculations covering a Civil Engineering Design.

### **PROFESSIONAL PRACTICE**

Double session



For students in full employment each year of appropriate supervised employment that is approved by the Chairman of the Department may, on request, be credited to the course. A maximum of six such units are allowed described as:

CIVL411	Professional Practice 1
CIVL412	Professional Practice 2
CIVL413	Professional Practice 3
CIVL414	Professional Practice 4
CIVL415	Professional Practice 5
CIVL416	Professional Practice 6

A Corporate member of the Institution of Engineers represent the organization where the Professional Practice was obtained, must examine and sign for such practice work to permit eligibility for it to be applied against the course. A report is to be submitted for each subject, the assessment and evaluation of which will be made by the Departmental Assessment Committee. Details of required format and content of reports are available from the Department of Civil Engineering.

### **CIVL434 HYDRAULIC ENGINEERING**

#### *Second session*

Reservoir design and operation. Spillway design. Hydro-electric schemes. Urban and rural water supply schemes. Sediment transport and river erosion, river control. Flood mitigation schemes.

### **CIVL445 MATERIALS 1**

#### *Second session*

Introduction to two- and three-dimensional theory of elasticity; small deflection theory of thin plates; general theory of cylindrical and spherical shells.

### **CIVL456 STRUCTURES 4**

#### *Second session*

Finite element and finite strip methods. Structural dynamics. Computer applications. Matrix methods of analysis for skeletal structures including grillages and space frames.

### **CIVL464 SOIL MECHANICS 3**

#### *First session*

Confined and unconfined seepage; rapid and slow drawdown in earth dams; seepage studies; excess or transient pore pressures; analysis of slopes for different conditions; comparison of limit equilibrium methods; methods for the determination of settlement; analysis of anchored sheet piles; design of footings, rafts and piles; soil exploration; experimental work.

### **CIVL481 ENGINEERING MANAGEMENT 1**

#### *First session*

Theory and practice of organization and industry; general principles of law of contract.

### **CIVL482 ENGINEERING MANAGEMENT 2**

#### *Second session*

Industrial relations; human relations in the work environment; introduction to cost accounting.



## **CIVL486 THE CIVIL ENGINEER AND THE ENVIRONMENT**

### *First session*

Economic and social evaluation of engineering projects. The interdependence of the roles of the Civil Engineer and Architect, with their responsibilities to the community.

Problems of development and use of resources. Excess waste material. Air pollution, water pollution and noise. Case studies of Civil engineering works, e.g. freeway construction, irrigation vs. flood mitigation, development of unstable areas.

## **CIVL487 TOWN PLANNING**

### *First session*

Urbanisation past and present. The modern city in its regional context. Planning processes and techniques. Plans and planners; planning law and administration in New South Wales.

## **CIVL488 TRAFFIC AND TRANSPORT SYSTEMS**

### *Second session*

Theory of traffic flow; traffic management schemes; accident studies; congestion; transport planning; transportation studies; competing transport modes.

## **CIVL490 EXCURSIONS 4**

### *First session*

Visits to selected works and establishments.

## **CIVL491 COMPUTER APPLICATIONS**

### *Second session*

The writing and use of problem orientated computer languages such as STRUDL, PROJECT, TOPOLOGY, MOVIE.

## **CIVL493 PUBLIC HEALTH ENGINEERING**

### *First session*

Water supply and treatment; Sources of supply, estimates of demand. Water quality standards, methods of water treatment. Atmospheric pollution: sources of pollution, methods of control. Design of sewerage systems, sewage treatment. Trade wastes, effects and treatment. Sanitation: unsewered areas, refuse collection and disposal. Specifications and estimates for public health engineering. Inspection of water and wastewater treatment plants.

## **CIVL494 COASTAL ENGINEERING**

### *First session*

Theory of deep and shallow water waves. Wind generated waves. Storm surge. Seiche and harbour resonance. Wave refraction and breaking. Wave forces on structures. Shoreline processes, erosion and deposition. Tides in oceans and propagation into estuaries. Models for coastal and estuary investigations.

## **CIVL495 GEOLOGY FOR CIVIL ENGINEERS**

### *Second session*

Minerals and rocks. Igneous, sedimentary and metamorphic rocks. Geological structure-faulting, folding and jointing. Principles of geological chronology, methods of correlation, the geologic time scale. Geologic maps and sections. The relationship of geology to Civil Engineering. Engineering properties of rocks. Natural slopes and mass movements. Dams and reservoirs. Tunnels, highways and airfields. Concrete aggregates. Practical and field work.

## **CIVL496 ROADS ENGINEERING**

### *First session*

Road location and surveys, road design standards, types and functions of pavements, construction methods, earthworks and earthmoving machinery. Construction planning and scheduling. Road drainage requirements. Economic analysis and costing. Transport systems and communication networks.

## **CIVL497 INTRODUCTORY MODERN LANGUAGES**

### *First session*

Depending upon the availability, the subject offered will be selected from: French, Italian, Chinese, Bahasa Indonesian, Japanese, Russian.

## MINING ENGINEERING

### *Normal Structure and Study Patterns*

In the operation of the course, subjects are scheduled so that it may be completed within a period of 8 to 16 sessions (4 to 8 years). Two suggested patterns are shown. If professional experience is to be recognized, students must have approval from the Departmental Chairman.

### *Professional Electives*

Students in approved full-time employment may become eligible to include the subjects of Professional Practice in their programme as electives. The inclusion of such work will enable students to complete the course under pattern (II). Students wishing to be eligible to attain Honours Class I or Class II can only credit a maximum of 1 Professional elective and will be required to select alternative 300 or 400 level electives.

### *Professional Experience*

As part of the course requirements, students are required to obtain 20 weeks of approved professional experience; such experience to be obtained in the latter period of Session 8 and the summer vacation prior to their final year, unless exempted by the Department due to the student's full-time professional employment.

*Excursions* form an integral part of the course and are mandatory.

### *Assessment*

All subjects offered for the degree of Bachelor of Engineering in Mining Engineering normally are assessed by means of a final examination. Set project work, laboratory reports and tutorial assignments may be taken into account in this assessment.

## BACHELOR OF ENGINEERING - MINING ENGINEERING

### **Suggested Pattern I: Taken over 8 Sessions**

### YEAR 1 OF ATTENDANCE

<i>Session 1</i>		<i>Hours per Week</i>
CIVL122	Mechanics & Structures	3
CIVL191	Building Construction	3
MATH101	Mathematics IA	6
CIVL171	Surveying 1	3
CHEM101	Chemistry IA	6
PHYS120	Fundamentals of Electricity and Magnetism	3
<i>Session 2</i>		
CIVL111	Introduction to Design	3
CIVL123	Dynamics	3
MATH101	Mathematics IA	6
CIVL142	Materials IC	6
CIVL193	Excursions I	-
CIVL172	Survey Camp	-
CIVL192	Construction I	3
PHYS121	The Physics of Waves and Particles	3

## YEAR 2 OF ATTENDANCE

*Session 3*

ELEC296	Applied Electricity IA*	3
CIVL281	Computational Techniques I	5
CIVL225	Mechanics I	3
CIVL295	Experimental Engineering	3
CIVL251	Strength of Materials 1	3
CIVL296	Excursions 2	-
GEOL252	Geology for Engineers I	6
CIVL273	Surveying 2	3

*Session 4*

ELEC297	Applied Electricity IB*	3
CIVL282	Computational Techniques 2	5
CIVL226	Mechanics 2	3
CIVL231	Hydraulics 1	3
CIVL243	Materials 2	3
CIVL213	Structural Design 1	4
MINE231	Construction Operations	3

## YEAR 3 OF ATTENDANCE

*Session 5*

MECH241	Thermodynamics 1*	3
CIVL332	Hydraulics 2	3
GEOL352	Geology for Engineers II	6
MINE362	Mining Process Engineering	3
MINE363	Mining Economics	3
MINE371	Mining Methods and Ventilation	3
MINE372	Transportation	3

*Session 6\*\**

MINE342	Surveying (Mining)	3
MINE364	Management of Mining Projects	4
MINE365	Simulation of Mining Operations	6
MINE366	Mining Equipment	3
MINE367	Mine Resources	3
MINE368	Environmental Control	3
MINE314	Professional Practice 4	-

## YEAR 4 OF ATTENDANCE

*Session 7*

MINE491	Thesis	6
CIVL481	Engineering Management I	2
MINE474	Mining Projects and Reports	3
CIVL362	Soil Mechanics I	3
MINE471	Power and Control	3
MINE473	Regulations and Safety	3

\* Subjects marked with an asterisk are electives. The total number of electives required is normally more than 4, being one at 200-level, one at 300-level and two at 400-level (ELEC296 and ELEC297 together count as one 200-level elective).

\*\* Session 6 is of seven weeks duration. Immediately after the examination, students commence the intensive period of professional practice by working full-time in the mining industry.

## 288 DESCRIPTION OF SUBJECTS - CIVIL/MINING ENGINEERING

### Session 8

MINE491	Thesis	1
CIVL482	Engineering Management 2	2
MINE472	Rock Mechanics and Explosives	3
CIVL363	Soil Mechanics 2*	3
CIVL488	Traffic Engineering and Transportation*	3

### 200-level Electives\*

ELEC296	Applied Electricity IA	3
ELEC297	Applied Electricity IB	3
ECON111	Economics II	3

### 300-level Electives\*

(May also be taken as 400-level)

MECH241	Thermodynamics I	3
ECON215	Microeconomics	3
CIVL491	Computer Applications	3
GEOG202	Urban Location and structure	

### 400-level Electives\*

CIVL363	Soil Mechanics 2	3
CIVL486	The Civil Engineer and the Environment	3
CIVL493	Public Health Engineering	4
CIVL491	Computer Applications	3
CIVL488	Traffic and Transport Systems	3
CIVL496	Roads Engineering	4
CIVL464	Soil Mechanics	3
GEO225	Reource Geology I	6
GEO234	Economic Geology	6
GEO236	Geophysics	6
GEO237	Structural Geology and Mathematical Geology	6
ECON312	Industrial Economics	3

### Suggested Pattern 2: Taken over 10 Sessions

Subject to staff and facilities being available, the arrangement of this course will be as shown below. It is possible that there may be variations of the Session in which the subjects are shown to be offered.

#### Session 1

CIVL122	Mechanics and Structures	3
CIVL191	Building Construction	3
MATH101	Mathematics IA	6

#### Session 2

CIVL111	Introduction to Design	3
CIVL123	Dynamics	3
MATH101	Mathematics IA	6
MINE111	Professional Practice I*	

\* Subjects marked with an asterisk are electives. The total number of electives required is normally more than 4, being one at 200-level, one at 300-level and two at 400-level (ELEC296 and ELEC297 together count as one 200-level elective).



*Session 3*

CIVL171	Surveying 1	3
CHEM101	Chemistry IA	6
PHYS120	Fundamentals of Electricity and Magnetism	3

*Session 4*

CIVL142	Materials 1	6
PHYS121	The Physics of Waves and Particles	3
CIVL193	Excursions 1	-
CIVL172	Survey Camp	-
CIVL192	Construction 1	3
MINE112	Professional Practice 2	-

*Session 5*

ELEC296	Applied Electricity IA*	3
CIVL281	Computational Techniques 1	5
CIVL225	Mechanics 1	3
CIVL295	Experimental Engineering	3
CIVL251	Strength of Materials I	3
GEOL252	Geology for Engineers 1	6
CIVL273	Surveying 2	3
CIVL296	Excursions 2	-

*Session 6*

ELEC297	Applied Electricity IB*	3
CIVL282	Computational Techniques 2	5
CIVL226	Mechanics 2	3
CIVL231	Hydraulics 1	3
CIVL243	Materials 2	3
CIVL213	Structural Design 1	4
MINE231	Construction Operations	3
MINE213	Professional Practice 3*	-

*Session 7*

MINE241	Thermodynamics 1*	3
CIVL332	Hydraulics 2	3
GEOL352	Geology for Engineers II	6
MINE362	Mining Process Engineering	3
MINE363	Mining Economics	3
MINE371	Mining Methods and Ventilation	3
MINE372	Transportation	3

*Session 8\*\*\**

MINE342	Surveying (Mining)	4
MINE364	Management of Mining Projects	4
MINE365	Simulation of Mining Operations	6
MINE366	Mining Equipment	3
MINE367	Mine Resources	3
MINE368	Environmental Control	3
MINE314	Professional Practice 4	-

\* Subjects marked with an asterisk are electives. The total number of electives required is normally more than 4, being one at 200-level, one at 300-level and two at 400-level (ELEC296 and ELEC297 together count as one 200-level elective).

\*\*\* Session 8 is of seven week s duration. Immediately after the examination, students commence the intensive period of professional practice by working full-time in the Mining Industry.

290 DESCRIPTION OF SUBJECTS - CIVIL/MINING ENGINEERING

*Session 9*

MINE491	Thesis	6
CIVL481	Engineering Management 1	2
MINE473	Regulations and Safety	
CIVL362	Soil Mechanics 1	3
MINE471	Power and Control	3
MINE474	Mining Projects and Reports	3

*Session 10*

MINE491	Thesis	10
CIVL482	Engineering Management 2	2
CIVL363	Soil Mechanics 2*	3
CIVL488	Traffic Engineering and Transportation *	3
MINE472	Rock Mechanics and Explosives	3

*200-level Electives \**

ELEC296	Applied Electricity IA	3
ELEC297	Applied Electricity IB	3
ECON111	Economics II	3

*300-level Electives \**

*(May also be taken as 400-level)*

MECH241	Thermodynamics 1	3
ECON215	Microeconomics	3
CIVL491	Computer Applications	
GEOG202	Cities and Urban Systems	

*400-level Electives \**

CIVL363	Soil Mechanics 2	3
CIVL486	The Civil Engineer and the Environment	3
CIVL493	Public Health Engineering	3
CIVL491	Computer Applications	3
CIVL488	Traffic and Transport Systems	3
CIVL496	Roads Engineering	4
CIVL464	Soil Mechanics 3	3
GEOG334	Economic Geology	6
GEOG336	Geophysics	6
GEOG337	Structural Geology and Mathematical Geology	6
MINE111	Professional Practice 1	-
MINE112	Professional Practice 2	-
MINE213	Professional Practice 3	-
GEOG225	Resource Geology	6
ECON312	Industrial Economics	3

*100-LEVEL*

**MINE111 PROFESSIONAL PRACTICE 1**

Satisfactory experience gained whilst in full employment for one year in the Mining Industry. A report is to be submitted, the assessment and evaluation of which will be made by the Departmental Assessment Committee.

\* Subjects marked with an asterisk are electives. The total number of electives required is normally more than 4, being one at 200-level, one at 300-level and two at 400-level (ELEC296 and ELEC297 together count as one 200-level elective).

**MINE112 PROFESSIONAL PRACTICE 2**

Satisfactory experience gained whilst in full employment for one year in the Mining Industry. A Corporate member of the Institution of Engineers representing the organisation where the Professional Practice was obtained, must examine and sign for such Practice work for it to be applied against the course. A report is to be submitted for each subject, the assessment and evaluation of which will be made by the Departmental Assessment Committee.

*200-LEVEL*

**MINE213 PROFESSIONAL PRACTICE 3**

Satisfactory experience gained whilst in full employment for one year in the Mining Industry. A Corporate member of the Institution of Engineers representing the organisation where the Professional Practice was obtained, must examine and sign for such Practice work for it to be applied against the course. A report is to be submitted for each subject, the assessment and evaluation of which will be made by the Departmental Assessment Committee.

**MINE231 CONSTRUCTION OPERATIONS**

*Second session*

Drilling equipment and techniques. Explosives. Shaft sinking, layout techniques. Tunnelling. Open excavations. Underpinning and shoring. Introduction to planning and organisation.

*300-LEVEL*

**MINE314 PROFESSIONAL PRACTICE 1**

Satisfactory experience gained whilst employed full-time in the Mining Industry during the latter part of the session and the long vacation. A Corporate member of the Institute of Engineers representing the organisation where the Professional Practice was obtained, must examine and sign for such Practice work. A report is to be submitted, the assessment and evaluation of which will be made by the Departmental Assessment Committee.

**MINE342 SURVEYING (MINING)**

*Second session*

Photogrammetric interpretation. Land tenure, relevant acts and regulations. Land utilisation. Environment factors.

**MINE362 MINE PROCESS ENGINEERING**

*First session*

Principles of mineral processing. Comminution, liberation and separation. Applications to coal and metalliferous deposits. Dewatering and treatment of mining effluents.

**MINE371 MINING METHODS AND VENTILATION**

*First session*

A technical introduction to Mining Engineering, classification of mining methods and mining environments. Ventilation of mines, fans, and network analysis; computer simulation and project work. Thermodynamics of mine ventilation, heat in mines, its physiological and psychological effects, appropriate regulations. Inspection of local mines.

### **MINE372 TRANSPORTATION**

*First session*

Transport of materials and personnel. Conveyors, winders, bins, tracked and trackless vehicles, shaft conveyances. Ropes. Appropriate regulations, fire risks. Inspection of local mines.

### **MINE363 MINING ECONOMICS**

*First session*

Economics of Mineral Industry, markets, prices, government policy, and infrastructure, taxation, mining finances, social impact of Mining Industry.

### **MINE364 THE MANAGEMENT OF MINING PROJECTS**

*Second session*

The establishment of mines, including their organisation, control, costing and human relations. The operation of mines and their management.

### **MINE365 SIMULATION OF MINING OPERATIONS**

*Second session*

Simulation by digital computer of the complete operation of a mine including methods of mining, equipment and transport.

### **MINE366 MINING EQUIPMENT**

*Second session*

Modern equipment used, including that for drilling, blasting, tunnelling, mining, loading, transport, longwall mining, roof support and control, on-line computer control of mining equipment.

### **MINE367 MINE RESOURCES**

*Second session*

The evaluation of all available exploration data, and assessment of prospects. Optimisation of development schemes. Feasibility studies. Pilot studies. Contour plotting.

### **MINE368 ENVIRONMENTAL CONTROL**

*Second session*

The economic and social evaluation of mining projects. The role of the Mining Engineers and their responsibilities to the community.

*400-LEVEL*

### **MINE471 POWER AND CONTROL**

*First session*

Electrical safety, transformers, AC and DC reticulation and use, faults, thermal problems. Compressed air supply. Hydraulic supply. Water and drainage. Potential disasters. Noise and its control. Automation and control systems in mining operations and equipment. Inspection of local mines.

## **MINE472 ROCK MECHANICS AND EXPLOSIVES**

### *Second session*

Properties of rocks, failure theories, rock structures, stress and failure in rock about excavations and classification of explosives, theories of detonation and blasting. Rock fragmentation. Damage to structures, regulations. Inspections.

## **MINE473 REGULATIONS AND SAFETY**

### *First session*

Government regulations. Coal Mines Regulations and Acts. Legal aspects. Legal Responsibilities of mining engineers. Safety and optimising safety, production and accident avoidance. Court visits.

## **MINE474 MINING PROJECTS AND REPORTS**

### *First session*

Preparation and writing reports on technical aspects of mining operations, including sociological, environmental and impact studies. Visits to underground and open-cut mines.

## **MINE491 THESIS**

### *Double session*

Each student is required to prepare a thesis on a subject or topic approved by the Chairman of the Department. The subject of a thesis may cover:

- (a) a report of original work performed by the student in the laboratory or field;
- (b) a theoretical and experimental investigation of a Mining Engineering problem;
- (c) a set of drawings and calculations covering a Mining Engineering design.



## COMPUTING SCIENCE

Courses offered by the Computing Science Department may be included in the Bachelor of Mathematics, the Bachelor of Science or the Bachelor of Arts degrees. The Computing Science Department offers:

- (i) a main-stream sequence of subjects for students who intend to study a major sequence in computing science. Currently available main-stream subjects are:

CSCI101, CSCI201, CSCI301, CSCI321, CSCI322

- (ii) service subjects for students of other disciplines who require some knowledge of computing science. The currently available service subject is:

CSCI241

- (iii) honours and graduate courses in computing science.

A student wishing to obtain a Bachelor of Mathematics degree with a major sequence in Computing Science must obtain at least 36 credit points at 300-level of which at least 24 credit points must be from subjects offered by the Department of Computing Science.

The only additional requirement relating to compulsory subjects for the degree of Bachelor of Mathematics is that a student must take:

*either* at least 84 credit points of subjects selected from Schedule F,

*or* 72 credit points from Schedule F (24 of which must form a substantial and coherent study at the 300-level) provided a further minimum of 48 credit points are taken from subjects offered by or on behalf of one other department of the university (24 of which must form a substantial and coherent study at the 300-level).

### *Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A. Subjects which also appear in other schedules are:

<i>Subject</i>	<i>Schedules</i>
CSCI101	E & F
CSCI201	E & F
CSCI301	E & F
CSCI401	F

### *Textbooks*

Students will be advised of the appropriate textbooks for each subject in the first lecture of the subject. In all cases the lecturer should be consulted before textbooks are purchased.

### *Method of Assessment*

Unless otherwise indicated all subjects offered by the Department of Computing Science will be assessed by formal examinations, class tests and assignments.

*Coherent Study in Computing Science*

The 24 credit points of substantial and coherent study at the 300-level in Computing Science referred to in the Bachelor Degree Regulations 16.2, 20A.2.2 and 20A.3.1 comprise:

CSCI301	Advanced Data Structures and Hardware
CSCI321	Software Project
CSCI322	Operating Systems

*100-LEVEL***CSCI101 COMPUTING SCIENCE I**

*Double session; 1? credit points (3 lectures and 3 hrs laboratory per week)*

The objectives of this subject are to provide a foundation for subsequent computing science studies and to develop basic skills in problem-solving, algorithm design and programming style. The content is as follows:

- (a) Introduction to the Pascal, BASIC and Fortran programming languages. Detailed study of fundamental sorting and searching algorithms. Other algorithms relating to text processing and non-numeric computing. An introduction to the fundamental concepts of data structures and systems software. Fundamentals of computer architecture.
- (b) Laboratory work: practical work in algorithm design, programming and debugging will be conducted in the computing science laboratory which is equipped with an INTERDATA 3220 minicomputer, VDU terminals, and the UNIX operating system.

*TEXTBOOKS*

Arms, W.Y., Baker, J.E. & Pengelly. *A Practical Approach to Computing*. Wiley Publishing Co., London, 1976.

Welsh, J. & Elder, J. *Introduction to Pascal*. Prentice-Hall, London, 1979.

*200-LEVEL***CSCI201 COMPUTING SCIENCE II**

*Double session; 12 credit points (3 lectures and 1 tutorial per week)*

The objectives of this subject are to develop problem solving skills and programming style so that non-trivial problems of moderate size can be solved quickly, accurately and confidently. The content is as follows:

- (a) Methods - Algorithms, recursive algorithms, dynamic information structures, stacks, lists and trees.
- (b) Tools - Programming Language PASCAL; Assembly language programming; software tools for text processing; debugging techniques and programming style.

*TEXTBOOKS*

Alagic, S. & Arbib, M.C. *The Design of Well-Structured and Correct Programs*. Springer-Verlag, N.Y., 1978.

Jensen, K. & Wirth, N. *Pascal Users Manual and Report*. Springer-Verlag, 1978.

Wirth, N. *Algorithms + Data Structures = Programs*. Prentice-Hall, 1975.

**CSCI241 COMPUTING METHODS**

*First session; 6 credit points (3 lectures and 3 hrs laboratory work)*

Objective: to provide basic programming and computer problem solving skills with emphasis on applications to disciplines other than computing science.

Content: Introduction to the BASIC programming language. A survey of some simple algorithms for text processing, plotting, searching, sorting and statistical data processing. The history of computers and the principles of computer architecture. A survey of computer applications including large data bases, information storage and retrieval, and data acquisition. An introduction to microprocessors and their impact on society. A survey of recent developments in artificial intelligence.

**300-LEVEL****CSCI301 ADVANCED DATA STRUCTURES AND HARDWARE**

*Double session; 12 credit points (4 hrs per week)*

- (a) Computer Hardware - The structure of computers, processor architecture, instruction sets, microprogramming, peripheral interfaces and drivers, data collection devices, microprocessors.
- (b) Compiler Basics - Assemblers, interpreters, compilers. Basic mechanisms for Lexical analysis, parsing and code generation.
- (c) Advanced Data Structures - Balanced trees, digraphs, arrays, list structures and files. Database and information system basics.

**TEXTBOOKS**

Gries, D., *Compiler Construction for Digital Computers*. J. Wiley, 1971.  
 Toy, W.N., Kraft, G.D., *Mini/Microcomputer Hardware Design*. Prentice-Hall, Englewood Cliffs, N.J., 1979.

**CSCI321 SOFTWARE PROJECT**

*Single session; 6 credit points (1 lecture)*

- (a) Design and Implementation of a substantial programming project.
- (b) A study of the programming language C.
- (c) The use of the NROFF text processing facility.

**TEXTBOOK**

Kernighan, B.W., Richie, D.M. *The C Programming Language*. Prentice-Hall, 1978.

**CSCI322 OPERATING SYSTEMS**

*Single session; 6 credit points (3 lectures, 1 tutorial)*

- (a) Sequential and concurrent processes, synchronization of independent processes, memory management, scheduling algorithms, resource allocation, file systems.
- (b) Command languages.
- (c) A case study of a time sharing operating system.

**TEXTBOOK**

Habermann, A.N. *Introduction to Operating Systems Design*. SRA Computer Science Series, 1976.

**400-LEVEL****CSCI401 COMPUTING SCIENCE IV (HONOURS)**

*Double session; 48 credit points*

The Honours degree in Computing Science is achieved by the successful completion of a full year of comprehensive study following a pass degree. Entry to the honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman. The minimum requirement for entry into the honours programme is the completion of a substantial and coherent course in Computing Science at the 300-level with examination results significantly above pass level.

A student taking honours would normally take a selection of topics at fourth year level (subject to approval by the Chairman of the Department) and write a research report under the supervision of an appropriate member of staff.

The subject may include topics from: Operating Systems; Compilers; Machine Architecture; Microprocessors; Information Systems; Software Engineering; Programming Languages; Artificial Intelligence; Mathematics of Computation; Numerical Analysis; Statistics; Probability; Operations Research.

**CSCI411 COMPUTING SCIENCE HONOURS SEMINAR**

*Double session; 12 credit points*

The Honours Seminar, which is available as a separate subject for Master of Science or Diploma in Computing Science candidates only, requires the undertaking of a reading course in an appropriate field of study and the presentation of a research report as well as a seminar to the Department of Computing Science.

Assessment of the honours seminar will only be on the quality of the research report and of the seminar and will be made by the relevant departmental staff.

## ECONOMICS \*

*Schedule Entries*

Refer to the schedule entries for further details, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A. All 100-, 200- and 300-level subjects are also included in Schedule B. Subjects which also appear in other schedules are:

<i>Subject</i>	<i>Schedule</i>
ECON111	C
ECON215	C
ECON312	C

## 100-LEVEL

## ECON101 ECONOMICS I

*First session; 6 credit points (3 lectures, 1 tutorial per week)*

*Assessment:* Examinations, essays, tutorial assignments

An introduction to macroeconomic analysis including the study of national income and the relationships between flows of payments and flows of goods and services which constitute income.

An introductory study of some important Australian economic institutions and changes in these institutions affecting the structure of markets for products, financial markets, and the labour market.

## TEXTBOOKS

Peterson, W.C. *Income, Employment and Economic Growth*. 4th ed. Norton, 1978.  
Veale, J.M. (ed.), *Australian Macroeconomics*. Prentice-Hall, Australia, 1980.

## ECON111 ECONOMICS II

*Second session; 6 credit points (3 lectures, 1 tutorial per week)*

*Assessment:* Assignments, essays, examinations

An introduction to microeconomics and its application to contemporary social and economic problems. Elementary economic theory and the necessary institutional framework will be developed to foster the analysis of such topics as consumer protection, poverty, industry policy, non-renewable resources, education and health care.

## TEXTBOOKS

Heilbrener, *The Wordly Philosophers*. 4th ed., Simon & Schuster, 1972.  
Dorfman, R. & Norman, N. *Prices and Markets in Australia*. Prentice-Hall, 1980.  
Terry, C. (ed.) *Australian Microeconomics*. Prentice-Hall, 1980.

## ECON121 QUANTITATIVE METHODS I

*First session; 6 credit points (3 lectures, 1 tutorial per week)*

*Assessment:* Examinations and assignments

An introduction to quantitative techniques and their application to economics and business. Topics will include algebraic functions and economic relationships,

\* Industrial Relations Programme - see note under Description of Subjects - General Studies.



linear economic models and matrix algebra, and introductory statistics. The statistics covered will include descriptive statistics, probability, sampling and hypothesis testing.

#### TEXTBOOKS

James, D.E. & Throsby, C.D. *Introduction to Quantitative Methods*. J. Wiley, Adelaide, 1973.

Wonnacott, T.H. & Wonnacott, R.J. *Introductory Statistics for Business and Economics*. 2nd ed. J. Wiley, 1977.

### ECON122 QUANTITATIVE METHODS II

*Second session; 6 credit points (3 lectures, 1 tutorial per week)*

*Assessment:* Examinations and assignments

Application of calculus and statistics to economics and business. Topics will include the derivative, partial derivatives, integral calculus, analysis of variance, regression and correlation analysis, and multiple regression. Treatment of these topics enables the student to gain familiarity with the use of computer packages for estimation and analysis.

#### TEXTBOOKS

James, D.E. & Throsby, C.D. *Introduction to Quantitative Methods*. J. Wiley, Adelaide, 1973.

Wonnacott, T.H. & Wonnacott, R.J. *Introductory Statistics for Business and Economics*. 2nd ed. J. Wiley, 1977.

#### 200-LEVEL

### ECON205 MACROECONOMICS

*First session; 8 credit points (3 class hours: 2 lectures, 1 tutorial per week)*

*Assessment:* Assignments, essay, examinations

This is the second core subject in the Macroeconomics stream which begins in first year with Economics I and continues to Public Finance. The aim of the subject is development of monetary analysis. The latter stages of the course use this analysis in conjunction with product market analysis to examine the role of money and how it may influence economic activity. The topics covered are introduction to financial institutions as they relate to money supply and money demand, money supply theory, theories of the demand for money and the tools and techniques of monetary policy.

#### TEXTBOOKS

Chick, V. *The Theory of Monetary Policy*. Gray-Mills, London, 1973.

Davis, K. and Lewis, M. *Monetary Policy in Australia*. Longman Cheshire, Melbourne, 1980.

### ECON206 PUBLIC FINANCE

*Second session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Examinations, essays, and tutorial assignments

The subject is designed to provide an introduction to PUBLIC FINANCE, with special reference to Australia. An analysis of the theoretical issues involved in equity, efficiency and incidence of taxes is used as a basis for an analysis of different types of tax bases. Income tax, company tax, sales taxes, land taxes, turnover taxes, consumption taxes, value added tax and capital gains taxes are all examined. Non tax sources of revenue are also examined as is the Public Debt. Particular attention will be paid throughout to the Australian situation and in

particular the effects of the Federal system on Australian Public Finance will be considered.

Public expenditure will also be studied, with particular emphasis on the welfare effects of government expenditure. Questions about the type of goods and services which the government might provide and the size of the government sector will also be examined. The effects of social welfare expenditure and other expenditures on the distribution of income will also be studied.

#### TEXTBOOKS

Gronewegen, P. *Public Finance in Australia*. Prentice Hall, 1979.  
Musgrave & Musgrave. *Public Finance in Theory and Practice*. 2nd ed. McGraw-Hill, 1975.

### ECON215 MICROECONOMICS

*First session; 8 credit points (2 lectures, 1 tutorial/seminar per week)*  
*Assessment:* Examination and written assignments

This subject provides a comprehensive survey of contemporary microeconomics. Neo-classical theory is studied in depth, evaluated and compared with institutional, behaviourist and Marxian approaches. Topics will include the theories of consumer choice and the firm, commodity and factor markets, general equilibrium and welfare economics.

#### TEXTBOOK

Russell, R. R. & Wilkinson, M. *Microeconomics*. John Wiley, 1979.

### ECON216 INTERNATIONAL ECONOMICS

*Second session; 8 credit points (2 lectures, 1 hr tutorial per week)*  
*Assessment:* Tutorial exercises, essays and examinations

This subject extends the study of international economy in the following areas: the structure and pattern of international trade and income levels; the analysis of resource allocation; protection; factor transfers; the foreign exchange market; the balance of payments and its implications in macroeconomic analysis; the international monetary system.

Australian international economic relations will have special attention.

#### TEXTBOOKS

Caves, R E. & Jones, R.W. *World Trade and Payments*. Little, Brown & Co., 1973.  
Snape, R.H. *International Trade and the Australian Economy*. Longmans, 1969.

### ECON225 QUANTITATIVE ANALYSIS FOR DECISION MAKING - A

*First session; 8 credit points (2 lectures, 1 tutorial per week)*  
*Assessment:* Assignments, term project, examinations.

Analysis of the role of quantitative analysis in the decision-making process. A variety of problem-solving techniques will be studied with emphasis on their practical application. Topics will include linear programming, inventory and queuing models, scheduling and Markov chains.

#### TEXTBOOK

Bierman, H., Bonini, C. & Hausman, W. *Quantitative Analysis for Business Decisions*. 5th ed., Irwin, 1977.

## ECON226 QUANTITATIVE ANALYSIS FOR DECISION MAKING - B

*Second session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Assignments, term project, examinations

Analysis of the role of quantitative analysis in the decision-making process. A variety of problem-solving techniques will be studied with emphasis on their practical application. Topics will include decision and game theory, cost-benefit analysis, forecasting techniques, risk analysis and computer simulation.

### TEXTBOOK

Biernan, H., Bonini, C. & Hausman, W. *Quantitative Analysis for Business Decisions*. 5th ed., Irwin, 1977.

## ECON227 MEASUREMENT OF ECONOMIC VARIABLES AND INPUT/OUTPUT ANALYSIS

*First session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Assignments, term project, examinations

This subject first examines the concepts and problems associated with the measurement of micro and macro economic variables. Topics will include national income and flow-of-funds accounts, sources of data, problems of collection and aggregation, and measures of economic welfare. Secondly, input-output economics will be studied along with applications to structural analysis, forecasting, economic development and growth, and regional economics.

### TEXTBOOKS

O'Connor, R. & Henry, E.W. *Input/Output Analysis and its Application*. Griffin & Co., 1977.

United Nations, *A System of National Accounts*. N.Y., 1968.

### 300-LEVEL

## ECON302 COMPARATIVE ECONOMIC SYSTEMS

*First session; 8 credit points (3 lectures per week)*

*Assessment:* Continuous assessment based on 2 essays, a mid-term and a final examination

Classification of economic systems. A brief review of theoretical arguments about the relative efficiency and non-economic implications of market and command economies. Detailed consideration of the structure and performance of the Soviet, Yugoslav, Japanese, French and American economies. Brief consideration of aspects of the Chinese, West German and Swedish economies.

### TEXTBOOK

Gruchy, A.G. *Comparative Economic Systems*. 2nd ed. Houghton Mifflin, 1977.

## ECON303 ECONOMIC DEVELOPMENT ISSUES

*Second session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Examinations, essays, tutorial assignments

The subject concentrates on the study of those factors which characterise underdevelopment. Particular emphasis is placed on the institutional aspects of underdevelopment and the way in which these influence the choice of development strategy. Particular emphasis is placed on education and the role of labour in development, including manpower policies. Other major topics include distribution

of income, agriculture and land reform; industrialisation (with special emphasis on the traditional small-scale sector); trade; aid and foreign investment. Finally some of the newer theories of development which take account of institutional factors in underdeveloped countries are studied, as well as international factors such as the North-South dialogue.

**TEXTBOOK**

Meier, G.M. *Leading Issues in Economic Development*. O.U.P.

**ECON304 ECONOMIC POLICY**

*Second session; 6 credit points (3 hrs per week: lecture, organised group work and seminar)*

*Assessment:* Assignments, class work and examinations

This is a study of the objectives of economic policies, the relations between objectives, and the use of monetary, fiscal and other instruments of policy. Particular attention is given to policies concerned with prices, employment and incomes in Australia and the main instruments available for their implementation.

**ECON305 ECONOMIC DEVELOPMENT PLANNING**

*8 credit points (2 hrs lectures, 1 hr tutorial per week)*

*Assessment:* Assignments, essays and examinations

This subject emphasises techniques of development planning, and deals with the following topics: models of development and development strategy; programming; project evaluation; budgeting; planning organisation; development plans of some less-developed countries.

**ECON306 INTERNATIONAL TRADE**

*8 credit points (2 hrs lectures, 1 hr tutorial per week)*

*Assessment:* Assignments, essays and examinations

This subject examines the theory and application of trade policies. It will include protection by tariff and other means, foreign investment, foreign aid, and customs union.

**ECON307 INTERNATIONAL MONETARY ECONOMICS**

*8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Examinations, essays, assignments, seminars

The subject is a study of monetary aspects of International Economics. Balance of payments, theory and policies for internal and external balance will be included, and special attention will be given to international monetary arrangements developed in the post-war period.

**ECON308 LABOUR ECONOMICS**

*First session; 8 credit points (3hrs lectures/seminars per week)*

*Assessment:* Continuous assessment comprising essays/assignments/examinations

A study of the labour market and the factors influencing the supply and demand for labour will be the basis for the subject. Wages theory will be discussed as well as Australian practice. The effects of changes in technology on the work-force will be discussed as well as ways of accommodating such changes.

**TEXTBOOKS**

Freeman, R. B. *Labour Economics*. 2nd ed. Prentice-Hall, 1979.



Reynolds, L. G. *Labour Economics and Labour Relations*. 7th ed., Prentice-Hall, 1978.

### ECON311 NATURAL RESOURCE ECONOMICS

*Second session; 8 credit points (1 lecture and 2 seminars per week)*

*Assessment:* Seminar papers

A study of the role of natural resources in the economic process and of the problems associated with the use and development of natural resources. Reference will be made to current problems in resource use. Topics to be studied include: definition and classification of natural resources, their social significance; how natural resources become involved in the economic process, the theory of property rights, the role of property rights, the role of property; the use of natural resources by individuals and by society; natural resources in relation to economic growth and development, classical doctrine of natural resource scarcity, impact of technological change.

#### TEXTBOOK

Howe, C.W. *Natural Resource Economics: Issues, Analysis and Policy*. Wiley.

### ECON312 INDUSTRIAL ECONOMICS

*Second session; 8 credit points (1 lecture, 1 seminar, 1 tutorial per week)*

*Assessment:* Examinations and written assignments

A study of factors affecting production and productivity, with particular regard for industrial organisation in Australia. The emphasis will be on the industry, the economic sector, and the regional and national organisation of industry, as they affect decisions on prices, employment, investment, innovation, output and income distribution.

#### TEXTBOOKS

Davidson, F.G. & Stewardson, B.R. *Economics and Australian Industry*. 2nd ed. Longman Cheshire.

Shepherd, W.G. *The Economics of Industrial Organisations*. Prentice-Hall.

### ECON313 TRANSPORT ECONOMICS

*8 credit points (2 lectures, 2 tutorials, fieldwork)*

*Assessment:* 1 examination, research report, seminar papers/essay

This subject considers the significance of transport systems in structuring spatial patterns. It examines system concepts, analysis and structure for selected modal systems at various scales - for example, intra-urban transit systems, inter-urban road, rail systems and international air and maritime systems.

It also deals with techniques for network analysis, optimizing flows in networks and related methodology.

### ECON314 URBAN AND REGIONAL ECONOMICS

*8 credit points (3 lectures per week)*

*Assessment:* Continuous assessment based on 2 essays, a mid-session and a final examination

Presentation of a general theory of Urban and Regional economic growth. Analysis of inter-urban and inter-regional disparities in levels of unemployment, income, migration and population growth. Examination of evidence relating to the economic costs of such disparities. Analysis of government policies for control of the



spatial distribution of economic activities. Examination of the effectiveness of such policies.

Detailed consideration is given to material relating to the Australian economy, and brief consideration to material relating to various other market and command economies.

### **ECON315 APPLIED MICROECONOMICS**

*First session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Examinations and assignments

Microeconomics applied to a variety of topics and social problems. The areas of application studied vary from year to year but include such topics as the economics of health care, education, working women, migration, the arts and crime.

### **ECON316 HISTORY OF ECONOMIC THOUGHT**

*First session; 8 credit points (2 lectures, 1 seminar per week)*

*Assessment:* Examinations and written assignments

A subject designed to introduce students to the main developments in economic theory from the 17th to 20th centuries. Internal changes in theories, relationships between successive theories and external influences on this development will be examined. External influences to be considered will include not only historical events but also contemporary climates of opinion. Students will be expected to read widely in both primary and secondary sources.

#### **TEXTBOOKS**

*Either*

Rima, I.H. *Development of Economic Analysis*. R. D. Irwin, Homewood, Illinois, 1972.

*or*

Deane, P. *The Evolution of Economic Ideas*. Cambridge U.P., 1978.

### **ECON321 ECONOMETRICS**

*First session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Assignments, term project, examinations

The subject will be an introduction to the use of multiple regression in economic analysis. The major concern will be with the estimation of single equations. A theoretical framework for the second session subject Econometric Models is provided.

#### **TEXTBOOK**

Kmenta, J. *Elements of Econometrics*. Macmillan, 1971.

### **ECON322 MATHEMATICAL ECONOMICS**

*8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Assignments, examinations

Mathematical treatment of economic topics such as market equilibrium; welfare economics; and basic macroeconomic models.

**ECON323 ECONOMETRIC MODELS**

*Second session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Assignments, term project, examinations

This subject will complete the series in Econometrics. It will be an applied subject in evaluating and building of Econometric Models. Single equation, recursive and simultaneous models will be considered.

**TEXTBOOK**

Kmenta, J. *Elements of Econometrics*. Macmillan, 1971.

**ECON331 LABOUR - MANAGED SYSTEMS**

*Second session; 8 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Essays, assignments and examinations

This is a study of the Economics of Participatory and Labour-Managed Systems. The theoretical and practical implications of worker management and participation are considered. The economic efficiency of both the labour managed firm and economy are examined in detail. Special attention is given to deriving policies to counter the poor survival record of labour managed firms.

**TEXTBOOKS**

Vanek, Jaroslav. *The General Theory of Labor-Managed Market Economics*. Cornell University Press, Ithaca, 1970.

Vanek, Jaroslav. *Self Management*. Penguin Books, London, 1975.

**400-LEVEL****ECON421 HONOURS ECONOMICS**

*Double session; 48 credit points (6 hrs tuition and supervised class work)*

*Assessment:* Assignments, class work, examinations and thesis.

The course work consists of advanced macroeconomic theory (including public sector economics and monetary theory), and advanced microeconomic theory, including welfare economics, methodology and the history of economic thought. The thesis must be a piece of original research and is evaluated by members of the Department and external assessors.

## EDUCATION

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A.

Students are advised to see Departmental handbook for details of 1) actual courses available and 2) session offered. (Available in Department from October each year).

**100-LEVEL****EDUC101 LEARNING - THE INDIVIDUAL AND INSTITUTIONS**

*Double session; 12 credit points (3 hrs per week: lecture, seminar, tutorial)*  
*Assessment:* Assignments and examinations.

**Part 1 :** Learning: The meaning of learning and how learning occurs; Analysis of the concept of learning.

An explanation of the range of knowledge and ideas which relate to learning and its application to educational processes; the relationship between learning, the sensory mechanisms and the environment; the gaps in our present state of knowledge; concepts of learning in relation to education as a discipline and to the social practice of education.

**Part 2 :** The Individual: Development of the individual as a learner; Changes in the structure of the social environment of the learner.

The development of learning processes in the individual with an emphasis on development and on the interaction between individual and environment, and with special reference to educational processes; a history of the changes in the structure of social environment of the learner.

**Part 3 :** Institutions: The learning environment; the curriculum; the social context and the structure of institutions.

The transition between childhood and adolescence as a curricular context for the study of problems in learning; creating a learning environment for the emerging adolescent; the pathways of new knowledge into the curriculum; the inherent inequalities in social structure, their general effects on and manifestations in educational institutions, and their specific effects on learning processes.

**Part 4 :** Education, learning and social change.

Education and learning as devices for changing societies; possible future trends in education.

**200-LEVEL**

Subjects offered at this level are intended as introductory courses in educational studies. Normally, students enrolling in these courses shall have passed not fewer than three first-year subjects or the equivalent, although this condition may be modified in special circumstances by the Chairman of the Department.

*Required Enrolment Patterns.*

Students will normally be expected to enrol in more than one 200-level subject.

Students intending to take 24 credit points of 300-level study in education are required to pass subjects at the 200-level to the value of 12 credit points.

From 1981, a sequence of Education studies from 100 to 300-level will be available to undergraduate students. EDUC101: Learning, The Individual and Institutions, is a 100-level subject which will be the starting point for coherent studies in Education by serving as the basis for the re-structuring and streamlining of existing 200-level and 300-level courses in time for the 1982 and 1983 academic years respectively.

Therefore, students will be able to undertake what is in effect a "major" sequence in Education.

Research programs such as Education IV (the Honours program), the Master of Education and Master of Arts (in Education) degrees, and the Doctor of Philosophy will be available to students from a variety of cognate backgrounds, including that of coherent or "major" studies in Education.

The Diploma in Education, the Bachelor of Education, and the Master of Education (where this is completed primarily by coursework) will be available as largely vocational/professional courses for teachers and other appropriate professional workers.

### EDUC213 EDUCATIONAL PSYCHOLOGY

*First session; 6 credit points (3 hrs per week: lectures and tutorials)*

*Assessment:* 1 major assignment; end of session examination

A treatment of the growth and behaviour of typical children in an educational setting, emphasising issues in perception, cognition, learning, motivation and environmental influences, with observation classes and practical experiences.

#### TEXTBOOKS

de Lacey, P.R. *So Many Lessons to Learn*. Penguin. Ringwood, Vic., 1976.

Lefrancois, G.R. *Psychology for Teaching*. Wadsworth. Belmont, Calif., 1975.

### EDUC214 EDUCATIONAL SOCIOLOGY

*Second session; 6 credit points (3 hrs per week, lectures and tutorials)*

*Assessment:* assignments

An enquiry into the question of schools and society, focusing on social structure, the process of schooling and contemporary problem areas relating to education, politics and society.

#### TEXTBOOKS

Hargreaves, D. *Interpersonal Relations and Education*. Routledge & Kegan Paul, London, 1972.

Shephard, J.M. *Kaleidoscope: Adapted Readings for Introductory Sociology*. Harper & Row, New York, 1973.

### EDUC215 HISTORY OF WESTERN EDUCATION

*Single session; 6 credit points (3 hrs per week, lectures and tutorials)*

*Assessment:* 1 tutorial paper, option of major assignment or examination

An introduction to the historical study of education as a social process, with primary focus on educational institutions and including educational revolution in the 16th and 17th centuries. Changing views of childhood and adolescence the rise of the schooled society, and the relationship between social structure and educational institutions in the 20th century.



**TEXTBOOKS**

Aries, P. *Centuries of Childhood*. Peregrine, London, 1979.

**EDUC216 PHILOSOPHY IN EDUCATION**

*Second session; 6 credit points (3 hrs per week, lectures, seminars and tutorials)*  
*Assessment:* written assignments and optional examination

This course examines the educational ideas both of individual theorists and schools of thought from antiquity to the present day.

**TEXTBOOK**

Bowen & Hobson, *Theories of Education*. John Wiley & Sons, Qld., 1974.

**EDUC217 EDUCATIONAL RESEARCH AND MEASUREMENT AND ATYPICAL CHILDREN**

*First session; 6 credit points (3 hrs per week: lectures and tutorials)*  
*Assessment:* 1 major assignment, end of session examination

An introduction to principles and practices of measurement and research in education, and an introductory study of atypical children, in relation to educational processes. This subject can only be taken with EDUC213.

**TEXTBOOKS**

Gronlund, N.E. *Measurement and Evaluation in Teaching*. Macmillan, N.Y., 1976.  
Van Osdol, W.R. & Shane, D.G. *Introduction to Exceptional Children*. W.C. Brown. Dubuque, Ia., 1974.

**300-LEVEL**

Nine subjects are listed at 300-level, each valued at 8 credit points. Students intending to take 24 credit points in education at the 300-level must take at least two subjects from the following: EDUC313, 314, 315, 316, 317.

Students are advised to see Departmental handbook for details of 1) actual courses available and 2) session offered. (Available in Department from October each year).

**EDUC313 DEVELOPMENTAL PRINCIPLES IN EDUCATION**

*Single session; (3 hrs per week: lectures, seminars, tutorials, and school-based laboratory exercises)*  
*Assessment:* Examinations and assignments

This unit offers an opportunity to study the concept of human development, emphasising cognition, and a selection of contemporary theories of development within the context of contemporary society and education. Course work will include a child study.

**TEXTBOOKS**

Ginsburg, H. & Opper, S. *Piaget's Theory of Intellectual Development*. Prentice-Hall, Englewood Cliffs, 1969.  
Stone, L.J. & Church, J. *Childhood and Adolescence*. Random House, N.Y., 1979.

**EDUC314 SOCIOLOGY OF EDUCATION**

*Second session; (3 hrs per week: lecture, tutorial, research)*



*Assessment:* Continuous. Essay, Project and school-based laboratory exercises

An examination of sociological theory with critical evaluation together with an analysis of critical issues in education.

#### TEXTBOOKS

Avon, R. *Main Currents in Sociological Thought*. Vols. 1 & 2. Pelican, 1965.  
Cosin, B. et al. *School, Society. A Sociological Reader*. Routledge & Kegan and Open University, London, 1971.

### EDUC315 HISTORY OF EDUCATION

*First session; (3 hrs per week: 1 lecture and 2-hour seminar per week)*

*Assessment:* Seminar papers, option of major project or examination.

*Education and Society: Great Britain, United States and Australia 1780-1970.* A comparative examination of the historical relationship between education and society in three related but different cultural contexts. Students will be introduced to the major historiography; considerable emphasis will be placed on historical methodology and the use of primary source material. Major themes will be: education and social control; education and the economy; the historical sociology of curriculum change; the politics of education; the influence and impact of educational ideas and the role of educational bureaucracies.

#### TEXTBOOKS

Hyams, B.K. & Bessant, B. *Schools for the People*. Longman, Cambridge, 1972.  
Tyack, D.B. *The One Best System*. Harvard University Press, Boston, 1974.

### EDUC316 PHILOSOPHY IN EDUCATION

*First session; (3 hrs per week: lectures, seminars, tutorials)*

*Assessment:* Written assignments and optional examination

This course deals with the philosophical analysis of educational concepts. Topics to be considered include: the methodology of philosophical analysis in relation to educational ideas; the aims of education and their relationship to social and personal values; the nature of knowledge - how it is related to truth, belief and understanding?; the ethics of education and the concepts of freedom, authority, discipline and punishment.

#### TEXTBOOK

Soltis, S.F. *An Introduction to the Analysis of Educational Concepts*. 2nd ed., Addison Wesley, Mass., 1978.

### EDUC317 EDUCATIONAL RESEARCH METHODOLOGY

*Second session; (3 hrs per week: lectures, seminars, tutorials)*

*Assessment:* Examinations and assignments

This unit offers a study of the nature of educational research, surveys and experiments, and the evaluation of research, and report writing. Problems in designing conventional and action research programmes will be discussed.

#### TEXTBOOKS

Budd, W.C. & Kelly, S.P. *Educational Research by Practitioners*. Harper & Row, London, 1970.  
Campbell, D.T. & Stanley, J.C. *Experimental and Quasi-experimental Design for Research*. Rand McNally, Chicago, 1963, reprinted 1970.

- Dayton, C.M. *The Design of Educational Experiments*. McGraw-Hill, New York, 1970.
- Ferguson, G.A. *Statistical Analysis in Psychology and Education*. 4th ed. McGraw-Hill, N.Y., 1976.
- Nisbet, J.D. & Entwistle, N.J. *Educational Research Methods*. University of London Press, 1970.

### EDUC318 COMPARATIVE EDUCATION

*Single session; (3 hrs per week: lectures, seminars, tutorials)*

*Assessment:* Examinations and assignments

A comparative treatment of schooling in the social context, the preparation of teachers and tertiary education in a selection of cultures in relation to the Australian educational scene.

#### TEXTBOOKS

- Bereday, G.Z.F. *Essays on World Education*. Oxford University Press, London, 1969.
- Bereday, G.Z.F. *Comparative Method in Education*. Holt, Rinehart & Winston New York, 1964.
- Jones, P.E. *Comparative Education*. University of Queensland Press, 1973.

### EDUC319 PRINCIPLES OF CURRICULUM THEORY

*Second session; (3 hrs per week: 1 lecture, 2 seminars)*

*Assessment:* 1 major essay, 2 seminar reports

An examination of (a) the major educational concepts and principles related to the area of curriculum theory and development and (b) selected curriculum designs and approaches.

#### TEXTBOOKS

- Barrow, R. *Common Sense and the Curriculum*. George Allen & Unwin, London, 1976.
- Hirst, P.H. *Knowledge and the Curriculum*. Routledge & Kegan Paul, London, 1974.
- Richmond, W.K. *The School Curriculum*. Methuen, London, 1971.

### EDUC320 EDUCATIONAL ADMINISTRATION

*Single session; (3 hrs per week: basis: lectures, seminars)*

*Assessment:* Examinations, assignments, seminar papers

Principles of organisational psychology and sociology. School structure as a determinant of conditions for learning. Implications for the learning environment of Federal and State educational management structures and policies. Theories of innovation as devices in policy.

#### TEXTBOOKS

- Bennis, W.G. et al, *The Planning of Change*. 3rd ed. Holt, Rinehart and Winston, N.Y., 1976.
- Katz, D. & Kahn, R.L. *The Social Psychology of Organizations*. Wiley, N.Y., 1966.
- Pusey, M. *Dynamics of Bureaucracy*. Wiley, Sydney, 1976.

### EDUC321 CROSS-CULTURAL DEVELOPMENT AND EDUCATION

*First session; (3 hrs per week: lectures, seminars)*

*Assessment:* 1 major assignment, end of session examination

A treatment of human development in relation to education from an intercultural perspective. The subject will examine cultural and ecological influences upon development, and the relationship between various forms of schooling to developmental processes.

#### TEXTBOOKS

de Lacey, P.R. & Poole, M.E. eds. *Mosaic or Melting Pot: Cultural Evolution in Australia*. Harcourt Brace & Jovanovich, Sydney, 1979.

Dasen, P.R. *Piagetian Psychology: Cross-cultural Contributions*. Gardner Press, New York, 1977.

#### 400-LEVEL

The main purpose of Education IV is to provide an Honours year for those students wishing to specialise in educational studies. Considerable emphasis will be laid upon research and research methodology, and students will be expected to apply their knowledge in research to one or more of the areas of Educational Psychology, Educational Sociology, Comparative Education, History of Education, Philosophy of Education and Theories of Education. A thesis equivalent in time to one-third of the year's work is also required. Above average performance at third year level is a pre-requisite and entry to the Honours year will be determined by the Academic Senate on the advice of the Departmental Chairman.

It is hoped that students who complete an Honours degree through Education IV might continue their interest in research subsequently through higher degree work.

### EDUC401 EDUCATION IV

*Double session; 48 credit points (8 hrs of lectures/seminars; 4 hrs of tutorials)*  
*Assessment:* Formal examinations, test, assignments and associated projects (if appropriate)

All students must take the following topics totalling 16 credit points in the area of educational Research Methodology and Design:

- The logic of educational research
- Descriptive techniques
- Inferential techniques
- Sampling problems
- Validity of experiments in social settings
- Statistical and scientific hypotheses
- Quasi-experimental designs
- Generalisations and predictions
- Applications of research to the classroom
- Applications of research to education

Students must also complete 16 credit points comprising two groups of the following topics:

#### Educational Psychology Topics A

- Language in early childhood
- Language in the school
- Continuity and discontinuity in development tests of conceptual and language development
- Special topic

#### Educational Psychology Topics B

- Social class and intelligence
- Ethnic differences and mental growth
- Compensatory education

## 312 DESCRIPTION OF SUBJECT - EDUCATION

Literacy and numeracy programmes  
Special topic

### Educational Sociology Topics A

The family and education  
Social class and education  
The economy and education

### Educational Sociology Topics B

The political functions of education  
The use of education for selection  
Implications of teaching becoming a profession  
The roles of the teacher

### Comparative Education and History of Education

Systematic study of education systems selected from Australia, U.S.A.,  
U.K., France, Japan, S.E. Asia and China.  
Selected case study analyses showing the problem and inductive approaches  
in comparative methodology.  
Interdisciplinary contributions to Comparative Education.  
The Australian context.  
Historical antecedents to formal education systems in selected countries.

### Philosophy of Education and Theories of Education

Impact of philosophers on education  
Application of philosophical methods of enquiry to education  
Social philosophies and their impact on education  
Survey of major educational theories and theorists  
Critical issues in Curriculum Theory and Development  
Mass compulsory education in post-industrial society

**ELECTRICAL ENGINEERING***Assessment*

All subjects offered by the Department of Electrical Engineering are normally assessed by means of a final examination. In addition, set project work, laboratory reports and tutorial problems undertaken by the student throughout the session may also be taken into account. Lecturers in the individual subjects will provide details at the beginning of each session.

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule C (with the exception of ELEC191, 192, 291, 292, 293, 294, 295, 391 and 392). Subjects which also appear in other schedules are:

<i>Subject</i>	<i>Schedules</i>
ELEC101	A
ELEC191	A
ELEC192	A
ELEC291	A & D
ELEC292	A
ELEC293	A
ELEC294	A & E
ELEC295	A
ELEC391	A
ELEC392	A

**1. CORE MATERIAL****ELEC101 ELECTRICAL ENGINEERING 1**

*Double or second session; 6 credit points (a total of 84 hrs of lectures & tutorials)*

Introduction to electrical quantities and measurements, circuit analysis, energy conversion, electronic devices and circuits.

**TEXTBOOKS**

To be advised.

**ELEC151 INSTRUMENTATION AND MEASUREMENTS**

*First and second sessions (42 hrs of lectures and laboratory work)*

Data presentation and errors. Basic electrical measuring, recording and display instruments. Characteristics and measurement of circuit elements. Digital and analogue signals. Transducers.

**TEXTBOOK**

Wolf, S. *Guide to Electronic Measurements and Laboratory Practice*. Prentice-Hall, 1973.

**ELEC203 CIRCUIT THEORY 2A**

*Double session (84 hrs of lectures and tutorials)*



Development of circuit analysis from field descriptions; validity of KCL and KVL; topological properties of networks; mesh current, node voltage and cut-set analysis; classical solution of network equations; special case of sinusoidal steady state, phasor and impedance concepts. Generalised network analysis via Laplace transforms.

Network theorems, sinusoidal steady state, 3 phase systems. Further analysis in the S-domain; Fourier series and transform applications; two-port networks; state space and matrix methods.

### TEXTBOOKS

To be advised.

## ELEC301 CIRCUIT THEORY 3A

*Double session (42 hrs of lectures and tutorials)*

Filters, introduction to random signal theory, correlation functions, power density spectrum, probabilistic network analysis, optimal design of filters, computational aspects of network analysis.

### TEXTBOOK

Cooper, G.R. & McGillem, C.D. *Methods of Signal and Systems Analysis*. Holt and Rinehart, 1967.

## ELEC211 ELECTRONICS 1

*Double session (42 hrs of lectures and tutorials)*

Semi-conductor devices and device models; current transport in semi-conductors, diodes, bipolar and field-effect transistors, circuit modelling, biasing, single-stage wideband amplifiers, frequency response, design procedures.

### TEXTBOOKS

Holt, C.A. *Electronic Circuits - Digital and Analogue*. Wiley, 1978.  
Senturia, S.D. & Wedlock, B.D. *Electronic Circuits and Applications*. Wiley Int. ed., 1975.

## ELEC311 ELECTRONICS 3A

*Double session (84 hrs of lectures and tutorials)*

Analysis and design of multi-stage amplifiers, feedback amplifiers, and sinusoidal oscillators. Applications of integrated circuits as building blocks for linear and non-linear analogue systems.

Analysis and design of digital, switching and power circuits; IC logic gates, combinational digital circuits; discrete-component multi-vibrators and IC flip-flops, sequential circuits; basic methods for analogue/digital conversions; stabilised power supplies, thyristor regulators.

### TEXTBOOK

Millman, J. & Halkias, C.C. *Integrated Electronics, Analog and Digital Circuits and Systems*. McGraw-Hill, 1972.

## ELEC221 ENERGY CONVERSION AND DISTRIBUTION 1

*Double session*

## ELEC322 ENERGY CONVERSION AND DISTRIBUTION 2

*Double session*

**ELEC423 ENERGY CONVERSION AND DISTRIBUTION 3***First session*

*Each of the above subjects comprises 42 hrs of lectures and tutorials. The details for the above 3 subjects are as follows:*

Recapitulation of basic laws in electro and magneto statics and dynamics. Properties of ferro-magnetic materials and magnetic circuits. Energy conversion principles, with emphasis on electro mechanical devices. Coupled circuits, poly-phase and instrument transformers; dynamic circuit theory; transducers.

Steady state and transient performance of d.c. machines. Steady state performance of synchronous, induction and commutator machines.

Transmission line parameters and system modelling. Load flow analysis; frequency and voltage control; maximum power transfer, steady state stability. Symmetrical and unsymmetrical fault calculations.

Static converters; applications to a.c. and d.c. machine control.

**TEXTBOOKS***Energy Conversion and Distribution 1:*

Gourishanker, V. & Kelly, P.H. *Electro-Mechanical Energy Conversion*. Intext Co., 1973.

*Energy Conversion and Distribution 2:*

Fitzgerald, A.E., Kingsley, C. & Kusko, A. *Electric Machinery*. 3rd ed. McGraw-Hill, 1971.

*Energy Conversion and Distribution 3:*

Weedy, B.M. *Electric Power Systems*. 2nd ed. John Wiley & Sons, 1972.

**ELEC131 COMPUTERS 1***First or second session (42 hrs lectures and tutorials)*

Fundamental concepts - the evolution of computers, number systems, codes, binary arithmetic, Boolean algebra and computer logic, truth functional calculus.

High level programming languages, FORTRAN in particular. Analogue computer components, analogue programming, time and magnitude scaling, engineering applications.

**TEXTBOOKS**

McCracken, D.D. *A Guide to FORTRAN IV Programming*. Wiley.

Nagle, H.T. Jr., Carroll, B.D. & Irwin, J.D. *An Introduction to Computer Logic*. Prentice-Hall, 1975.

**ELEC331 COMPUTERS 2***Double session (42 hrs lectures and tutorials)*

Combinational logic, simplification of logic expressions, Karnaugh map, Quine-McCluskey minimisation. Sequential logic, flip-flops, registers, clock, timing and synchronisation problems. Sequential machines, Mealy and Moore machines, timing diagrams and state tables.

**TEXTBOOK**

Hill, F.J. & Peterson, G.R. *Introduction to Switching Theory and Logical Design*. Wiley Int. Edition.

**ELEC431 COMPUTERS 3***First session (42 hrs lectures and tutorials)*

Computer architecture, central processing unit, memory (ROM and RAM), input/output devices. Basic computer organisation, binary data and instruction codes, machine and assembly languages - instruction set, direct and indirect addressing. Interrupt, I/O bus and interface, direct memory access, I/O communication protocol. Introduction to hybrid computers, simulation and modelling of engineering systems on computers.

**TEXTBOOK**

To be advised.

**ELEC343 CONTROL SYSTEMS***Double session (84 hrs of lectures and tutorials)*

Description and physical systems by differential equations - Lagrange's equations; the convolution integral, transfer functions, block diagrams and signal flow graphs; feedback and its effects; analogue computer simulation; stability by Routh-Hurwitz criteria; frequency response on polar and rectangular plots; stability by Nyquist criterion and its extension to Bode Plots; system types and performance with standard inputs.

Root locus methods, frequency response and transient response from root locus diagram; performance criteria and their application to design; synthesis of single-input single-output linear systems by root locus, and Bode diagram; minor loop design.

**TEXTBOOK**Kuo, B.C. *Automatic Control Systems*. 3rd ed. Prentice-Hall, 1975.**ELEC393 ENGINEERING DESIGN METHODS***Double session; (84 hrs of lectures and tutorials, 42 hrs of design projects)*

Selected topics on logical, functional and computer aids to design, system and component reliability, economic parameters, time and frequency domain techniques in discrete and continuous system design.

The projects to be supervised, theoretical design assignments.

**TEXTBOOKS**

To be advised.

**ELEC251 LABORATORY 2A***Double session and first or second session***ELEC252 LABORATORY 2B***Double session***ELEC352 LABORATORY 3A***Double session and first or second session***ELEC353 LABORATORY 3B***Double session and first or second session*

**ELEC354 LABORATORY 3C***Double session and first or second session***ELEC355 LABORATORY 3D***Double session and first or second session***ELEC456 LABORATORY 4***First session*

*Each of the above subjects comprises 42 hrs of laboratory work and tutorials. The details for the above 7 subjects are as follows:*

The laboratory programmes for the BE course will normally cover the following topics:

Measuring equipment and techniques relevant to electric, magnetic and electro-mechanical circuits and systems.

Response of first and higher order systems; characteristics of sinusoidally excited circuits; harmonic analysis; amplifiers; regulated power supplies; wave shaping circuits; oscillators, digital circuits.

Transformers, d.c., induction and synchronous machines, dynamic characteristics; control circuits and simulation, frequency response, effects of feedback.

Advanced modern measurement equipment and techniques. Selected topics may include: circuit measurement with deterministic and random signals, R.F. and microwave measurements, digital and analogue circuits and systems, advanced control circuits for machines.

**ELEC461 COMMUNICATIONS 1***First session (42 hrs of lectures and tutorials)*

Basic structure of communication systems; analogue modulation and detection, analysis and methods of signal processing, performance of AM and FM systems in presence of noise; binary PCM and  $\Delta M$ , quantization, error probability. Comparison of information - transmission systems.

**TEXTBOOK**

Taub, H. & Schilling, D.L. *Principles of Communication Systems*. McGraw-Hill, 1971.

**ELEC463 SIGNAL TRANSMISSION***First session (42 hrs of lectures and tutorials)*

Wave propagation in cables, waveguides and atmosphere; radiation and antennas.

**TEXTBOOK**

Ramo, Whinnery & VanDuzer. *Fields & Waves in Communication Electronics*. McGraw-Hill, 1965.

**ELEC457 THESIS***Double session*

*This comprises two projects (a minimum of 112 hrs in session 1 and 154 hours in session 2)*



Each project involves the design and construction of experimental apparatus together with extensive laboratory testing. Where possible the projects are related to the research programme of the Department and are chosen to develop the students' initiative. Each student is required to deliver a seminar paper and to prepare a thesis on the result of the project work.

## INDUSTRIAL OPTIONS

Students in full-time employment become eligible to include Industrial Options in their course. Such inclusion is subject to the approval of the Chairman of the Department.

ELEC181	Industrial Option 1
ELEC282	Industrial Option 2
ELEC283	Industrial Option 3
ELEC384	Industrial Option 4
ELEC485	Industrial Option 5

A student enrolled in an Industrial Option is required to submit written reports and to participate in seminars within the Department. These will deal with a critical analysis and reporting of general (or nominated specific) aspects of Professional Practice as experienced by the student. A Corporate Member of the Institution of Engineers representing the organisation wherein the Professional Practice is obtained must examine and sign for such Professional Practice work before it can be accepted and assessed by the Departmental Assessment Committee.

## 2. ELECTIVES

*All single session subjects (3 hrs per week)*

### ELEC404 CIRCUIT THEORY 4

*First or second session*

Network functions, analysis and synthesis techniques, computer-aided approaches, large scale analysis, state space methods, network optimisation, signal flow graphs.

#### TEXTBOOK

To be advised.

### ELEC424 ELECTRIC ENERGY SYSTEMS

*First or second session*

System modelling, application of the computer to load flow analysis. Optimum operating conditions, frequency and voltage control. Economic aspects of power transmission.

Unsymmetrical fault analysis, interruption theory, surges, transient stability. Transient characteristics of synchronous machines. System protection.

#### TEXTBOOK

Elgerd, O.I. *Electric Energy Systems Theory*. McGraw-Hill, 1971.

### ELEC425 GENERALISED MACHINE THEORY

*First or second session*

Development of machine models, transformations, methods of solution, small signal responses, transfer and weighting function representation, with emphasis on synchronous and induction machines.



**TEXTBOOK**

No set text.

**ELEC426 ELECTROMECHANICAL DYNAMICS**

*First or second session (42 hrs of lectures and tutorials)*

Field description of electromechanical interaction, field transformations; generalised Ohms Law for plasma, transition to liquid and solid conductors; magnetic diffusion, levitation, charge relaxation; forces in magnetic and electrostatic field systems, Maxwell stress tensor, magnetization and polarisation force densities; electromechanical dynamics of solid continua, incompressible fluids and compressible fluids.

**TEXTBOOK**

Woodson, H.H. & Melcher, J.R. *Electromechanical Dynamics*. Vols. 1, 2, 3. J. Wiley, 1968.

**ELEC427 STATIC CONVERTERS**

*First or second session (42 hrs of lectures and tutorials)*

Characteristics of rectifiers, inverters, pulse and cycloconverters and their application to a.c. and d.c. variable speed drives.

**TEXTBOOK**

No set text.

**ELEC432 COMPUTERS 4**

*First or second session (42 hrs of lectures and tutorials)*

Advance features, memory architecture (memory interleaving, cache memory and hierarchy of memories), micro-programming, micro-processors and micro-computer hardware (bus system, multiplex bus system organisation), interface design. Programming of micro-computers with reference to appropriate micro-computers. Micro-computer applications.

**TEXTBOOKS**

To be advised.

**ELEC443 CONTROL 3**

*First or second session*

Concepts of state and state variables. Linear analysis. Concepts of controllability and observability. State feedback. Introduction to non-linear and optimal control and signal modulated systems.

**TEXTBOOKS**

To be advised.

**ELEC462 COMMUNICATIONS 2**

*First or second session*

Scope: analysis and design of communication circuits for analogue signal processing and frequency-domain multiplexing.

**TEXTBOOKS**

To be advised.

**ELEC472 ELECTRICAL PROPERTIES OF MATERIALS**

*First or second session*

Electric conduction and breakdown in solid, liquid and gaseous dielectrics; field strength calculations using Laplace and Poisson's equations. High voltage testing.

**TEXTBOOKS**

To be advised.

**ELEC481 PROBABILITY AND RANDOM PROCESSES**

*First or second session*

Probability theory; random variables, distribution and density functions, mean values and moments, ergodicity and stationarity; correlation functions, spectral densities, linear system response to random inputs; filtering and prediction.

**TEXTBOOK**

Thomas, J.B. *An Introduction to Applied Probability and Random Processes*. Wiley, 1971.

**ELEC475 COMPOSITE ELECTIVE 1**

*First or second session (42 hrs of lectures and tutorials)*

Selected topics from not more than three of the following:

ELEC404	ELEC424
ELEC425	ELEC426
ELEC427	ELEC432
ELEC443	ELEC462
ELEC472	ELEC481
ELEC482	

**TEXTBOOKS**

Reading as appropriate

**ELEC476 COMPOSITE ELECTIVE 2**

*First or second (42 hrs of lectures and tutorials)*

Selected topics from not more than three of the following:

ELEC404	ELEC424
ELEC425	ELEC426
ELEC427	ELEC432
ELEC443	ELEC462
ELEC472	ELEC481
ELEC482	

**TEXTBOOKS**

Reading as appropriate.

**ELEC477 COMPOSITE ELECTIVE 3***First or second session (42 hrs of lectures and tutorials)*

Selected topics from not more than three of the following:

ELEC404	ELEC424
ELEC425	ELEC426
ELEC427	ELEC432
ELEC443	ELEC462
ELEC472	ELEC481
ELEC482	

**TEXTBOOKS**

Reading as appropriate.

**ELEC482 SYSTEM RELIABILITY***First or second session (42 hrs of lectures and tutorials)*

Introduction to reliability engineering, mathematical system modelling, reliability assessment techniques, redundant systems, reliability improvement, reliability optimisation, Markovian processes, applications to electronic, power and telecommunication networks, computer-aided techniques.

**3. SERVICING SUBJECTS****ELEC191 COMPUTERS 1S***Second session; 6 credit points**Comprising:* ELEC151 Instrumentation and Measurements and ELEC131 Computers 1**ELEC291 APPLIED ELECTRICITY 1***Double session; 8 credit points*

Topics selected from circuit theory, electronic devices and their application in linear and digital circuits.

**TEXTBOOK**Smith, R.J. *Circuits, Devices & Systems*. 3rd ed. Wiley, 1976.**ELEC296 APPLIED ELECTRICITY 1A***First session*

Topics in electric circuit theory and electronics.

**TEXTBOOK**Smith, R.J. *Circuits, Devices and Systems*. 3rd ed. Wiley, 1976.**ELEC297 APPLIED ELECTRICITY 1B***Second session*

Topics in Electronics and magnetic circuits.

**TEXTBOOK**Smith, R.J. *Circuits, Devices and Systems*. 3rd ed. Wiley, 1976.

## ELEC192 INTRODUCTORY ELECTRONICS

*Double session; 6 credit points (42 hrs of lectures and tutorials; 42 hrs of practical)*  
*Assessment:* Class tests, final examination and reports

The course provides an introduction to electronic devices, circuits and systems for students in Science, Social Science and the Humanities.

### TEXTBOOKS

Hoening, S.A. & Payne, F.L. *How to Build and Use Electronic Devices without Frustration, Panic, Mountains of Money, or an Engineering Degree.* Little, Brown and Co., Boston, 1973.  
Senturia, S.D. & Wedlock, B.C. *Electronic Circuits and Applications.* Wiley, 1975.

## ELEC292 APPLIED ELECTRICITY 2

*Double session; 8 credit points*

Electromagnetic devices, d.c. and a.c. machines, transmission systems, and instrumentation.

### TEXTBOOK

Smith, R.J. *Circuits, Devices and Systems.* 3rd ed. Wiley, 1976.

## ELEC293 COMPUTERS 1M

*Double session; 6 credit points*

Switching algebra, combination and sequential logic. Number systems and codes. Use and application of high-level and assembler language.

Digital computer organisation and control, arithmetic and memory elements, input-output devices.

Analogue computer components, setting up linear systems, time and magnitude scale factors.

### TEXTBOOKS

To be advised.

## ELEC294 INTRODUCTORY SYSTEMS THEORY

*Second session; 6 credit points*

Definition and measures of information; introduction to some of the properties of the measures and to the idea of channel capacity and coding. The relationship between thermodynamics and information; information and organisation.

Concept and examples of systems, dynamic properties; modelling; introduction to methods of analysis of linear systems with extension to non-linear problems. Analogue simulation and system model analysis by digital and analogue computer. Deterministic and stochastic responses and models; continuous and discrete signals.

## ELEC295 COMPUTERS 2S

*Double session; 6 credit points*

*Comprising:* ELEC331 Computers 2

*Plus 42 hrs of appropriate tutorial and practical work.*

**ELEC391 COMPUTERS 3S**

*First session; 6 credit points*

*Comprising: ELEC431 Computers 3*

*Plus 4<sup>2</sup> hrs of appropriate tutorial and laboratory work.*

**ELEC392 COMPUTERS 4S**

*Second session; 6 credit points (56 hrs of lectures and tutorials)*

Aspects of: mini-computers, peripherals, interfaces, data conversion, microprocessors, memory elements and organisation.



## ENGLISH

The Department of English offers subjects in English Language at 100-, 200-, 300- and 400 (Honours)-level, in English Literature at 100-, 200-, 300- and 400 (Honours)-level and in Drama at 100-, 200-, and 300-level in the BA Degree course.

A comprehensive course of study in English comprises not less than 54 credit points of which not less than 12 credit points must be taken from 100-level subjects and not less than 24 credit points taken from 300-level subjects. Entry to 400-level English is determined by Senate on the recommendation of the Departmental Chairman.

Students may undertake English IV honours courses in English Literature or in English Language, or, if they have the necessary pre-requisites, in a combination of courses in both English Literature and English Language. Students wishing to proceed to 400-level English should discuss their proposed honours courses with the Departmental Chairman. Those who wish to do honours in English Literature are advised to include the following courses in their degree: ENGL218 *Elizabethan and Jacobean Tragedy*; ENGL219 *Seventeenth Century Poetry and Prose*; ENGL324 *Eighteenth Century Fiction*; ENGL327 *Nineteenth Century Poetry*. Students wishing to take honours in English Language will find the necessary pre-requisites set out in Schedule A.

Each subject comprises at least 28 hours (2 hours per week per session) of lectures, seminars and tutorials. The Departmental Chairman reserves the right to place a limit on numbers in particular subjects and to advise students on the subjects best suited to their qualifications and purposes. *As many of the subjects described in the following pages will be offered as can be with the staff available.*

All students are required to possess *The Concise Oxford English Dictionary* and H. Coombes' *Literature and Criticism* (Penguin) in addition to the texts prescribed for the subjects in which they are enrolled. Students intending to pursue a comprehensive course in English are also advised to obtain *The Oxford Anthology of English Literature*, 2 vol. edn., ed. Kermode and Hollander.

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A.

English subjects proposed for offer 1981 - 1983.

+ indicates subject will be offered.

— indicates subject will not be offered.

<i>Subject</i>	<i>Credit Points</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>
ENGL101	12	+	+	+
ENGL103	6	+	+	+
ENGL104	6	+	+	+
ENGL217	6	+	+	—
ENGL218	6	+	+	+
ENGL219	6	+	+	+
ENGL220	6	+	+	+
ENGL222	6	—	+	—

<i>Subject</i>	<i>Credit Points</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>
ENGL223	12	+	+	+
ENGL224	12	+	+	+
ENGL230	6	+	+	+
ENGL231	6	+	+	+
ENGL232	6	+	+	+
ENGL233	6	+	+	+
ENGL234	6	+	—	+
ENGL235	6	+	—	+
ENGL236	6	+	—	+
ENGL237	6	+	+	+
ENGL314	6	+	—	+
ENGL316	6	+	+	+
ENGL317	6	+	+	+
ENGL318	6	+	+	+
ENGL319	6	+	+	+
ENGL320	6	+	+	—
ENGL324	6	+	+	+
ENGL325	6	+	—	+
ENGL326	6	—	+	—
ENGL327	6	+	+	+
ENGL328	6	+	—	+
ENGL329	6	—	+	—
ENGL330	6	+	+	+
ENGL331	6	+	+	+
ENGL332	6	+	+	+
ENGL333	6	+	+	+
ENGL334	6	+	+	+
ENGL400	48	+	+	+

**ENGLISH LITERATURE***100-LEVEL***ENGL101 INTRODUCTION TO MODERN LITERATURE***Double session; 12 credit points (2 lectures, 1 tutorial per week)*

*Assessment (each session):* 1 essay, 1 tutorial paper, 2 practical criticism exercises

*First Session*

*Critical Method and Modern Prose.* The problems and techniques involved in the criticism of prose; critical discussion of selected modern short stories and novels.

**PRELIMINARY READING**

Kettle, A. *An Introduction to the English Novel*. 2 vols. Hutchinson, London, 1953.  
 Pritchett, V.S. *The Living Novel*. Chatto and Windus, London, 1946.  
 Schorer, M. *The Story*. Prentice-Hall, N.J., 1963.

**TEXTBOOKS**

Forster, E. M. *Aspects of the Novel*. Penguin, 1962.  
 Conrad, J. *Youth and End of the Tether*. Penguin, 1976.  
 Conrad, J. *Heart of Darkness*. Penguin, 1975.  
 Faulkner, W. *The Portable Faulkner*. Viking, 1967.  
 Hemingway, E. *The Essential Hemingway*. Penguin, 1974.  
 Lawrence, D.H. *Lady Chatterley's Lover*. Penguin, 1977.  
 Lawrence, D.H. *The Prussian Officer*. Penguin, 1968.  
 Joyce, J. *Dubliners*. Penguin, 1968.  
 Joyce, J. *A portrait of the Artist as a Young Man*. Penguin, 1968.  
 Mansfield, K. *The Garden Party and Other Stories*. Penguin, 1974.  
 White, P. *Riders in the Chariot*. Penguin, 1970.  
 White, P. *The Burnt Ones*. Penguin, 1970.

*Second Session*

*Critical Method and Modern Poetry.* Problems and techniques involved in the criticism of poetry; critical discussion of selected poems.

**TEXTBOOKS**

Brooks, C. & Warren, R.P. *Understanding Poetry*. 4th ed. Holt, Rinehart & Winston, New York, 1976.  
 Mack, M., Dean, L. & Frost, W. eds. *Modern Poetry*. 2nd ed. Prentice-Hall, Englewood Cliffs, N.J., 1961.

**200-LEVEL**

**ENGL217 RENAISSANCE POETRY AND PROSE A**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* One 1000 word essay, one 750 word tutorial paper, two practical criticism exercises. (This course may have two lectures per week in common with EURO211-301-311-316.)

A study of renaissance poetry and poetic theory with reference to Italy and France.

**TEXTBOOKS**

Hiller, G. ed. *Poetry of the Elizabethan Age*. Macmillan, London, 1978.  
 Shakespeare, William. *Sonnets, Venus and Adonis in Shakespeare's Collected Works*. ed. Alexander, Collins, 1951.  
 Sir Philip Sidney: *Selected Poems*. ed. Duncan-Jones. O.U.P., 1973.  
 Sidney, P. *An Apology for Poetry*. ed. Geoffrey Shepherd, Manchester U.P., 1977.  
 Castiglione, Baldassare. *The Book of the Courtier*. translated Charles Singleton, Anchor Books, 1959.

**ENGL218 ELIZABETHAN AND JACOBEAN TRAGEDY**

*First session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1000 word essay, one 750 word tutorial paper, two practical criticism exercises.

A study of late sixteenth and early seventeenth century tragedy.

**TEXTBOOKS**

Shakespeare, William. *Macbeth, King Lear, Hamlet, Richard II, Anthony and Cleopatra in Shakespeare's Collected Works*. ed. Alexander, Collins, 1951. (or in the New Cambridge Shakespeare Series)

Marlow, Christopher. *The Complete Plays*. Penguin Books, 1969.

Webster, John. *Three Plays*. Penguin Books, 1966.

Ford, John. *'Tis Pity She's a Whore*. ed. Morris, New Mermaid Series, Benn, 1976.

Tourneur, Cyril. *The Revenger's Tragedy*. ed. Gibbons, New Mermaid Series. Benn, 1976.

**ENGL219 SEVENTEENTH CENTURY POETRY AND PROSE**

*Second session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1000 word essay, one 750 word tutorial paper, two practical criticism exercises

A study of English poetry and prose of the seventeenth century.

**TEXTBOOKS**

Bush, D. ed. *The Portable Milton*. Penguin Books, 1977.

*Metaphysical Poets*. ed. Gardner. Penguin Books, 1975.

Donne, John. *Selected Poems*. Penguin Books, 1975.

Marvell, Andrew. *Complete Poems*. Penguin Books, 1972.

Bunyan, John. *The Pilgrim's Progress*. Penguin Books, 1965.

**ENGL220 UTOPIAN AND ANTI-UTOPIAN LITERATURE**

*Second session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* 1 essay, 2 tutorial papers, 1 practical criticism exercise.

A study of some literary portrayals of imaginary societies.

**TEXTBOOKS**

More, Thomas. *Utopia*. Penguin Books, 1965.

Johnson, Samuel. *Rasselas in Shorter Novels of the Eighteenth Century*. Vol. 3. ed. Phillip Henderson. J.M.Dent, London, 1962.

Swift Johnathan. *Gulliver's Travels*. Penguin Books, 1975.

Morris, William. *News from Nowhere*. Routledge and Kegan Paul, 1970.

Butler, Samuel. *Erewhon*. Penguin Books, 1954.

Orwell, George. *Nineteen Eighty-Four*. Penguin Books, 1975.

Durrell, Lawrence. *The Dark Labyrinth*. Faber, 1969.

Golding, William. *Lord of the Flies*. Faber, 1958.

Huxley, Aldous. *Brave New World*. Penguin Books, 1976.

Lessing, Doris. *Memoirs of a Survivor*. Panther Books.

**ENGL222 AUSTRALIAN LITERATURE SINCE 1920 A**

*First session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* 1 essay, 1 tutorial paper, 2 practical criticism exercises

A study of several major works of Australian prose fiction, poetry and drama of the Twentieth Century.

**PRELIMINARY READING**

Dutton, G. *The Literature of Australia*. Penguin, 1976.

**TEXTBOOKS**

Slessor, K. *Poems*. Angus and Robertson, Sydney, 1976.

Hope, A.D. *Collected Poems 1942-1970*. Angus and Robertson, Sydney, 1975.

Craig, A. ed. *Twelve Poets 1950-1970*. Angus and Robertson, Sydney, 1975.

Boyd, M. *Lucinda Brayford*. Lansdowne, Melbourne, 1972.

Stead, C. *The Man Who Loved Children*. Penguin, 1970.

Stow, R. *The Merry-go-round-in-the Sea*. Penguin, 1968.

Dark, E. *The Timeless Land*. Collins.

Hewett, D. *Bon-Bons and Roses for Dolly and The Tatty Hollow Story*. Currency, 1976.

**ENGL234 ENGLISH COMEDY A**

*Second session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1000 word essay, one 750 word tutorial paper, two practical criticism exercises.

A study of English comedy from the sixteenth to eighteenth century.

**TEXTBOOKS**

Shakespeare, William. *As You Like It, Henry IV Pt. I, Troilus and Cressida, The Tempest* in *Shakespeare's Collected Works*. ed. Alexander, Collins, 1951.  
(or in the New Cambridge Shakespeare Series)

Jonson, Ben. *Three Comedies*. Penguin Books, 1966.

Morrell, J.M. *Four English Comedies*. Penguin Books, 1960.

Harris, Brice. *Restoration Plays*. Modern Library, New York, 1953.

**ENGL235 EIGHTEENTH CENTURY POETRY A**

*First session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1000 word essay, one 750 word tutorial paper, two practical criticism exercises.

A study of the poetry of Dryden, Pope, Johnson, Gray, Goldsmith, Crabbe, Collins and Cowper.

**TEXTBOOKS**

*Selected Poetry and Prose of John Dryden*. ed. Miner. Modern Library, New York, 1969.

*The Poems of Alexander Pope*. ed. Butt. Twickenham one-volume. edn. Methuen, 1965.

Johnson, Samuel. *Rasselas, Poems and Selected Prose*. ed. Bronson. Holt, Rinehart and Winston, 1971.

*English Prose and Poetry: 1660 - 1800*. ed. Brady and Price. Holt, Rinehart and Winston, New York, 1961.

**ENGL236 AUSTRALIAN LITERATURE TO 1920 A**

*First session; 6 credit points (1 two-hour seminar per week)*

*Assessment:* One 1000 word essay and either two 750 word tutorial papers and one practical criticism exercise or one 750 word tutorial paper and two practical criticism exercises

A study of a number of works of Australian prose fiction and poetry to 1920.



**PRELIMINARY READING**

- Ward, R. *The Australian Legend*. O.U.P. Melbourne, 1978.  
 Dutton, G. *The Literature of Australia*. Penguin, 1976.  
 Phillips, A.A. *The Australian Legend*. Longman Cheshire, 1980.

**TEXTBOOKS**

- Baynton, Barbara, *Bush Studies*, University of Queensland Press, 1979.  
 Clarke, M. *For the Term of His Natural Life*. Angus and Robertson, Sydney, 1975.  
 Lawson, H. *The Portable Henry Lawson*. ed. Kiernan. U.Q.P. Brisbane, 1976.  
 Furphy, J. (Collins T. pseud.) *Such is Life*. Angus and Robertson, Sydney, 1972.  
 Richardson, H.H. *The Fortunes of Richard Mahony*. 3 vols. Penguin, 1975.  
 Wilkes, G.A. ed. *The Colonial Poets*. Angus and Robertson, 1974.

**300-LEVEL****ENGL314 AUSTRALIAN LITERATURE TO 1920 B**

*First session; 6 credit points (1 two-hour seminar per week)*

*Assessment:* One 1500 word essay and either two 1000 word tutorial papers and one practical criticism paper or one 1000 word tutorial paper and two practical criticism papers.

(Course description, preliminary reading and textbooks the same as for ENGL236).

**ENGL320 RENAISSANCE POETRY AND PROSE B**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* One 1500 word essay, one 1000 word tutorial paper, two practical criticism exercises.

(The course may have two lectures in common with EURO211-301-311-361).

(Course description and textbooks as for ENGL217).

**ENGL324 EIGHTEENTH CENTURY PROSE**

*First session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1500 word essay, one 1000 word tutorial paper, two practical criticism exercises

A study of English prose literature of the eighteenth century.

**TEXTBOOKS**

- Swift, Jonathan. *Gulliver's Travels and Other Writings*. Modern Library, New York, 1958.  
 Defoe, Daniel. *Moll Flanders*. Signet, New York, 1964.  
 Richardson, Samuel. *Pamela*. Vol. I. Everyman Library, Dent, 1974.  
 Fielding, Henry. *Joseph Andrews*. Penguin Books, 1977.  
 Smollett, Tobias. *Humphry Clinker*. Penguin Books, 1971.  
 Sterne, Laurence. *Tristram Shandy*. Penguin Books.  
 Goldsmith, Oliver. *The Vicar of Wakefield*. Everyman Library, Dent, 1973.  
*Three Gothic Novels*. ed. Fairclough. Penguin Books, 1968.  
 Peacock, Thomas L. *Nightmare Abbey and Crochet Castle*. Penguin Books.  
 Austen, Jane. *Northanger Abbey*. Penguin Books, 1972.  
 Johnson, Samuel. *Rasselas, Poems and Selected Prose*. ed. Bronson. Holt, Rinehart and Winston, 1971.

**ENGL325 EIGHTEENTH CENTURY POETRY B**

*First session; 6 credit points (1 lecture, 1 tutorial per week)*

### 330 DESCRIPTION OF SUBJECTS - ENGLISH

*Assessment:* One 1500 word essay, one 1000 word tutorial paper, two practical criticism exercises

A study of the poetry of Dryden, Pope, Johnson, Gray, Goldsmith, Crabbe, Collins and Cowper.

#### TEXTBOOKS

*Selected Poetry and Prose of John Dryden.* ed Miner. Modern Library, New York, 1969.

*The Poems of Alexander Pope.* ed. Butt. Twickenham one-vol. edn. Methuen, 1965.

Johnson, Samuel. *Rasselas, Poems and Selected Prose.* ed. Brinson. Holt, Rinehart and Winston, 1971.

*English Prose and Poetry: 1660 - 1800.* ed. Brady and Price. Holt, Rinehart and Winston, New York, 1961.

### ENGL326 NINETEENTH CENTURY PROSE

*Second session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1500 word essay, one 1000 word tutorial paper, two practical criticism exercises

A study of English prose literature of the nineteenth century.

#### PRELIMINARY READING

Buckler, William. *Prose of the Victorian Period.* Houghton Mifflin, Riverside Editions, Cambridge, U.S.A.

Fowles, John. *The French Lieutenant's Woman.* Panther, 1973.

#### TEXTBOOKS

Austen, Jane. *Emma.* Penguin, 1972.

Bronte, Charlotte. *Jane Eyre.* Penguin, 1976.

Dickens, Charles. *Dombey and Son.* Penguin, 1976.

Dickens, Charles. *Great Expectations.* Penguin, 1976.

Eliot, George. *Middlemarch.* Penguin, 1976.

James, Henry. *The Portrait of a Lady.* Penguin.

Hardy, Thomas. *Tess of the D'Urbervilles.* Penguin, 1978.

Moore, George. *Esther Waters.* Dent, 1977.

### ENGL327 NINETEENTH CENTURY POETRY

*Second session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1500 word essay, one 1000 word tutorial paper, two practical criticism exercises.

A study of English poetry of the nineteenth century.

#### TEXTBOOKS

Wordsworth, William. *Selected Poetry.* ed. Van Doren. Modern Library, New York, 1950.

*Poems of Tennyson.* Ed. Buckley. Houghton Mifflin, 1958.

*Romantic Poets: Blake to Poe.* ed. Auden and Pearson. Penguin Books, 1977.

*Victorian and Edwardian Poets: Tennyson to Yeats.* ed. Auden and Pearson, Penguin Books, 1977.

### ENGL328 ENGLISH COMEDY B

*Second session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1500 word essay, one 1000 word tutorial paper, two practical criticism exercises.

(Course description and textbooks as per ENGL228).

### ENGL329 AUSTRALIAN LITERATURE SINCE 1920 B

*First session; 6 credit points (1 lecture, 1 tutorial per week)*

*Assessment:* One 1500 word essay, one 1000 word tutorial paper, two practical criticism exercises.

(Course description, preliminary reading and textbooks the same as for ENGL222).

### ENGL334 CRITICAL PRACTICE AND THEORY

*Second session; 6 credit points 1 2-hour seminar per week)*

*Assessment:* One 1500 word essay, one 1000 word tutorial paper, 2 practical criticism exercises.

A study of the theory and practice of criticism.

#### TEXTBOOKS

*Classical Literacy Criticism.* translated T.S. Dorsch, Penguin Books, 1965.

#### 400-LEVEL

### ENGL400 ENGLISH IV HONOURS

*Double session; 48 credit points*

*Assessment:* Seminar papers, long essays and/or examinations, and by a thesis of not more than 10,000 words. At the discretion of the Departmental Chairman sessional examinations may be set instead of the thesis.

Following is the description for students studying the Literature strand of this subject.

#### *First Session*

PRACTICAL CRITICISM (A). An introduction to the science of reading.

*2-hour seminar*

*Assessment:* 2 Practical Criticism exercises

#### PRELIMINARY READING

Richards, I.A. *Practical Criticism.* Routledge & Kegan Paul, 1966.

Coombes, H. *Literature and Criticism.* Penguin Books, 1963.

Thompson, D. *Reading and Discrimination.* Chatto & Windus, 1954.

*Discrimination and Popular Culture.* ed. Thompson. Penguin Books, 1964.

Leavis, F.R. & Thompson, D. *Culture and Environment.* Chatto & Windus, 1950.

#### TEXTBOOKS

Scripts will be provided.

THE NOVELS OF D. H. LAWRENCE. A critical study of a selection of Lawrence's novels, concentrating upon *Sons and Lovers*, *The Rainbow*, *Women in Love* and *Kangaroo*, all of which are available as Penguin Books.

*2-hour seminar*

*Assessment:* 1 three-hour examination

#### PRELIMINARY READING

A reading list will be provided.

THE WRITINGS OF W. B. YEATS. A discussion of Yeat's poetry, prose and plays.

## 332 DESCRIPTION OF SUBJECTS - ENGLISH

*2-hour seminar*

*Assessment:* 1 long essay and 1 two-hour examination

### TEXTBOOKS

Yeats, W. B. *Collected Poems*. Macmillan.

Yeats, W. B. *Complete Plays*. Macmillan.

SPECIAL SUBJECT (A). A course of supervised individual study on a topic chosen by the student and approved by the Departmental Chairman.

*1-hour individual tutorial per week*

*Assessment:* Either a 10,000 word thesis or, at the discretion of the Departmental Chairman, a three-hour examination each session

*Second Session*

PRACTICAL CRITICISM (B). As for first session.

MODERNISM A critical study of some representative texts.

*2-hour seminar*

*Assessment:* 1 three-hour examination

### TEXTBOOKS

A reading list will be provided.

TWENTIETH CENTURE WOMEN WRITERS. This subject will examine novels, short stories and poetry written by women in the twentieth century.

*2 hour seminar*

*Assessment:* 2 essays

### TEXTBOOKS

Woolf, Virginia. *To the Lighthouse*. Panther, 1977.

Woolf, Virginia. *A Room of One's Own*. Panther, 1977.

Lessing, Doris. *The Golden Notebook*. Panther, 1973.

Lessing, Doris. *A Man and Two Women*. Panther, 1968.

Stead, Christina. *The Man Who Loved Children*. Penguin, 1969.

Stead, Christina. *For Love Alone*. Angus & Robertson, 1962.

Mansfield, Katherine. *Bliss and Other Stories*. Penguin Books, 1969.

Plath, Sylvia. *Ariel*. Faber, 1968

Moore, Marianne. *Selected Poems*. Faber, 1965.

Wright, Judith. *Collected Poems*. Angus and Robertson, 1971.

Engel, Marian. *Bear*.

SPECIAL SUBJECT (B) As for first session.

## ENGLISH LANGUAGE

100-LEVEL

### ENGL 103 INTRODUCTION TO ENGLISH LANGUAGE STUDIES A

*First session; 6 credit points (1 lecture, 1 two-hour seminar, 1 tutorial per week)*

*Assessment:* 1 phonetics exercise, 2 tutorial papers, 2 class exercises

- (i) The Development of English up to the Middle English Period, and
- (ii) Introduction to Mediaeval Life and Thought

### TEXTBOOKS

Baugh, A.C. *History of the English Language*. Routledge and Kegan Paul, 1976.

Mitchell, A.C. & Delbridge, A. *The Pronunciation of English in Australia*. Rev. ed. Angus and Robertson, Sydney, 1965.

### ENGL104 INTRODUCTION TO ENGLISH LANGUAGE STUDIES B

*Second session; 6 credit points (1 lecture, 1 two-hour seminar, 1 tutorial per week)*  
*Assessment: 1 long essay, 2 tutorial papers, 2 class exercises*

- (i) The Development of English from the Middle English Period to the present day.
- (ii) Introduction to Early English Language and Literature: a study of Chaucer's language and of selected *Canterbury Tales*.

#### TEXTBOOK

Cook, D. ed. *The Canterbury Tales of Geoffrey Chaucer*. Anchor, New York, 1961.

#### 200-LEVEL

### ENGL223 OLD ENGLISH

*Double session; 12 credit points (1 lecture, 1 tutorial per week)*  
*Assessment: 1 essay, 1 tutorial paper, 2 class exercises*

An introduction to the language, literature and culture of the Anglo-Saxons and a study of Old English poetry and prose.

### ENGL224 MIDDLE ENGLISH

*Double session; 12 credit points (1 lecture, 1 tutorial per week)*  
*Assessment: 1 essay, 1 tutorial paper, 2 class exercises*

An introduction to the language and literature of England between the Norman Conquest and the Age of Chaucer to be followed by a study of the poetry, prose and drama of the later Middle English period.

### ENGL237 ENGLISH LANGUAGE IN AUSTRALIA

*Second session; 6 credit points (one 2-hour seminar per week)*  
*Assessment: 1 long essay, 2 tutorial papers, 2 class exercises*

A survey of modern approaches to basic problems in philology. Controversial questions of grammatical and phonological classification, terminology, and doctrines of correctness in language study. The course places special emphasis on the works of Australian linguists, the origins and development of Australian English and the divergence between the literary and vernacular forms of language in Australia.

#### TEXTBOOKS

Baker, S.J. *The Australian Language*. Sydney, Currawong Press, 2nd ed., 1966.  
 Ramson, W. *English Transplanted*. Canberra, A.N.U. Press, 1970.  
 Turner, G.W. *The English Language in Australia and New Zealand*. London, Longmans, 1966.

#### 300-LEVEL

### ENGL316 ADVANCED OLD ENGLISH

*First session; 6 credit points (1 lecture, 1 tutorial per week)*  
*Assessment: 1 essay, 1 three-hour examination*



A detailed study of some of the more difficult texts in Old English poetry and prose.

**TEXTBOOKS**

Bethurum, D. *The Homilies of Wulfstan*. Oxford, 1957.  
Timmer, B.J. *Judith*. University of Exeter, 2nd ed.  
Graden, P. *Elene*. University of Exeter, 2nd ed.  
Gordon, I.L. *The Seafarer*. London, 1960. Muthuen, 1960.

**ENGL317 MEDIAEVAL ROMANCE IN ENGLAND**

*First session; 6 credit points (1 lecture, 1 tutorial per week)*  
*Assessment:* 1 essay, 1 three-hour examination

A detailed study in the original language of the romance genre in Mediaeval English literature.

**TEXTBOOKS**

Brewer, D. ed. *Morte D'Arthur*. Northwestern University Press, Evanston, 1968.  
Sands, D.B. ed. *Middle English Verse Romances*. Holt, Rinehart and Winston, New York, 1966.  
Tolkien, J.R.R. & Gordon, E.V. ed. *Sir Gawain and the Green Knight*. 2nd ed. Oxford University Press, 1967.

**ENGL318 OLD AND MIDDLE ENGLISH LYRIC**

*Second session; 6 credit points (1 lecture, 1 tutorial per week)*  
*Assessment:* 1 essay, 1 three-hour examination

A study of the origins and nature of Old and Middle English lyrics.

**TEXTBOOKS**

Davies, R.T. ed. *Mediaeval English Lyrics, A Critical Anthology*. Faber, 1963.  
Dickens, B. & Ross, A.S. *The Dream of the Rood*. 2nd ed. Meuthuen.  
Dunning, Bliss & Allen. *The Wanderer*. Methuen, 1969.

**ENGL319 MEDIEVAL DRAMA IN ENGLAND**

*Second session; 6 credit points (1 lecture, 1 tutorial per week)*  
*Assessment:* 1 essay, 1 tutorial paper, 2 class exercises

A study of drama in England from the earliest times up to the early-Tudor period.

**TEXTBOOK**

Adams, J.Q. ed. *Chief Pre-Shakespearian Dramas*. Riverside Press, Cambridge, Mass., 1924.

**400-LEVEL**

**ENGL400 ENGLISH IV**

*Double session; 48 credit points*  
*Assessment:* Seminar papers, long essays and/or examinations, and by a thesis of not more than 10,000 words. At the discretion of the Departmental Chairman sessional examinations may be set instead of the thesis.

Following is the description for students studying the language strand of this subject.

*First Session*

CRITICAL THEORY AND PRACTICE. Classical and Mediaeval.

*Assessment:* 1 long essay and a three-hour examination

#### TEXTBOOKS

*Classical Literary Criticism.* tr. Dorsch, Penguin Books, 1965.

Students will study selections from Plato, Aristotle, Horace, Longinus, Quintilian, Pseudo-Cicero, Bede and Geffroi de Vinsauf.

BEOWULF AND RELATED HEROIC POETRY (A). A study of Old English heroic poetry.

*Assessment:* 1 long essay and a two-hour examination

#### TEXTBOOK

Klaeber, Fr. ed. *Beowulf and the Fight at Finnsburg.* 3rd ed. Heath, New York, 1950.

FOURTEENTH CENTURY LITERATURE (A). Students will study the works of Chaucer and selections from Langland, Gower and the Gawain poet.

*Assessment:* 1 long essay and a two-hour examination

SPECIAL SUBJECT (A). A course of supervised individual study on a topic chosen by the student and approved by the Departmental Chairman.

*1-hour individual tutorial per week*

*Assessment:* A thesis of not more than 10,000 words or, at the discretion of the Departmental Chairman, a three-hour examination each session.

#### *Second Session*

THE HISTORY OF PHILOLOGY. A study of Linguistic Theory and Method from classical, through mediaeval times, up to the present day.

Students will study a selection from Plato, Aristotle, Quintilian, Mediaeval Christian Philosophers, Eighteenth Century Linguists, Nineteenth Century Comparative Philologists and the Twentieth Century Linguists.

*Assessment:* 1 long essay and a three-hour examination

BEOWULF AND RELATED HEROIC POETRY (B). A study of Old English heroic poetry.

*Assessment:* 1 long essay and a three-hour examination

#### TEXTBOOK

Klaeber, Fr. ed. *Beowulf and the Fight at Finnsburg.* 3rd ed. Heath, New York, 1950.

FOURTEENTH CENTURY LITERATURE (B). Students will study the works of Chaucer and selections from Langland, Gower and the Gawain poet.

*Assessment:* 1 long essay and a three-hour examination

SPECIAL SUBJECT (B). As for first session.

#### DRAMA

##### 100-LEVEL

### ENGL106 INTRODUCTION TO DRAMA STUDIES

*Double session; 12 credit points (1 lecture, 1 tutorial and 1 2-hour practical (workshop) session per fortnight)*

*Assessment:* 1 essay, 1 tutorial paper, 2 practical exercises per session

The aim of this course is to explore the manifestations and potentialities of drama as a natural rather than an artificial mode of human behaviour. It involves the study of the expression of beliefs, values, attitudes and opinions by means of moving (and vocal) figures and the examination of the growth of dramatic institutions from ritual to television, including contemporary trends and developments in all dramatic media and forms.

Practical, experiential activities will form a significant component of the course.

#### *First session*

*Human Drama.* Specific areas to be considered include: children's play; drama and socialization; drama and self-realization; games; simulation gaming; drama as communication; the body as a medium of expression; role-playing and acting; drama and stereotypes; playing and not playing the part; drama and diagnosis; drama and therapy; psychodrama; drama and encounter techniques; improvisation.

#### PRELIMINARY READING

Garvey, Catherine. *Play*. Fontana/Open Books, London, 1977.  
 Berne, Eric. *The Games People Play*. Penguin Books, London.  
 Hall, S.T. *The Silent Language*.  
 Moreno, Jacob. *The Theatre of Spontaneity*. Beacon, New York, 1973.  
 Hodgeson, John. ed. *The Uses of Drama*. Eyre Methuen, London, 1973.

#### TEXTBOOKS

A detailed list of various sources to be consulted by students will be supplied at the beginning of the course.

#### *Second Session*

*Institutionalized Drama.* Specific areas to be considered include: drama, magic and ritual; from ritual to theatre; theatre and dramatic conventions; dramatic form and theatrical technology; cinema and the film; dramatic form and cinematographic technology; television and radio; the medium and the message/massage; documentary drama in the various media; producers, performers, audiences and viewers.

#### PRELIMINARY READING

Styan, John. *The Dramatic Experience*. Cambridge University Press, Cambridge, 1965.  
 Brown, John Russell. *Drama and Theatre: An Outline for Intending Students*. Routledge and Kegan Paul, London, 1970.  
 Lewis, Jacob. *The Movies as Medium*. Farrar, Straus and Giroux, New York, 1975.  
 Williams, Raymond. *Television: Technology and Cultural Form*. Fontana/Collins, London, 1974.  
 McLuhan, Herbert Marshall. *Understanding Media: The Extensions of Man*. Routledge and Kegan Paul, London, 1964.  
 Hodgeson, John. ed. *The Uses of Drama*. Eyre Methuen, London, 1973.

#### TEXTBOOKS

A detailed list of various sources to be consulted by students will be supplied at the beginning of the course.

#### 200-LEVEL

### ENGL230 THEATRE ARTS (A)

*First session, 6 credit points (1 two-hour seminar workshop per week)*  
*Assessment:* One 1500 word essay, one 750 word seminar paper, one major or

two minor practical projects

The examination of examples of the major theatrical forms and genre:

- (i) from the viewpoint of the requirements for the "realisation" or presentation of plays on the stage;
- (ii) to develop an understanding of their qualities as dramatic texts and as representatives of specific forms and genre;
- (iii) to develop an understanding of the ways in which dramatists formally express ideas, attitudes, values, beliefs, etc. by means of vocal and moving figures;
- (iv) to provide an historical perspective from which to view the dramatic repertoire.

NOTE: Practical, experiential activity will form a significant component of the subject. Project options will provide opportunities for developing skills in acting, direction, design, technical production, music, script-writing, criticism and theatre group management for conventional theatres, street theatre, theatre in education, etc. Australian source material will be favoured in these activities, but not exclusively.

#### TEXTBOOKS

Note that the works cited are to be regarded as reference points for the subject rather than set texts.

- Sophocles. *Antigone in Theban Plays*. Penguin, 1969.  
 Shakespeare, William. *Hamlet*. Penguin, 1970.  
 Shakespeare, William. *Twelfth Night*. Penguin, 1971.  
 Miller, Arthur. *Death of a Salesman*. Penguin, 1969.  
 Pinter, Harold. *The Birthday Party*. Eyre Methuen, 1965.  
 Aristophanes. *Lysistrata*. Penguin, 1973.  
 Moliere. *Tartuffe*. Harcourt, Brace & World, 1965.  
 Chekhov, Anton. *The Cherry Orchard in PLAYS*. Penguin, 1968.  
 Van Itallie Jean Claude. *America Hurrah*. Grove, 1978.

#### ENGL231 THEATRE ARTS (B)

*Second Session; 6 credit points (1 two-hour seminar workshop per week)*

*Assessment:* One 1500 word essay; one 750 word seminar paper; one major or two minor practical projects

An examination of examples of major theatrical styles as they have emerged in Western Drama from the Renaissance to the present. Attention will be directed to:

- (i) styles in acting and production;
- (ii) styles in play writing;
- (iii) the ways in which these styles are directed towards the expression of ideas, attitudes, values, beliefs, etc., by means of moving and vocal figures;
- (iv) theatrical style in relation to the nature of audiences (and the societies from which they are drawn).

Stylistic "types" to be treated include: Commedia dell'Arte; Poetic Theatricalism; the Comedy of Manners; Social Realism; Naturalism; Epic; Theatre of the Absurd; Documentary Drama; Improvisational Theatre; Happenings; Mime Theatre; Dance Theatre; Musical Theatre.



NOTE: Practical, experiential activity will form a significant component of the subject. Project options will provide opportunities for developing skills in acting, direction, design, technical production, music, script-writing, criticism and theatre group management for conventional theatres, street theatre, theatre in education, etc. Australian source material will be favoured in these activities, but not exclusively.

### TEXTBOOKS

Note that the works cited are to be regarded as reference points for the subject rather than set texts, just as the titles of the stylistic "types" are to be considered general descriptions and not exclusive categories.

- Shakespeare, William. *The Tempest*. Penguin, 1969.  
 Jonson, Ben. *Volpone in Three Comedies*. Penguin, 1969.  
 Sheridan, R.B. *The Rivals*. Oxford, 1968.  
 Ibsen, Henrik. *An enemy of the People*. Methuen, 1974.  
 Shaw, G.B. *St. Joan*. Penguin, 1964.  
 Brecht, Bertolt. *Parables for the Theatre*. Penguin, 1966.  
 Ionesco, Eugene. *Three Plays*. Heinemann, 1965.  
 Theatre Workshop. *O What a Lovely War*. Eyre Methuen, 1973.  
 Boddy, M. & Ellis, R. *The Legend of King O'Malley*. Angus and Robertson, 1974.

### ENGL232 MODERN MEDIA (A)

*First session; 6 credit points (1 two-hour seminar workshop per week)*

*Assessment:* One 1500 word essay, one 750 word seminar paper, one major or two minor practical projects

*The Art of the Film.* An examination of examples of the major forms and genre of the cinema in such a way as to:

- (i) develop an understanding of film as dramatic communication, craft and art;
- (ii) develop approaches to film criticism;
- (iii) develop an understanding of the technical requirements for the "realisation" of filmic material on screen;
- (iv) develop an understanding of the ways in which film-makers express ideas, attitudes, values, beliefs, etc., by means of moving and vocal figures.

"Forms" and "genre" to be treated include: The Western; the Thriller; "Cinema Noir"; the Comedy; the Psychological Drama; the Historical Film; Literary Adaptations; Fantasy and Science Fiction; the Cinema of Social Comment; the Romance; Documentary. There will also be a section on experimental and exploratory films, usually "short subjects."

NOTE: Practical, experiential activity will form a significant component of the subject. Project options will provide opportunities for developing skills in acting, direction, design, technical production, music, script-writing, criticism and crew and studio management for conventional cinema, alternative cinema, etc. Australian source material will be favoured in these activities but not exclusively.

#### *Source Material*

Individual films for intensive treatment cannot be determined at the time of writing, but 8 titles will be cited at the beginning of the subject, hopefully drawn from the following list:

- |  |                                  |
|--|----------------------------------|
| <i>Incident at Owl Creek Bridge</i> (Enrico) | <i>City Lights</i> (Chaplin)     |
| <i>Black</i> (Winkler)                       | <i>Brewster McCloud</i> (Altman) |
| <i>Neighbours</i> (McLaren)                  | <i>Metropolis</i> (Lang)         |



<i>Fritz the Cat</i> (Bakshi)	<i>2001: A Space Odyssey</i> (Kubrick)
<i>Ivan the Terrible</i> (Eisenstein)	<i>Cabaret</i> (Fosse)
<i>Seven Samurai</i> (Kurosawa)	<i>The Magic Flute</i> (Bergman)
<i>The Searchers</i> (Ford)	<i>8 1/2</i> (Fellini)
<i>Henry V</i> (Olivier)	<i>Day for Night</i> (Truffaut)
<i>The Grapes of Wrath</i> (Ford)	<i>Citizen Kane</i> (Welles)
<i>M</i> (Lang)	<i>Easy Rider</i> (Hooper)
<i>The Third Man</i> (Reed)	

## ENGL223 MODERN MEDIA (B)

*Second session; 6 credit points (1 two-hour seminar workshop per week)*

*Assessment:* One 1500 word essay, one 750 word seminar paper, one major or two minor practical projects

*The Broadcast Media, Drama and Society.* An examination of examples of dramatic presentations for radio and television in such a way as to:

- (i) develop an understanding of the communicative and artistic features of these media, including the special genre developed in them;
- (ii) develop the special approaches to criticism required by them;
- (iii) develop an understanding of the technical requirements for the effective production of radio and television drama;
- (iv) develop an understanding of the ways in which television and radio producers express ideas, attitudes, values, beliefs, etc., by means of moving and/or vocal figures;
- (v) develop an understanding of the relationship between the broadcast media and society.

NOTE: See note under Modern Media (A)

### *Source Material*

Examples of radio and television programmes will be set for close study. The emphasis will be on those which may be considered representative and significant works of dramatic art in the light of the critical standards applied to works for theatre and cinema. However, "popular" forms will also be represented.

The following list cites examples of the kind of material to be treated: specifications depend on availability of programmes in second session.

- (a) *Radio*
  - The Martian Invasion* (A dramatised feature - Welles)
  - Landscape and Silence* (Radio plays - Pinter)
  - For the Term of His Natural Life* (Serial Adaptation of Clarke's novel)
  - Dr. Finlay's Casebook* (Drama series, adapted from television)
  - The Goon Show* (Radio comedy - Milligan et al.)
  - Hancock's Half Hour* (Radio comedy - adapted for television)
  - Every Good Boy Deserves Favour* (A play for actors and orchestra - Stoppard)
  - Spacewalk* (An experimental drama/fantasy - BBC Electronic Workshop)
  - The Soul of the Termite* A documentary/feature - ABC Drama Unit)
  - Watership Down* (Serial adaptation of Adam's novel)
- (b) *Television*
  - Culloden* (Dramatic recreation of historical event - Peter Watkins)
  - The War Game* (Fictionalised documentary - Peter Watkins)

*Cathy Come Home* (Fictionalised documentary - Jeremy Sandford)  
*Z Cars* (Drama series - John Hopkins)  
*Talking to a Stranger* (Drama in 4 episodes - John Hopkins)  
*Steptoe and Son* (Comedy series - Galton and Simpson)  
*Family Life* (TV Film - Ken Loach)  
*Days of Hope* (Actuality drama in 4 episodes - Ken Loach)  
*Son of Man* (Drama - Dennis Potter)  
*The Lover* (Drama/Comedy - Harold Pinter)  
*Duel* (TV Film)  
*MASH* (Comedy series - Alda)  
*The Sweeney* (Drama series - Thames TV)  
*The Muppet Show* (Children's comedy - Henson)  
*Monty Python's Flying Circus* (Satirical comedy)

## 300-LEVEL

## ENGL330 THEATRE ARTS C

## DRAMA THEORY AND THEATRICAL PRACTICE

*First Session; 6 credit points (one two-hour seminar/workshop per week)*

*Assessment:* One 1500 word essay; one 750 word seminar paper; one major or two minor practical projects.

An examination of the ideas of a number of the major theorists in the theatre arts in the Twentieth Century, along with a study of the ways in which theatrical practitioners have applied these ideas to the realisation of plays on stage.

Theoretical principles associated with such significant figures as Artaud, Brecht, Brook, Gordon-Graig, Grotowski, Meyerhold, Shaw and Stenislavski will be treated.

A "theory-in-practice" approach is to be taken in the investigations involved in this course and so project options will provide opportunities for work in direction, acting, design, technical production, writing, etc.

## TEXTBOOKS

Note that the works cited are intended to be reference points for the subject rather than set texts.

Shakespeare, William *King Lear*, Penguin, 1972.

Shakespeare, William, *Midsummer Nights Dream*. Penguin, 1970.

Chekhov, A. *The Three Sisters in Plays*. Penguin, 1968.

Jarry, A. *Ubu Roi*, Methuen, 1968.

Brecht, B. *Parables for the Theatre*. Penguin, 1966.

Beckett, S. *Waiting for Godot*, Faber, 1968.

Williams, T. *The Glass Menagerie in Plays*. Penguin, 1962.

Marowitz, C. *Marowitz Shakespeare*, M. Boyers, 1978.

Hibberd, J. *Dimboola*. Penguin, 1974.

NOTE: A reading list citing works by the major Twentieth Century dramatic theorists will be available from the English Department from December, 1980.

## ENGL331 THEATRE ARTS D

## THEATRE AND CULTURE

*Second session; 6 credit points (one two-hour seminar/workshop per week)*

*Assessment:* One 1500 word essay, one 750 word seminar paper and one major or two minor practical projects

An examination of the relationship between theatrical drama and the cultural contexts within which it develops. A major study will be the investigation of the relationships between a major Australian theatrical work and the cultural patterns and forces of this country. However, examples of theatrical drama from other

cultures will be treated. These will be drawn from Asia, Africa and Eastern Europe as well as the Western European tradition. Special attention will be paid to the drama of Japan, Indonesia and Slavic nations.

The major practical project will be the production of an Australian play so as to bring out relevant aspects of the above relationship.

### TEXTBOOKS

Note that the works cited are intended to be reference points for the subject rather than set texts.

- O'Casey, Sean. *The Plough and the Stars in Three Plays*. Papermac, 1970.  
 Osborne, John. *Look Back in Anger*, Faber, 1957.  
 Bond, Edward. *Saved*. Methuen, 1966.  
 Lawler, Ray. *Summer of the Seventeenth Doll*. Currency, 1978.  
 Williamson, David. *Don's Party*. Currency, 1973.  
 Boddy, M. & Ellis, R. *The Legend of King O'Malley*. Angus and Robertson, 1974.  
 Capek, Josef & Capek, Karel. *R.U.R. & The Insect Play*, O.U.P.  
 Rendra. *The Struggle of the Naga Tribe*. O.U.P., 1979.  
 Takaya Ted. *Modern Japanese Drama*. Methuen, 1979.  
 Fugard, Athol. *Boesman & Lena*. O.U.P., 1978.  
 Cheeseman, Peter. *The Knotty*. Methuen, 1970.

NOTE: A reading list citing secondary works will be available from the English Department from December, 1980.

## ENGL332 MODERN MEDIA C

### SCREEN THEORY AND SCREEN PRACTICE

*First session; 6 credit points (one two-hour seminar/workshop per week)*

*Assessment:* One 1500 word essay, one 750 word seminar paper and one major or two minor practical projects

An examination of the major developments in theoretical approaches to screen drama, along with an investigation of the ways in which these may be applied to the process of the realisation of dramatic material on screen.

Aspects to be examined include expression, structuralism, semiotics, the auteur approach, cinematic stylistics, mimesis, constructivism, the cinematic aesthetic and the sociology of the cinema.

In this way, work involving screen acting, desing, direction, technical production, etc., will be available to students by way of practical (project) investigations of theoretical models.

### TEXTBOOKS

NOTE: The works cited are to be regarded as reference points for the subject rather than set texts. Eight films are to be treated, chosen from:

- The Battleship Potemkin*, (Einsenstein).  
*Nashville*, (Altman)  
*M*, (Lang)  
*Citizen Kane*, (Welles)  
*Les Enfants Du Paradis*, (Carne)  
*Soloris*, (Tarkovsky)  
*The Seventh Seal*, (Bergman)  
*Seven Beauties*, (Wertmuller)  
*Clowns*, (Fellini)  
*Coogan's Bluff*, (Siegel)  
*Psycho*, (Hitchcock)  
*The Discreet Charm of the Bourgeoisie*, (Bunuel)

*Red River*, (Hawks)  
*The Big Sleep*, (Hawks)  
*Duck Soup*, (McCarey/Marx Brothers)  
*The Devil's Playground*, (Schepsi)

NOTE: A reading list citing works on film theory will be available from the English Department from December, 1980.

## ENGL333 MODERN MEDIA D

### SCREEN DRAMA AND CULTURE

*Second session; 6 credit points (one two-hour seminar/workshop per week)*

*Assessment:* One 1500 word essay, one 750 word seminar paper and one major or two minor practical projects

An examination of the relationship between screen drama (both film and television) and the cultural contexts within which it develops. A major study will be the investigation of the relationship between a major work of Australian screen drama and the cultural patterns of this country.

Examples of screen drama from a number of disparate cultures will be treated. A major project available to students will be the production of a film or videotape drama so as to bring out the relevant aspects of the above relationship.

### TEXTBOOKS

Note: That the works cited are to be regarded as reference points for the subject rather than set texts. Eight films are to be treated, chosen from:

*La Grande Illusion*, (Renoir)  
*Play It Again Sam*, (Allen)  
*O Lucky Man*, (Anderson)  
*Mean Streets*, (Scorsese)  
*Roma*, (Fellini)  
*The Conformist*, (Bertolucci)  
*Dr. Strangelove*, (Kubrick)  
*The Wild Bunch*, (Peckinpah)  
*On The Waterfront*, (Kazan)  
*Days of Heaven*, (Malick)  
*Jules et Jim*, (Truffaut)  
*Knife in the Water*, (Polanski)  
*The Lost Honour of Katarina Blum*, (Boll)  
*A Clockwork Orange*, (Kubrick)  
*Newsfront*, (Noyce)  
*F. J. Holden*, (Thornhill)  
*Dersu Uzala*, (Kurosawa)  
*The Invasion of the Body Snatchers*, (Siegel)

(Television product will be set for viewing and study as available).

Note: A reading list citing works on film theory will be available from the English Department from December, 1980.



## EUROPEAN LANGUAGES

The Department of European Languages currently offers courses in French and Italian not only for those who have already achieved a certain proficiency in the subject but also for beginners or near-beginners. Both categories of students may major in one or both languages and pursue their studies to postgraduate level.

### A. *Recommended Sequence of Study in French:*

*Either* the sequence: EURO111, EURO112; EURO211, EURO212;  
EURO311, EURO312.

*Or* the sequence: EURO103; EURO201, EURO202; EURO301,  
EURO302.

### B. *Recommended Sequence of Study in Italian:*

*Either* the sequence: EURO161, EURO162; EURO261, EURO262;  
EURO361, EURO362.

*Or* the sequence: EURO153, EURO251, EURO252; EURO361,  
EURO362.

All the above sequences may lead to 4th year honours courses following the recommendation of the Departmental Chairman and the approval of the Academic Senate.

### *Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A.

## FRENCH

### 100-LEVEL

## EURO103 INTRODUCTORY FRENCH

*Double session; 12 credit points (6 hrs practical/tutorial per week)*

*Assessment:* Regular exercises in aural comprehension, spoken and written expression.

Audio visual ('De Vive Voix') and audio-lingual ('Intercodes') courses for beginners or near-beginners in French. Listening, speaking, reading and writing skills are developed throughout the course. Classes will be in tutorial groups of about 15 students and extensive use will be made of the language laboratory. Successful completion of Introductory French qualifies students for entry into French IIC.

### TEXTBOOKS

Atkins, B., Duval, A., Milne, R.C. *Collins-Robert French-English, English-French Dictionary*. Collins and Société du Nouveau Littré, 1978.

Brichant, C. *Premier Guide de France*. Prentice-Hall Inc., 1978.

Coffman, M.E. *French Grammar*. Schaum's Outline Series, McGraw-Hill, New York, 1973.

Moget, M.T. *De Vive Voix* (Livre de l'élève). Didier, Paris, 1975. (2 vols.)

*or*

Monnèrie, A. *Intercodes (Livre de textes)*. Larousse, 1978

*and*



Monnèrie, A. *Intercoodes (Livre d'exercices)*. Larousse, 1978.  
Pimsleur, P. *C'est la vie*. Harcourt, Brace & Jovanovich, New York, 1976.

## EURO111 FRENCH IA

*First session; 6 credit points (2 hrs lectures, 3 hrs tutorials per week)*

*Recommended Pre-requisites:* Prior French study to an acceptable level as indicated either by a 2-Unit pass in the H.S.C. or by an equivalent level of proficiency.

*Assessment:*

- (a) *Language:* regular assignments in written and oral expression and in aural comprehension;
- (b) *Civilization:* essays during session.

This subject consists of 2 parts: (a) French IA language and (b) French IA civilization.

### (a) FRENCH IA LANGUAGE:

In this course the principal emphasis is on the improvement of aural comprehension of normal French conversation and the ability to express relatively simple ideas in grammatically correct French. Regular attention is given to accurate discrimination and reproduction of French sounds and sound patterns.

#### TEXTBOOKS

*Collins-Robert French-English Dictionary*. Collins, London, 1978.

Coffman, M.E. *French Grammar*. Schaum's Outline Series. McGraw-Hill, New York, 1973.

Metz, M.S. *Reflets du monde français*. McGraw-Hill, New York, 1971.

Metz, M.S. *Cahier d'exercices: Reflets du monde français*. McGraw-Hill, New York, 1971.

### (b) FRENCH IA CIVILIZATION:

A survey of French civilization from the Middle Ages to the 20th century. Lectures will outline the major artistic and philosophical movements.

#### TEXTBOOK

Hester, C.F., Parker, C.S. & Grigaut, P.L. *Initiation à la culture française*. 4th ed. Harper & Row, New York, 1977.

## EURO112 FRENCH IB

*Second session; 6 credit points (2 hrs lectures, 3 hrs tutorial per week)*

*Assessment:*

- (a) *Language:* regular assignments in written and oral expression and in aural comprehension;
- (b) *Literature:* essays during session.

This subject consists of 2 parts: (a) French IB Language and (b) French IB literature.

### (a) FRENCH IB LANGUAGE:

The programme of aural comprehension, grammar and the linguistic analysis of written passages begun in French IA is sustained and regular opportunity is provided for conversation in small groups.

#### TEXTBOOKS

As for French IA.

**(b) FRENCH IB LITERATURE:**

Through a selection of 20th century French plays students are introduced to techniques of literary analysis.

**TEXTBOOKS**

- Anouilh, J. *Becket*. Harrap, London, 1962.  
 Beckett, S. *En attendant Godot*. Harrap, London, 1966.  
 Ionesco, I. *Three Plays*. Heinemann, London, 1966.  
 Sartre, J. -P. *Huis clos*. Folio No. 807, Gallimard, Paris.

**200-LEVEL****EURO201 FRENCH IIC**

*First session; 8 credit points (2 hrs lectures, 3 hrs tutorials per week)*

**Assessment:**

- (a) *Language*: regular exercises in written and oral expression and in aural comprehension.  
 (b) *Literature*: essays during session.

This subject consists of 2 parts: (a) French IIC language and (b) French IIC literature.

**(a) FRENCH IIC LANGUAGE:**

Written expression, reading, comprehension and formal grammar are emphasised. The skills in aural comprehension and spoken expression acquired in French 103 are further developed in tutorial groups and language laboratory sessions.

**TEXTBOOKS**

- Collins-Robert French-English Dictionary*. Collins, London, 1978.  
 Coffman, M.E. *French Grammar*. Schaum's Outline Series. McGraw-Hill, New York, 1973.  
*Micro-Robert*. Société du Nouveau Littré, Paris.  
 Nemni, M. & Quillard, G. *Les Ensembles*. Prentice-Hall, Canada, 1976.

**(b) FRENCH IIC LITERATURE:**

A survey of French civilization from the Middle Ages to the 20th century. Lectures will outline the major artistic and philosophical movements.

**TEXTBOOKS**

- Hester, C.F., Parker, C.S. *Initiation à la culture français*. 4th ed. Harper & Row, New York, 1977.

**EURO202 FRENCH IID**

*Second session; 8 credit points (2 hrs lectures, 3 hrs tutorials per week)*

**Assessment:**

- (a) *Language*: regular assignments in written and oral expression and in aural comprehension. There will also be an oral examination at the end of session;  
 (b) *Literature*: essays during session.

This subject consists of 2 parts: (a) French IID language and (b) French IID literature.

**(a) FRENCH IID LANGUAGE:**

Through the analysis of written and recorded documents, different patterns of

French usage are explored. Continuing stress is also placed on accurate written and spoken expression and reading comprehension.

### TEXTBOOK

Nemni, M. & Quillard, G. *Les Ensembles*. Prentice-Hall, Canada, 1976.

#### (b) FRENCH IID LITERATURE:

Through a selection of 20th century French plays students are introduced to techniques of literary analysis.

### TEXTBOOKS

Anouilh, J. *Becket*, Harrap, London, 1962.  
 Beckett, S. *En attendant Godot*. Harrap, London, 1966.  
 Ionesco, E. *Three Plays*. Heinemann, London, 1966.  
 Sartre, J. -P. *Huis clos*. Folio No. 807, Gallimard, Paris.

## EURO211 FRENCH IIA

*First session; 8 credit points (2 hrs lectures, 3 hrs tutorials per week)*

#### Assessment:

- (a) *Language*: regular assignments in written and oral expression and in aural comprehension.
- (b) *Civilization*: essays during session.

This subject consists of 2 parts: (a) French IIA language and (b) French IIA civilization.

#### (a) FRENCH IIA LANGUAGE:

This course consists of a programme of aural comprehension in the language laboratory; practice in spoken French in conversation groups; regular exercises in written expression; and a small amount of more formal grammar and translation work.

### TEXTBOOKS

Benamou, M. & Carduner, J. *Le Moulin à paroles*. Hachette, Paris, 1972.  
 Mansion, J.E. ed. *Harrap's Shorter French and English Dictionary*. Harrap, London.  
 (2 vols. - may also be purchased in 1 vol.)  
*Micro-Robert*. Société du nouveau Littré, Paris.

#### (b) FRENCH IIA CIVILIZATION:

A study of the Renaissance period with reference to Italy and to England. Common texts will include works by DuBellay, Castiglione, Boccaccio and Sidney. Tutorial sessions will be devoted to a survey of the French Renaissance and of the historical factors which formed the Humanist tradition.

### TEXTBOOKS

DuBellay. *Oeuvres choisies*. Classiques Larousse, Paris, 1968.  
 Montaigne. *Essais. Livre Premier*. Nouveaux Classiques Larousse, Paris, 1965.  
 Rabelais. *Oeuvres complètes*. Tome I. Classiques Garnier, Paris.  
 Ronsard. *Poésies choisies*. ed. P. de Nolhac. Classiques Garnier, Paris, 1974.  
 Sidney, P. *An Apology for Poetry*. ed. G. Shepherd. Manchester University Press, 1977.  
 Castiglione, B. *The Book of the Courtier*. tr. C. Singleton. Anchor Books, 1959.

**EURO212 FRENCH IIB**

*Second session; 8 credit points (2 hrs lectures, 3 hrs tutorials per week)*

*Assessment:*

- (a) *Language:* regular assignments in written and oral expression and in aural comprehension. There will also be an oral examination at the end of session.
- (b) *Literature:* essays during session.

This subject consists of 2 parts: (a) French IIB Language and (b) French IIB Literature.

**(a) FRENCH IIB LANGUAGE:**

This course consists of a programme of aural comprehension in the language laboratory; practice in spoken French in conversation groups; regular exercises in written expression; and a small amount of more formal grammar and translation work.

**TEXTBOOKS**

Benamou, M. & Carduner, J. *Le Moulin à paroles*. Hachette, Paris, 1972.

*Collins-Robert French-English Dictionary*. Collins, London, 1978.

*Micro-Robert*. Société du nouveau Littré, Paris.

**(b) FRENCH IIB LITERATURE**

The novel and short story in 19th century France.

**TEXTBOOKS**

Balzac, H. de. *Le Curé de Tours - La Grenadière - L'illustre Gaudissart*. Garnier - Flammarion poche No. 165, Garnier, Paris.

Flaubert, G. *Trois contes*. Folio No. 424, Gallimard, Paris.

Stendhal. *La Chartreuse de Parme*. 2 vols. Folio Nos. 745, 746. Gallimard, Paris.

Zola, E. *Thérèse Raquin*. Livre de poche No. 34, Paris.

**300-LEVEL****EURO301 FRENCH IIIC**

*First session; 12 credit points (3 hrs lectures, 3 hrs tutorials per week)*

*Assessment:*

- (a) *Language:* participation in classwork and regular assignments comprising exercises in written expression, aural comprehension, grammar and dictation.
- (b) *Civilization:* essays during session.

This subject consists of 2 parts: (a) French IIIC language and (b) French IIIC civilization.

**(a) FRENCH IIIC LANGUAGE:**

The principle of this advanced audio-visual subject is to acquaint students with points of grammar and style in the context of dialogues related to problems of contemporary French life, and to provide an opportunity for re-use of these structures in the discussion of various thematically linked documents. Emphasis is placed on student participation. Associated listening comprehension documents are treated in the language laboratory and there is one hour of conversation.

**TEXTBOOKS**

*Collins-Robert French-English Dictionary*. Collins, London, 1978.

*Micro-Robert. Société du nouveau Littré, Paris.*

Moget, M.T. *Interlignes: Ressources et Développement.* Livret de l'étudiant, Didier, Paris, 1975.

Moget, M.T. *Interlignes: Modes et Niveaux de Vie.* Livret de l'étudiant, Didier, Paris, 1976.

(b) FRENCH IIIC CIVILIZATION

As for EURO211.

**TEXTBOOKS**

As for EURO211.

**EURO302 FRENCH IIID**

*Second session; 12 credit points (2 hrs lectures, 3 hrs tutorials per week)*

**Assessment:**

- (a) *Language:* regular exercises in written and oral expression and in aural comprehension.
- (b) *Literature:* essays during session.

This subject consists of 2 parts: (a) French IIID language and (b) French IIID literature.

(a) FRENCH IIID LANGUAGE:

Familiarity with normal French expression is developed through aural comprehension exercises and language drills in the language laboratory, written comprehension and expression, a linguistic analysis of a range of written texts, and conversation with a native French speaker.

**TEXTBOOKS**

As for EURO301.

(b) FRENCH IIID LITERATURE:

As for EURO212.

**TEXTBOOKS**

As for EURO212.

**EURO311 FRENCH IIIA**

*First session; 12 credit points (3 hrs lectures, 3 hrs tutorials per week)*

**Assessment:**

- (a) *Language:* regular exercises in aural comprehension, oral expression and stylistic analysis. There will be an oral examination at the end of session.
- (b) *Civilization:* essays during session.

This subject consists of 2 parts: (a) French IIIA language and (b) French IIIA civilization.

(a) FRENCH IIIA LANGUAGE:

This course involves detailed stylistic analysis of written documents covering different registers of language and different literary periods. Programmes of aural comprehension in the language laboratory and conversation groups will be conducted throughout the session.



## TEXTBOOKS

Bailly, R. *Dictionnaire des synonymes*. Larousse, Paris.  
Wagner, R.L. & Pinchon, J. *Grammaire du français*. Hachette, Paris, 1962.

## (b) FRENCH IIIA CIVILIZATION:

As for EURO211.

## EURO312 FRENCH IIIB

*Second session; 12 credit points (2 hrs lectures, 3 hrs tutorials per week)*

*Assessment:*

- (a) *Language:* regular exercises in aural comprehension, oral expression and translation. There will be an oral examination at the end of session.  
(b) *Literature:* essays during session.

This subject consists of 2 parts: (a) French IIIB language and (b) French IIIB literature.

## (a) FRENCH IIIB LANGUAGE:

This course will examine techniques of precise translation from English to French. It further develops skills of written expression and reading comprehension, and provides regular sessions of aural comprehension in the language laboratory and conversation in small groups.

## TEXTBOOKS

Bailly, R. *Dictionnaire des synonymes*. Larousse, Paris.  
*Collins-Robert French-English Dictionary*. Collins, London, 1978.  
Vinay, J. P. & Darbeinet, J. *Stylistique comparee du francais et de l'anglais*. Didier, Paris, 1975.  
Wagner, R.L. & Pinchon, J. *Grammaire du français*. Hachette, Paris, 1962.

## (b) FRENCH IIIB LITERATURE:

French poetry 1850 - 1920.

## TEXTBOOKS

Broome, P. and Chesters, G. eds. *An Anthology of Modern French Poetry (1850 - 1950)*. Cambridge U.P., Cambridge, 1976.  
Broome, P. and Chesters, G. eds. *The Appreciation of Modern French Poetry (1850 - 1950)*. Cambridge U. P., Cambridge, 1976.

## 400-LEVEL

## EURO400 FRENCH IV HONOURS

*Double session; 48 credit points (7 hrs lectures/seminars per week)*

## (a) APPROACHES TO LITERARY CRITICISM:

A survey of literary criticism in France with particular emphasis on critical method since 1945.  
*Assessment* is by essays during session.

## TEXTBOOKS

Dobrovsky, S. *Pourquoi la nouvelle critique*. Mercure de France, 1972.  
Fayolle, R. *La Critique*. Colin, Paris, 1978.  
Poulet, G. *Les Chemins actuels de la critique*. Plon, Paris, 1967.

Van Tieghem, P. *Les grandes doctrines littéraires en France*. P. U. F., Paris, 1974.

(b) SUPPLEMENTARY STUDY:

To be chosen in consultation with Departmental Chairman.

(c) SPECIAL SUBJECT:

A detailed study on a topic of French literature, civilization or language to be chosen in consultation with the Departmental Chairman. An essay of about 10,000 words in French is required.

(d) PHONETICS:

An examination of the sounds of French, the principles governing their articulation and operation when combined in words and sentences.

*Assessment:* Weekly orthographic transcriptions of recorded documents and an end of session examination comprising phonetic transcription of written and recorded passages; reading aloud; a test on French phonological and phonetic principles.

TEXTBOOKS

Cappelle, J. *Manuel programmé d'introduction à la phonétique et à la phonologie du français*. 3 vols. B.E.L.C., Paris, 1966.

Léon, P.R. *Pronunciation du français standard*. Didier, Paris, 1966.

(e) OLD FRENCH:

A study of aspects of the semantic and morphological evolution of the French language from Latin to the sixteenth century through an examination of Old French documents, in conjunction with the study of two complete Old French texts and a series of excerpts from other works of the period.

*Assessment* will be based on a written examination of the material studied.

TEXTBOOKS

Aspland, C.W. *A Medieval French Reader*. Oxford University Press, 1979.

Adam Le Bossu, *Le Jeu de Robin et Marion*. Collection Les Classiques Français du Moyen Age, Champion, Paris, 1977.

Ewert, A. *The French Language*. Faber, London.

Greimas, A.J. *Dictionnaire de l'ancien français*. 2nd ed., Larousse, Paris, 1968.  
*Le Jeu d'Adam*. Collection: Les classiques français du moyen age, Champion, Paris.

Raynaud de Lage, G. *Introduction à l'ancien français*. Société d'édition d'enseignement supérieur, Paris.

(f) TRANSLATION:

Development of skills in the precise rendition of English expression into French, and French to English will be developed through regular exercises in translation. Assessment will be based on these exercises.

TEXTBOOKS

Grevisse, M. *Le Bon Usage*. Hatier, Paris.

Hanse, J. *Dictionnaire des difficultés de la langue française*. Baude, Paris.

Mansion, E. ed. *Harrap's Standard French and English Dictionary*. Harrap, London.

*Petit-Robert*. Société du Nouveau Littre, Paris, 1972.

## (g) STYLISTICS:

Through the analysis of a selection of written documents, students will be required to demonstrate their awareness of techniques employed by writers (especially at the levels of syntax and vocabulary) for the effective communication of their ideas.

This work will be complemented by the phonostylistic analysis of a series of recorded documents.

*Assessment* will be by seminar participation and a final examination.

*TEXTBOOKS*

Cressot, M. *Le Style et ses techniques*. P.U.F., Paris, 1947.

Guiraud, P. & Kuentz, P. *Invitation à la linguistique: la stylistique*. Klincksieck, Paris.

Rigault, A. dir. *La grammaire du français parlé*. Hachette, Paris, 1971.

Sauvageot, A. *Analyse du français parlé*. Hachette, Paris, 1972.

## (h) CONVERSATION:

There will be weekly classes for conversation with a native French speaker.

**EURO425 COMBINED FRENCH-ITALIAN HONOURS**

*Double session; 48 credit points (7 hrs lectures/seminars per week)*

## (a) LITERARY CRITICISM:

*Either*

EURO400 (a) Approaches to literary criticism or

EURO450 (a) Literary criticism

## (b) SUPPLEMENTARY STUDY:

To be chosen in consultation with the Departmental Chairman.

## (c) SPECIAL SUBJECT:

A detailed study on a topic of French and/or Italian literature, civilization or language to be chosen in consultation with the Departmental Chairman. An essay of about 10,000 words in French or Italian is required.

## (d) TRANSLATION:

(i) as for EURO400 (f) Translation

(ii) as for EURO450 (g) Translation

## (e) STYLISTICS:

(i) as for EURO400 (g) Stylistics

(ii) as for EURO450 (f) Stylistics.

## (f) CONVERSATION:

(i) as for EURO400 (h) Conversation

(ii) as for EURO450 (h) Conversation

## ITALIAN

## 100-LEVEL

## EURO153 INTRODUCTORY ITALIAN

*Double session; 12 credit points (6 hrs practical/tutorial per week)*

*Assessment:* Regular exercises in aural-oral comprehension and reading and writing

This is an audio-lingual course for beginners or near-beginners in Italian. The emphasis is initially on oral communication with a gradual development of competence in all four aspects of second-language acquisition: listening, speaking, reading and writing. Classes will be in tutorial groups of approximately 20 students and extensive use will be made of language tapes. Successful completion of EURO 153 qualifies students for entry into EURO251 Italian IIC.

## TEXTBOOKS

Babou, Victor. *L'Italia del nostro tempo: Letterature e civiltà*. Firenze: Le Monnier, 1972.

Brigola, Alfredo, L. *Practicing Italian*. (Revised). An Exercise Manual for Basic Italian. 4th ed. Holt, Rinehart & Winston, Inc., N.Y., 1977.

Speroni, Charles & Golino, Carlo L. *Basic Italian*. 4th ed. Holt, Rinehart & Winston, Inc., N.Y., 1977.

## EURO161 ITALIAN IA

*First session; 6 credit points (3 hrs lectures, 1 hr tutorial, 1 hr practical per week)*

*Recommended Pre-requisite:* Prior Italian study to an acceptable level: normally this would mean satisfactory performance in Italian at the N.S.W. H.S.C. or proficiency attained from another source such as attending school in Italy.

*Assessment:*

- (a) *Language:* periodic assessments in aural-oral comprehension, reading comprehension, writing and composition;
- (b) *Literature:* periodic comprehension achievement assessments and essays during session.

This subject consists of 2 parts: (a) Italian IA language and (b) Italian IA literature.

## (a) ITALIAN IA LANGUAGE:

In this course the principal emphasis is on the improvement of aural-oral comprehension of standard Italian, on fluency for oral communication and on stylistic analysis and development for reading comprehension and for written communication and composition. Italian phonemics and phonetics are reviewed. Major attention is given to lexical development and the analysis of language structure and its use.

## TEXTBOOKS

Balducci, Gioacchino. *Italia moderna*. Holt, Rinehart and Winston, New York, 1973.

Roncari, Armida & Brighenti, Carlo. *La Lingua italiana per gli stranieri*. Mondadori, Milano, 1976.

## (b) ITALIAN IA LITERATURE:

*The Italian Theatre of the Twentieth Century:* through a selection of 20th Century Italian plays students are introduced to an appreciation of the theatre, techniques of literary analysis and an over-view of modern Italian life.



**TEXTBOOKS**

- Betti, Ugo. *Corruzione al palazzo di giustizia*. Capelli, 1966.  
 De Filippo, Eduardo. *Filumena Marturano*. Einaudi, 1971.  
 Fo, Dario. *Morte accidentale di un anarchico*. Einaudi, 1974.  
 Pirandello, Luigi. *Così è (se vi pare)*. Gli Oscar, Mondadori, 1967.  
 Pullini, Giorgio. *Teatro italiano del 900*. Cappelli, Bologna, 1971.  
 Verga, Giovanni. *Il Teatro*. Mondadori, Milano, 1952.

**EURO162 ITALIAN IB**

*Second session; 6 credit points (3 hrs lectures, 1 hr tutorial, 1 hr practical per week)*  
**Assessment:**

- (a) *Language*: periodic assessments in aural-oral comprehension, reading comprehension, writing and composition;  
 (b) *Civilization*: periodic comprehension achievement assessments and essays during session.

This subject consists of 2 parts: (a) Italian IB language and (b) Italian IB civilization.

**(a) ITALIAN IB LANGUAGE:**

The programme begun in Italian IA is sustained with regular opportunity provided for the expression of ideas on subjects of interest presented by the various texts or chosen by the student. These themes are also used as a basis for the written expression required during the session.

**TEXTBOOKS**

As for Italian IA.

**(b) ITALIAN IB CIVILIZATION:**

*Modern Italy*: This is a study of the cultural development of the Italian people since their unification as a modern state in 1860.

**TEXTBOOK**

- Babou, Victor. *L'Italia del nostro tempo: Letteratura e civiltà*. Le Monnier. Firenze, 1972.  
 Moravia, Alberto. *La ciociara*. Milano, Bompiani, 1974.  
 Levi, Carlo. *Cristo si è fermato a Eboli*. Torino, Einaudi, 1976.

**200-LEVEL****EURO251 ITALIAN IIC**

*First session; 8 credit points (3 hrs lectures, 1 hr tutorial, 1 hr practical per week)*  
**Assessment:**

- (a) *Language*: periodic assessments in aural-oral comprehension, reading comprehension, writing and composition;  
 (b) *Literature*: periodic comprehension achievement assessments and essays during session.

This subject consists of 2 parts: (a) Italian IIC language and (b) Italian IIC literature.

**(a) ITALIAN IIC LANGUAGE:**

As for EURO161.



**TEXTBOOKS**

As for EURO161.

(b) ITALIAN IIC LITERATURE:

Through a selection of 19th and 20th Century Italian prose, students are introduced to narrative works which illustrate the growth and development of the Italian novel, its literary techniques and its portrayal of modern Italian life.

**TEXTBOOKS**

Cantarella, Michelle. *Prosatori del Novecento*. Holt, Rinehart & Winston, N.Y., 1967.

And one of the following novels:

Levi, Carlo. *Cristo si è fermato a Eboli*. Einaudi, Torino, 1976.

Moravia, Alberto. *La ciociara*. Bompiani, Milano, 1974.

**EURO252 ITALIAN IID**

*Second session; 8 credit points (3 hrs lectures, 2 hrs tutorials per week)*

*Assessment:*

- (a) *Language*: periodic assessments in aural-oral comprehension, reading comprehension, writing and composition.
- (b) *Civilization*: Periodic comprehension achievement assessments and essays during session.

This subject consists of 2 parts: (a) Italian IID language and (b) Italian IID civilization.

(a) ITALIAN IID LANGUAGE:

As for EURO162.

**TEXTBOOKS**

As for EURO162.

(b) ITALIAN IID CIVILIZATION:

The course is a study of Italian opera from its beginnings as an outgrowth of the Renaissance theatre in Italy to the genre as we know it today. The main composers will be studied with emphasis on the relationship between literature and libretto. The relationship between Italian opera and the other arts will also be treated.

**TEXTBOOKS**

Cincotta, Vincent, J. *La civiltà italiana vista dal connubio tra letteratura, musica e teatro attraverso i secoli: letture a testi*. University of Wollongong, 1980.

Kupferberb, Herbert. *L'opera* (a cura di Luigi Ferrari). Milano. Mondadori, 1979.

**EURO261 ITALIAN IIA**

*First session; 8 credit points (3 hrs lectures, 2 hrs tutorials per week)*

*Assessment:*

- (a) *Language*: periodic assessments in aural-oral comprehension, reading comprehension, writing and composition.
- (b) *Literature*: periodic comprehension achievement assessments and essays during session.

This subject consists of 2 parts: (a) Italian IIA language and (b) Italian IIA literature.

## (a) ITALIAN IIA LANGUAGE:

Vocabulary building for oral fluency and advanced stylistics for written expression are emphasised. The skills acquired in ITALIAN IA and IB are further developed.

**TEXTBOOKS**

Migliorini, Bruno. *Lingua viva*. Le Monnier, Firenze, 1967.

Roncari, Armida & Brighenti, Carlo. *La Lingua Italiana per gli stranieri*. Mondadori, Milano, 1976.

## (b) ITALIAN IIA LITERATURE:

Through a selection of 19th and 20th Century Italian prose, students are introduced to narrative works which illustrate the growth and development of the Italian novel, its literary techniques and its portrayal of modern Italian life.

**TEXTBOOKS**

Three of the following novels:

D'Annunzio, Gabriele. *Il piacere*. Mondadori, Milano, 1974.

Pirandello, Luigi. *Il fu Mattia Pascal*. Mondadori, Milano, 1976.

Verga, Giovanni. *Mastro Don Gesualdo*. Mondadori, Milano, 1972.

Verga, Giovanni. *I Malavoglia*. Milano, Mondadori, 1965.

**EURO262 ITALIAN IIB**

*Second session; 8 credit points (3 hrs lectures, 2 hrs tutorials per week)*

**Assessment:**

- (a) *Language*: periodic assessments in aural-oral comprehension, reading comprehension, writing and composition.
- (b) *Civilization*: periodic comprehension achievement assessments and essays during session.

This subjects consists of 2 parts: (a) Italian IIB language and (b) Italian IIB civilization.

## (a) ITALIAN IIB LANGUAGE:

The programme begun in Italian IIA is sustained.

**TEXTBOOKS**

As for Italian IIA.

## (b) ITALIAN IIB CIVILIZATION:

The course is a study of Italian opera from its beginnings as an outgrowth of the Renaissance theatre in Italy to the genre as we know it today. The main composers will be studied with emphasis on the relationship between literature and libretto. The relationship between Italian opera and the other arts will also be treated.

**TEXTBOOKS**

Bragaglia, Leonardo. *Storia del libretto nel teatro in musica come testo o pre-testo drammatico*. Roma, Trevi, 1977.

Cincotta, Vincent, J. *La civiltà italiana vista dal connubio tra letteratura, musica e teatro attraverso i secoli: letture e testi*. University of Wollongong, 1980.

Kupferberg, Herbert. *L'opera* (a cura di Luigi Ferrari). Milano, Mondadori, 1979.

## 300-LEVEL

## EURO361 ITALIAN IIIA

*First session; 12 credit points (2 hrs lecture/practicals in language, 1 hr lecture in literature and 3 hrs lecture/tutorials in civilization per week)*

*Assessment:*

- (a) *Language:* periodic assessments in aural-oral comprehension, reading, comprehension, writing and composition.
- (b) *Literature:* periodic comprehension achievement assessments and essays during session.
- (c) *Civilization:* periodic comprehension achievement assessments and essays during session.

This subject consists of 3 parts: (a) Italian IIIA language (b) Italian IIIA literature (c) Italian IIIA civilization.

## (a) ITALIAN IIIA LANGUAGE:

Extensive lexical and structural development and analysis for total oral fluency and comprehension will be stressed along with advanced stylistics for written expression. The skills acquired in Italian II are further developed.

## TEXTBOOKS

Migliorini, Bruno, Baldelli, I. *Breve storia della lingua italiana*. Sansoni, Firenze, 1971.

Pei, Mario. *The Italian Language*. S. F. Vanni, N.Y., 1954.

Sambugar, C.A. *Armonia e stile*. La Nuova Italia, Firenze, 1972.

## (b) ITALIAN IIIA LITERATURE:

This course studies Italian poetry from its origins in the 12th - 13th century to the present.

## TEXTBOOKS

Donadoni, Eugenio. *Breve Storia della Letteratura Italiana*. Milano, Signorelli, 1978.

Kay, George. *The Penguin Book of Italian Verse*. Maryland, Penguin Books, 1965.

## (c) ITALIAN IIIA CIVILIZATION:

The Renaissance: A study of the rebirth of classical civilization in Italy and its cultural repercussions in France and England. Texts will include works by Petrarch, Boccaccio, Machiavelli, Castiglione, DuEellay and Sidney. Tutorial sessions will focus on specific problems such as the rise of Humanism, developments in the fields of art, science, politics, etc.

## TEXTBOOKS

Boccaccio, Giovanni. *Il Decameron* (2 vols.) La Terza, Bari, 1975.

Petrarca, Francesco. *Il Canzoniere*. Bietti, Milano, 1966.

Machiavelli, Niccolò. *Il Principe*. Milano, Mursia, 1977.

Castiglione, Baldassare. *Il Libro del Cortegiano*. Milano, Mursia, 1976.

Sidney, Phillip. *An Apology for Poetry*. Manchester, U.P., 1977.

## EURO362 ITALIAN IIIB

*Second session; 12 credit points (4 hrs lectures, 2 hrs practical/tutorials per week)*

*Assessment:*

- (a) *Language:* periodic assessments in aural-oral comprehension, reading, comprehension, writing and composition.

- (b) *Literature*: periodic comprehension achievement assessments and essays during session.

This subject consists of 2 parts: (a) Italian IIIB language and (b) Italian IIIB literature.

(a) ITALIAN IIIB LANGUAGE:

The programme begun in Italian IIIA (EURO361) is sustained.

*TEXTBOOKS*

As for Italian IIIA (EURO361).

(b) ITALIAN IIIB LITERATURE:

- (i) *Poetry*: The programme begun in Italian IIIA (EURO361) is sustained.

*TEXTBOOKS*

As for Italian IIIA (EURO361)

- (ii) *Dante*: After a brief introduction to the historical literary and philosophical background of the period, the subject will focus on Dante's *Inferno*. Toward the end of session, there will also be some consideration of Dante's impact on Petrarch, Boccaccio, and other Trecento writers.

*TEXTBOOKS*

Alighieri, Dante. *La Divina Commedia* (Vol 1, L'Inferno). a cura di Natalino Sapegno. La Nuova Italia; Firenze, 1977.

400-LEVEL

## EURO450 ITALIAN IV HONOURS

*Double session; 48 credit points (8 hrs lectures/seminars per week)*

(a) LITERARY CRITICISM:

The subject will focus on the two most fruitful moments of Italian criticism: the Renaissance and the idealist revival of Benedetto Croce. After some consideration of the nature of literary criticism in classical and medieval thought, the first part of the subject will concentrate on the rediscovery of Aristotle's *Poetics* in the Sixteenth Century, and the critical revolution begun by this event. The second part of the course will treat Croce, his re-evaluation of De Sanctis, and his idealist aesthetics which hark back to Vico.

*Assessment* is by seminar papers and essays.

*TEXTBOOKS*

De Sanctis, Francesco. *Storia della letteratura italiana*. Einaudi, Torino, 1975.  
Spingarn, J.E. *A History of Literary Criticism in the Renaissance*. R. West, Philadelphia, 1977.

(b) SUPPLEMENTARY STUDY:

To be chosen in consultation with the Italian staff and the Departmental Chairman.

(c) SPECIAL SUBJECT:

A detailed study on a topic of Italian literature, civilization or language to be

chosen in consultation with the Italian staff and the Departmental Chairman. An essay of about 10,000 words in Italian is required. .

(d) DANTE:

The studies begun in the third year programme on Dante will be continued. The *Purgatorio* and the *Paradiso* will be read and carefully studied, with particular attention to the philosophical and theological aspects of Dante's world view.

*Assessment* is by class exercises and essays during session.

*TEXTBOOK*

Alighieri, Dante. *La Divina Commedia*. (Vol. 2, Il Purgatorio and Vol. 3 Il Paradiso). a cura di Natalino Sapegno. La Nuova Italia, Firenze, 1977.

(e) THE ITALIAN CINEMA:

A study of Italy's most popular contemporary art-form, and the way it reflects the social upheaval, alienation, and violence which characterize Italian life in this century. The starting point will be the neo-realist movement, after which there will be further consideration of such directors as Fellini, Pasolini, Antonioni, Bertolucci, and others. Some consideration will be given to the relationship between cinema and literature. Selected films will be shown during session.

*Assessment* will be by essays during session.

*TEXTBOOKS*

To be specified.

(f) STYLISTICS:

This segment of the subject aims at the perfecting skills in all areas of literary and idiomatic language awareness and usage through advanced analytical and stylistic study of selected documents and literary works.

*Assessment* will be by regular written assignments and a final examination.

*TEXTBOOKS*

To be specified.

(g) TRANSLATION:

Skills acquired in the rendering of English into Italian and Italian into English will be further developed through regular exercises in translation.

*Assessment* will be based on these exercises.

*TEXTBOOKS*

To be specified.

(h) CONVERSATION:

There will be a weekly intensive conversation session with a native speaker of Italian.

**EURO425 COMBINED FRENCH-ITALIAN HONOURS**

See entry under FRENCH.



**GENERAL STUDIES**

General Studies exists to enrich the curriculum of the University in two main ways: (1) by broadening the student's range of study through the provision of areas of interest beyond his necessarily specialized professional course and (2) by attempting to exploit the interrelation between disciplines which (in the modern university) are generally studied as quite distinct subjects or courses, and to link such disciplines in relevant and fruitful ways.

*Industrial Relations*

Students can follow a multi-disciplinary Industrial Relations programme. The basis for the programme is to make available the Industrial Relations related subjects in different departments to students who wish to do a sequence of subjects in Industrial Relations, but who do not wish to do the full sequence within each of the departments.

Arrangements for the oversight of the Industrial Relations Programme have recently been transferred to the Department of Economics. Those subjects within the programme which were previously offered within General Studies, are still described below but *students are advised to contact either the Department of Economics or the Student Enquiries Office for details of the full programme.*

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A.

*100-LEVEL***GENE102 INDUSTRIAL RELATIONS A:  
WAGE DETERMINATION IN AUSTRALIA**

*Second session; 6 credit points (2 lectures, 1 seminar/tutorial per week)*

*Assessment:* Will be based on essays and tutorial/seminar exercises (a total of approx. 3000 words) and one 2-hour examination

The objective of the course is to examine some of the institutional arrangements and other factors which influence wages determination in Australia. Special emphasis is placed on the development of the Arbitration System and the effects this has had on trade unions, employer groups and wages. Topics to be studied include the industrial situation before Arbitration (Wages Boards and Collective Bargaining), the mechanics of award making, differences between Commonwealth and State tribunals, Basic Wage, Margins, Productivity and Wages, Wages share in national income, Wages and Price Adjustment, Wages Drift, Market influences on wages, social factors influencing wage differentials, Total Wage, Minimum Wage and Wage Indexation.

*TEXTBOOK*

Plowman, David, Deery, Stephen & Fisher, Chris, eds. *Australian Industrial Relations.*

**GENE111 AUSTRALIAN STUDIES A:  
AUSTRALIAN SOCIETY BETWEEN THE WARS**

*First session; 6 credit points (3 hours lecture/tutorial/seminar)*

*Assessment:* 1 essay, 1 tutorial paper and tutorial performance

Australian Studies A is to do with the development of Australian society as reflected in the perspectives of geography, government, technology and culture; particular attention will be given to the impact of World War I, the changing

pattern of work and leisure in the 'twenties' and to the Great Depression.

**TEXTBOOKS**

Ward, Russel. *A Nation for a Continent*. Heineman, Richmond, Victoria, 1977.  
Johnson, George. *My Brother Jack*. Fontana, 1967.

**GENE112 AUSTRALIAN STUDIES B:  
POST WAR AUSTRALIAN SOCIETY**

*Second session; 6 credit points (3 hours lecture/tutorial/seminar)*  
*Assessment: 1 essay, 1 tutorial paper and tutorial/seminar performance*

Australian Studies B is to do with the development of Australian society after World War II as reflected in the perspectives of geography, government, technology and culture; the impact of the war, post-war reconstruction, immigration, social welfare, nuclear and computer technology will receive attention.

**TEXTBOOKS**

Ward, Russel. *A Nation for a Continent*. Heinemann, Richmond, Victoria, 1977.  
Lawler, Ray. *Summer of the Seventeenth Doll*. Sydney, Currency, 1978.  
Seymour, Alan. *Three Australian Plays*. Ringwood, Penguin, 1963.  
Williamson, David. *The Removalists*. Sydney, Currency Press, 1972.

**GENE150 THE ART OF CHEMISTRY**

*Double session; 6 credit points*

Refer to "Description of Subjects" - Department of Chemistry (CHEM150).

**GENE151 THE ART OF PHYSICS**

*Second session; 6 credit points*

Refer to "Description of Subjects" - Department of Physics (PHYS151).

**200-LEVEL**

**GENE203 THE WORLD OF LANGUAGE IA**

*First session; 8 credit points (2 lectures, 1 tutorial/demonstration per week)*  
*Assessment: Will be based on 3 class tests, and assignments mainly in the form of short answers to specific questions in textbook*

An investigation of the nature and uses of Language, especially as it touches life and learning at so many points. At such points of contact the interdisciplinary aspects of the subject will be developed.

Part A will serve as a general introduction and then deal specifically with the phonological and semantic aspects.

**TEXTBOOKS**

Bolinger, D. *Aspects of Language*. 2nd ed. Harcourt, Brace & Jovanovich, N.Y., 1975.  
Stork, F.C. & Widdowson, J.D.A. *Learning about Linguistics*. Hutchinson Educational, London, 1974.

**GENE204 THE WORLD OF LANGUAGE IB**

*Second session; 8 credit points (2 lectures, 1 tutorial/demonstration per week)*  
*Assessment: Will be based on 3 class tests, and weekly assignments mainly in the*

form of short answers to specific questions in textbook

Continues the investigation of aspects of language, such as grammar and usage, and looks at certain specific contexts of language use, e.g. educational, sociological, computational, literary.

#### TEXTBOOKS

- Bolinger, D. *Aspects of Language*. 2nd ed. Harcourt, Brace & Jovanovich, N.Y., 1975.  
 Stork, F.C. & Widdowson, J.D.A. *Learning About Linguistics*. Hutchinson Educational, London, 1974.

#### WOMEN IN SOCIETY

These subjects will examine women's role and experience in the social, economic and political process together with relevant theories about women. Students may enrol in both subjects or one only.

#### GENE213 WOMEN IN SOCIETY A

*First session; 8 credit points (3 hr lecture/seminar)*

*Assessment:* Students will be assessed on written assignments and seminar contributions

This subject will focus on women and the family taking into consideration such topics as female sexuality, women's reproductive role, socialization, literary representation of family life and an historical analysis of the family.

#### TEXTBOOKS

(Students are advised that textbooks should not be bought without consultation with those teaching the subject).

- Bronte, C. *Jane Eyre*.  
 Eliot, G. *The Mill on the Floss*. Signet, 1965.  
 Hubbard, R. et al. eds. *Women Look at Biology. Looking at Women: A Feminist Critique*. Schenkman Pub. Co., Cambridge, Mass., 1979.  
 Lessing, D. *A Man and Two Women*. Panther, 1977.  
 Ramelson, M. *The Petticoat Rebellion*. Lawrence & Wishart, London, 1972.  
 Rowbotham, S. *Hidden from History*. Penguin, Harmondsworth, 1977.  
 Richardson, H.H. *The Getting of Wisdom*. Heinemann, Melbourne, 1977.  
 Shaw, G.B. *Mrs. Warren's Profession*, in *Plays Unpleasant*. Penguin, 1975.

#### GENE214 WOMEN IN SOCIETY B

*Second session; 8 credit points (3 hr lecture/seminar)*

*Assessment:* Students will be assessed on written assignments and seminar contributions

This subject will focus on women and work taking into consideration the economic and social situation of women in the workforce and its attendant conflicts, the education of women and women in politics.

#### TEXTBOOKS

Students are advised that textbooks should not be bought without consultation with those teaching the subject.

- Fransella, F. & Frost, K. *On Being a Woman: a Review of Research on How Women see Themselves*. Methuen, 1977.  
 Kingston, B. *The World Moves Slowly*. Cassell, 1977.

Lessing D. *The Golden Notebook*. Panther.  
Oakley, A. *The Sociology of Housework*. Martin Robertson, 1974.

### GENE220 CONCEPTS OF THE MODERN UNIVERSE

*First session; 6 credit points (28 hrs lectures, 14 hrs tutorials, 14 hrs laboratory and one 3 hr field trip to the University Observatory)*

*Assessment:* Will be based upon performance in tests, written assignments and one two-hour examination

Note: No special ability in Mathematics or Physics is required for this subject.

Astronomy is the most ancient of all sciences. Present-day astronomers are on the verge of great discoveries and the relationship between man and the universe is gradually being revealed. This subject will illustrate the techniques used by astronomers and will attempt to give an understanding of the universe as we presently understand it. A field trip to the University's Observatory will give the opportunity to observe the phenomena discussed.

The Birth of Astronomy; The Development of Astronomy as a Science; The Planets - A Description; The Formation of the Solar System; The Space Programme - Moon; To the Planets; The Search for Life; Future of the Space Programme; The Sun as a Star; The Violent Sun; Aurorae; Eclipses; Starlight; The Message of Starlight; The Visible Stars; The Variation in Stars; The Birth and Death of Stars; Telescopes, Big and Small; The Milky Way; The Universe of Galaxies; The Universe in Perspective.

#### TEXTBOOK

Jastrow, R. *Astronomy; Fundamentals and Frontiers*. Wiley, 1977.

### GENE221 SCIENCE, TECHNOLOGY AND SOCIAL PROGRESS

*First session; 8 credit points (2 lectures/seminars, 1 tutorial per week)*

*Assessment:* Will be based on two seminar papers and one essay of approximately 5000 words.

The subject will study aspects of science and technology from the standpoint of their influence, both beneficial and detrimental, on the fabric and beliefs of society, with special reference to social progress.

The role of science and technology in society will be examined together with its effects on the relationship between humanity and nature and also on relationships between people. The origins of contemporary attitudes to science and technology in particular and progress in general will be examined from an historical and cross-cultural perspective.

In the light of this, a more detailed analysis of some contemporary issues will be made. Particular issues may include technical and political aspects of the debate over nuclear power; energy production systems and energy policy; environmental degradation and its control; genetics, eugenics and science; & micro processors and the impact of technological change.

#### TEXTBOOK

Elliott, D. and Elliott, R. *The Control of Technology*. Wykeham, London, 1976.

### GENE225 COMPUTERS IN SOCIETY

*Second session; 8 credit points*

Refer to "Description of Subjects" - Department of History and Philosophy of Science (HPS228).



**GENE231 RELIGIOUS STUDIES A**

*Second session; 8 credit points (1 lecture, 2 seminars per week)*

*Assessment:* Will be based on two 2000 word essays and one 1 hr examination

**APPROACHES TO RELIGION:** One lecture and one tutorial each week will be devoted to linguistic, historical and philosophical problems to be found in the study of religion. One tutorial a week will concentrate on a second strand of the subject, namely the study of some major religious documents. The two strands will be closely integrated, and, in the first session, selections from the New Testament will be studied.

(a) *The Language of Religion.* This segment includes a study of: the distinctiveness of religious language; anthropomorphism, both essential and extravagant; the disclosure language of revelation; transcendental. This study will adopt a linguistic and anthropological approach.

(b) *Religion and History.* An examination of the implications for historical understanding of the life of Jesus. Consideration will be given to the historical purpose of the authors of the New Testament and a Christian interpretation of history will be explored.

(c) *Religion and Philosophy - Testimony and Religious Truth.* An examination of the nature, relevance and validity of attempts to support religious beliefs and attitudes by appeals to historical and personal experience. Particular attention will be paid to (i) methodological problems surrounding religious inferences based on the content of the Gospels and (ii) attempts to support, or refute, religious belief by appeal to facts about the physical world.

**TEXTBOOKS**

The New Testament.

Bruce, F.F. *New Testament History.* Anchor Books, Doubleday, N.Y., 1972.

**GENE232 RELIGIOUS STUDIES B**

*First session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Will be based on two 2000 word essays and one 1 hr examination

**RELIGION IN THE MODERN WORLD:** One lecture and one tutorial each week will be devoted to an examination of the relationship between religion and science, modern theistic and atheistic thinking, problems in the sociology of religion and the sociological analysis of religion in Australia today. In the second tutorial a study will be made of the *Upanishads*, the *Bhagavad Gita* and the *Koran*.

(a) *Scientific and Religious Thought.* An examination of two case studies of conflict between science and religion: the trial of Galileo and the impact of Darwin's theory of evolution on nineteenth-century religious beliefs. Positivism and the attacks on non-empiricist knowledge. The decline of positivism and the acceptance of non-empirical sources of truth.

(b) *Modern Theistic and Atheistic Thinkers.* This section is an introduction to four thinkers who have exercised a significant influence on the religious thinking of twentieth-century man: Friedrich Nietzsche, Albert Camus, Teilhard de Chardin, and Dietrich Bonhoeffer.

(c) *A Sociological Approach to Australian Religion.* An examination of the function of religious belief in Australian culture.

**TEXTBOOKS**

*Upanishads.* Selected and translated by Swami Prabhavananda & F. Manchester. Mentor, N.Y., 1957.



*Koran*. Translated by N.J. Dawood, Penguin, Harmondsworth, 1956.  
*Bhagavad Gita*. Translated by J. Muscaro. Penguin, Harmondsworth, 1962.  
Bonhoeffer, D. *Letters and Papers from Prison*. Fontana, London, 1959.  
Camus, A. *The Plague*. Penguin, Harmondsworth, 1960.  
Nietzsche. *Thus spoke Zarathustra*. Penguin, Harmondsworth, 1969.  
Teilhard de Chardin, P. *The Phenomenon of Man*. Fontana, London, 1965.

## GENE240 TRADE UNIONS, EMPLOYER ORGANIZATIONS AND THEIR ENVIRONMENT

*First session; 8 credit points (2 lectures and 1 tutorial per week)*

*Assessment:* Two 2000 word essays, tutorials, assignments and examination

This subject examines the development and working of the industrial relations system in Australia. The organization and policies of the major participants in the system - trade unions, employers and governments - are analysed in both historical and contemporary settings. Standard institutional material is supplemented and extended by an attempt to understand the influence of the social, economic, political and legal environment on the system.

### TEXTBOOK

Rawson, D.W. *Unions and Unionism in Australia*. Geo. Allen & Unwin, Sydney, 1978.

## GENE241 FINE ARTS A

*First session; 8 credit points (2 lectures, 2 tutorials per week and attendance at a prescribed film programme)*

*Assessment:* Two 2000 word essays, 3 hrs class tests

This subject consists of three strands: *Architecture, Art and Aesthetics*.

(i) ARCHITECTURE: This part concentrates on themes related to man's need to shape and enclose space and seeks to demonstrate how the history of architecture is also a record of man's aspirations, culture and fashions through the ages. The history surveys the major developments from ancient civilizations to the Middle Ages and concludes with a general comment on the moods and architecture of the Renaissance and how these eventually influenced the character of our own modern cities and towns.

### TEXTBOOKS

Pevsner, N. *An Outline of European Architecture*. Pelican, Harmondsworth, 1963.

(ii) ART: The broad spectrum of Western painting and sculpture from Giotto to the modern period. Artists who occupy a major place in the development of Western art will be dealt with in more detail. Mention will also be made of interaction between Eastern and Western painting, sculpture and ceramics.

### TEXTBOOK

Lucie-Smith, H. *Movements in Art Since 1945*. Thames & Hudson, London, 1969.

(iii) AESTHETICS: In addition to the Architecture and Art strands there will be a series of lectures on Aesthetics and Taste.

## GENE242 FINE ARTS B

*Second session; 8 credit points (2 lectures, 2 tutorials per week and attendance at a prescribed film programme)*

*Assessment:* Two 2000 word essays, 3 hrs class tests

This subject consists of three strands: *Architecture, Art and Aesthetics*.

(i) ARCHITECTURE: A survey of major scenes and changes in Architecture over the last 500 years, culminating in the modern walls around us. The course concludes with a glance at possible new directions and with some speculation about the structure of "plug-in" cities which may lie ahead.

#### TEXTBOOKS

Freeland, J.M. *Architecture in Australia*. Cheshire, Melbourne, 1968.

Pevsner, N. *An Outline of European Architecture*. Pelican, Harmondsworth, 1963.

(ii) ART: The first flowering of 20th Century Art between the wars: After World War II; Modern Sculpture; Decline of U.S.A. Internationalism; Australian Art; Art of China and Japan.

#### TEXTBOOKS

Lucie-Smith, E. *Movements in Art Since 1945*. Thames & Hudson, London, 1969.

Smith, B. *Australian Painting*. 2nd ed. O.U.P., Melbourne, 1974.

Read, H. *A Concise History of Modern Painting*. Thames & Hudson, London, 1975.

(iii) AESTHETICS: In addition to the Architecture and Arts strands there will be a series of lectures on Aesthetics and Taste.

### GENE251 POPULATION IN A CROWDING WORLD

*First session; 8 credit points (2 lectures, 1 tutorial/seminar weekly)*

*Assessment:* Two 1500 word essays, one 1 hour examination

In the twentieth century questions concerning the size, composition, growth and distribution of the human population, whether at global, national or regional scale, have assumed major importance at both academic and popular levels. In many countries governments sponsor birth control programmes, in others there is concern over the likely effects of near- or at-zero levels of replacement. Policy decisions concerning the movement of people between and within nations are made and remade in most societies and 'quality of life' considerations loom large in discussions of the recently apparent reversal of the metropolitanization of population in the developed world.

This subject attempts to provide a firm foundation for students from diverse backgrounds who wish to understand the nature of these and other population related problems by exploring the social, cultural and economic bases of modern demographic change. Particular attention will be paid to historical and spatial variation in the level of human reproduction, to the 'retreat of death', to interventionist programmes (e.g. birth and death control) in both the less and more developed worlds, to resultant patterns of differential population growth and their social, economic and demographic consequences, to migration within and between states and its implications for regional and national planning and to specific questions relating to population distribution and density such as the relationship between living densities and 'life quality'. Alternative scenarios of growth change and distribution and their implications will be examined.

### GENE261 MAN, CULTURE AND ENVIRONMENTAL IMPACT

*First session; 8 credit points*

Refer to "Description of Subjects" - Department of Geography (GEOG261).

### GENE270 THE SCIENCE AND ART OF MUSIC A: MUSIC-MAKING

*First session; 8 credit points (1 lecture, 1 two-hour workshop session per week)*  
*Assessment:* Students will be assessed on practical projects, written work and seminar contributions.

A study of the craft and practice of music, though students are not required to have any prior specialised knowledge of music. It aims at a practical approach to music, and one in which all students can effectively participate. The major areas covered will be instrument-making; composition; the recording industry; some introductory acoustics: vibrations and waves, sound-sources, propagation, detection; pitch, timbre, loudness. The course will involve some fieldwork; concert attendance; visits to rehearsals of professional music organisations and to recording sessions.

#### TEXTBOOKS

A list of recommended reading will be given to students at the beginning of session.

### GENE271 THE SCIENCE AND ART OF MUSIC B: MUSIC IN SOCIETY

*Second session; 8 credit points (1 lecture, 1 two-hour seminar per week)*  
*Assessment:* Students will be assessed on practical projects, written work and seminar contributions.

An historical survey of western music with emphasis upon the place of music in society, and the concept that music is a form of human behaviour. The course also contains a specific investigation of music as a part of drama.

#### TEXTBOOK

Miller, Hugh, M. *History of Music*. Barnes & Noble, New York, 1972.

### GENE272 THE SCIENCE AND ART OF MUSIC C: MUSICAL ACOUSTICS

*Second session; 8 credit points (1 lecture, 1 two-hour seminar per week)*  
*Assessment:* Students will be assessed on written work and seminar contributions

This course will deal with the acoustics of rooms and concert halls; the recording and transmission of music; hearing, harmony, discord; musical scales; electronic music; psychoacoustics. *Students do not require any specialised mathematical knowledge in order to undertake this course.*

#### TEXTBOOK

Taylor, C. *Sounds of Music*. British Broadcasting Corporation, 1976.

#### 300-LEVEL

### GENE302 INDUSTRIAL RELATIONS 3B: SPECIAL TOPICS IN INDUSTRIAL RELATIONS

*Second session; 8 credit points (seminars: 3 hours per week)*  
*Assessment:* 1 research paper, c. 8,000 words.

Original, supervised research work in an identified problem area of industrial relations, leading to submission of a research report. Research topics are subject to the approval of the Lecture-in-Charge of the Industrial Relations Programme. Where practical, students will be encouraged in developing a research topic

arising out of "placement" or "internship" with an employer, union, government or judicial body.

#### PRELIMINARY READING

Hinders, B. *The Use of Official Statistics: A Critique of Positivism & Ethnomethodology*. Macmillan Paperback, 1974.

Walker, K.F. *Australian Industrial Relations Systems*. 2nd ed., Harvard University Press, 1970.

#### TEXTBOOKS

No textbook is prescribed. Basic reading will vary according to individual projects.

### GENE303 THE WORLD OF LANGUAGE IIA: THE STRUCTURE OF LANGUAGE

*First session; 8 credit points (one 2 hr lecture/seminar, 1 hr tutorial per week plus consultation for project supervision)*

*Assessment:* Regular progressive tests and supervised written projects.

Students will continue the study of structure begun in World of Language I (GENE203, 204) and topics will include: grammatical notions and functions; modern approaches to grammar; grammar and the school teacher; correctness and acceptability; some practical applications.

#### TEXTBOOKS

Bollinger, D. *Aspects of Language*. 2nd ed. Harcourt, Brace & Jovanovich, N.Y., 1975.

Langacker, R.W. *Language and its Structure*. Harcourt, Brace & World, N.Y., 1968.

### GENE304 THE WORLD OF LANGUAGE IIB: LANGUAGE IN THE COMMUNITY

*Second session; 8 credit points (one 2 hr lecture/seminar, 1 hr tutorial per week plus consultation for project supervision)*

*Assessment:* Regular progressive tests and supervised written projects.

Varieties of Language - regional and social dialect; stylistic variations; language in a mixed society; specific uses - the language of politics, the media etc.

#### TEXTBOOKS

Bollinger, D. *Aspects of Language*. 2nd ed. Harcourt, Brace & Jovanovich, N.Y., 1975.

Pride, J.B. & Holmes, J. eds. *Sociolinguistics. Selected Readings*. Penguin, 1974.

### GENE340 COMPARATIVE LABOUR STUDIES

*First session; 8 credit points (4 hours lectures/tutorials per week)*

*Assessment:* Essays, tutorials, assignments and examination

A comparative examination of the development and organisation of industrial relations systems in several countries, especially Australia, U.S.A., Great Britain, West Germany and Sweden. In particular the organisation of trade unions and employer organisations will be studied, as well as methods of wage bargaining and the relationship between the government and the industrial relations system.

#### TEXTBOOK

Clegg, H. *Trade Unionism under Collective Bargaining: A theory based on comparisons of six countries*. Basil Blackwell, Oxford, 1976.



400-LEVEL

**GENE403 EPISTEMOLOGY AND COMPARATIVE METHODOLOGY**

*Double session; 6 credit points (one 2 hr seminar/discussion per week)*

*Assessment:* Either a 3 hr written examination at the end of session 2, or two 3000 word essays; or (with the permission of the Chairman of the Department(s) in which the student's 400-level programme is undertaken) a combination of essays and examinations. In addition, students may be required to contribute a seminar paper

An inter-disciplinary investigation of problems in epistemology and methodology, especially the methodology of the human and social sciences. What is the nature and the status of the human sciences? Do they require methodologies distinct from those of the natural sciences?

In the first session, a consideration of general issues in epistemology and the philosophy of the social sciences will be undertaken, based on the listed textbooks and presupposing acquaintance with the listed preliminary reading.

In the second session, particular methodological problems in history, psychology, sociology (and other social sciences) will be investigated. Seminar papers will be presented by representatives of the different disciplines.

**PRELIMINARY READING**

Hempel, C.G. *Philosophy of Natural Science*. Prentice-Hall.

Rudner, R. *Philosophy of Social Science*. Prentice-Hall.

Salmon, Wesley C. *The Foundations of Scientific Inference*. University of Pittsburgh Press.

**TEXTBOOKS**

Hempel, C.G. 'Aspects of Scientific Explanation' in *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science*. Macmillan, Free Press.

Ryan, A. *The Philosophy of the Social Science*. Macmillan.

Von Wright, G.H. *Explanation and Understanding*. Routledge & Kegan Paul.



**GEOGRAPHY**

A full three year programme of Geography subjects may be included in the pass BA, BSc or BCom degrees. Fourth year studies in Geography are available for the BA and BSc Honours Degrees.

At 100-level, two one-session subjects are offered, one in Physical, the other in Human Geography. Students may choose to do either or both but those thinking of continuing their studies in the discipline are advised to enrol for both subjects to minimise limitations on subject choice in later years. At higher levels students may choose to emphasise either physical or human geography or to combine the two by selecting from the range of options available.

Normally, students wishing to enter the Fourth year Honours programme should have completed at least 16 credit points of Geography at 200-level and either 36 credit points of 300-level Geography or 24 credit points in 300-level Geography and 12 credit points in a cognate field approved by the Department, usually at credit level or better. Candidates for the BSc Honours degree are required to have completed at least 24 credit points of 300-level Geography subjects approved by the Science Faculty. Joint Honours degree candidates must have completed the specified programme at 200- and 300-level.

In any subjects field classes may be required as a normal part of the work load. For details, consult individual subjects.

In all subjects overall grades may include the assessment of essays, tutorials, seminars, projects, periodic tests, field and practical work and/or terminal examinations. The precise weighting to be given each component will be discussed with classes early in the session.

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A. Subjects which also appear in other Schedules are:

<i>Subject</i>	<i>Schedule</i>
GEOG192	E
GEOG193	E
GEOG291	E
GEOG296	E
GEOG382	E
GEOG391	E
GEOG393	E
GEOG403	E

**100-LEVEL****GEOG102 THE HUMAN ENVIRONMENT:  
AN AUSTRALIAN PERSPECTIVE**

*Second session; 6 credit points (2 lectures, 3 hrs workshop/tutorial per week, up to 2 days fieldwork may be required)*

*Assessment:* essays, mid-session test; practical and field assignments; final examination (detailed proportional weighting to be arrived at after in-class discussion)

This subject focusses on the impact of technological and social change upon the spatial structure of Australian society and upon the human and environmental implications of structure and change.

After an introductory treatment of the processes contributing to the spatial

characteristics of twentieth century Australian society attention is directed to the origins and nature of recent spatial change. Particular emphasis will be given to changes in primary and secondary industry, population and settlement systems, and to the social, economic and environmental consequences of this contemporary spatial reorganization, for example land use conflict, the changing role of small towns, unequal access to community services, etc. In a final section possible alternative futures are canvassed.

**TEXTBOOKS**

Johnston, R.J. *Spatial Structures*. Methuen, London, 1973.  
Smith, D.M. *Patterns in Human Geography*. Penguin, Harmondsworth, 1977.

**GEOG112 THE PHYSICAL ENVIRONMENT**

*First session; 6 credit points (2 lectures, 3 hrs practical/tutorial per week, fieldwork)*  
*Assessment:* 1 examination; practical examination, 2 essays, project report

This subject presents the basic principles and mechanisms underlying the moulding of the earth's surface as well as introducing basic climatic processes explaining their world-wide variations. This global variation, together with the dependence of the underlying mechanisms upon scales of time, are basic themes of the course. Topics covered include climatic, weathering, slope, cold weather, fluvial, Aeolian and coastal processes. The environmental impact of man on these processes is also evaluated. Australian examples are emphasized where possible.

**TEXTBOOKS**

Twidale, C.R. *Analysis of Landforms*. Wiley, New York, 1978.  
Linacre, E.T. and Hobbs, J. *The Australian Climatic Environment*. Jacaranda, Brisbane, 1977.  
Derbyshire, E., Gregory, K.S. and Hails, J. R. *Geomorphological Process*. Dawson, Folkestone, 1979.

**GEOG192 THE PHYSICAL ENVIRONMENT (SCIENCE)**

*First session; 6 credit points (2 lectures, 3 hrs practical/tutorial per week, up to 2 days fieldwork)*  
*Assessment, Description and Books:* See GEOG112.

**GEOG193 THE HUMAN ENVIRONMENT:  
AN AUSTRALIAN PERSPECTIVE (SCIENCE)**

*Second session; 6 credit points (2 lectures, 3 hrs workshop/tutorial per week, up to 2 days fieldwork may be required)*  
*Assessment, Description and Books:* See GEOG102.

**200-LEVEL**

**GEOG202 CITIES AND URBAN SYSTEMS**

*First session; 8 credit points (2 lectures, 3 hrs practical/tutorial per week)*  
*Assessment:* 1 examination, 2 tutorial papers, workshop reports

This subject focusses on the city and the urban system as they have developed in western societies. Lecture and tutorial classes examine hypotheses and theories relating to city growth, the evolution and present structure of regional and national urban systems, the processes by which land uses and social groups are sorted in the urban landscape, and the possible impacts of technological developments on the future form and operation of cities and urban systems. Practical sessions concentrate on the basic quantitative techniques necessary for an understanding of the contemporary literature of urban analysis.

**GEOG206 ARID LANDSCAPES**

*First session; 8 credit points (2 lectures, 3 hrs practical/seminar/tutorial per week, fieldwork)*

*Assessment:* 1 examination; practical/research reports; 1 essay

This introduction to arid landscapes is based on comparative studies of major deserts, especially those of Australia and North America. The main focus will be the interaction of past and present-day climates with landforms and vegetation. Attention will also be given to the diverse ways in which man has responded to and modified arid landscapes. Practical classes will deal with the analysis of aerial and satellite imagery and arid terrain.

**TEXTBOOKS**

Mabbut, J.A. *Desert Landforms*. A.N.U., Canberra, 1977.

Slatyer, R.O. & Perry, R.A. *Arid Lands of Australia*. A.N.U., Canberra, 1969.

**GEOG210 CULTURE, SOCIETY AND DEVELOPMENT IN ASIA**

*Second session; 8 credit points (2 lectures, 3 hrs practical/seminar/tutorial per week)*

*Assessment:* 1 examination, 2 essays

It is now widely recognized that closer ties between the rich and the poor countries are vital for the survival of mankind. In recent years Australian relations with Asia in the fields of trade, tourism, and politics have expanded considerably, yet our understanding of Asia remains limited. The purpose of this course is to promote a better understanding of the cultural realms of Asia, their people, problems, and achievements. The emphasis will be on developmental issues facing Asian nations, and the cultural variables affecting development process and patterns.

**GEOG212 BIOGEOGRAPHY**

*Second session; 8 credit points (2 lectures, 2 hrs practical, 1 hr tutorial per week, fieldwork 6 days, normally including a 4 day residential field camp)*

*Assessment:* 1 examination; laboratory/fieldwork reports; tutorial essays

This subject examines the character and distribution of plant communities and soil types. Soil formation and characteristics are related to geomorphic, geological, chemical, botanical and climatic processes. Population dynamics, plant succession, species diversity, and climax associations are studied in the light of traditional contemporary theories in these fields, and particular attention is given to describing the unique characteristics of island communities. Present knowledge of glacial events, plate tectonics and the formation of land bridges is used to interpret the distribution of land vertebrates and plants, and late Quaternary changes in climate are related to associated changes in plant species and their abundance. The subject matter for the course is mainly drawn from North American and Australasian examples.

**TEXTBOOKS**

Cox, C.B., Healy, I.N. & Moor, P.D. *Biogeography, an Ecological and Evolutionary Approach*. Blackwell, 1976.

Corbett, J.R. *The Living Soil*. Martindale Press, West Como, 1969.

**GEOG220 SOCIAL BEHAVIOUR IN URBAN SPACE**

*Second session; 8 credit points (2 lectures, 2 hrs seminar/tutorial per week)*

*Assessment:* Final examination, essays, seminar reports; the precise weighting of

components will be determined after consultation with the class. Up to 2 days fieldwork may be required.

This subject assumes at least a basic understanding of the spatial structuring and residential differentiation of the Western city, such as is provided in GEOG202 *Cities and Urban Systems* and attempts to build on this by viewing urban structure as a dynamic, changing, individually perceived framework of opportunities for and constraints on human social behaviour and well being. Particular attention is paid to residential segregation, the neighbourhood, intra-urban residential mobility, urban spatial imagery and mental maps, activity systems, locational stress and spatial adaptation, social pathologies and conflicts, voting behaviour, community action and the urban planning process.

#### TEXTBOOK

Jones, E. & Eyles, J. *An Introduction to Social Geography*. Oxford U.P., 1977.

### GEOG261 MAN, CULTURE AND ENVIRONMENTAL IMPACT

*First session; 8 credit points (2 lectures, 1 tutorial per week, up to 2 days field work may be required)*

*Assessment:* Essays, final examination

Growing concern about such matters as resource depletion, air and water pollution and the extinction or threatened extinction of plant and animal species has led in recent years to an increasing level of interest in the environmental problems attendant on man's occupation of the earth's surface. This subject investigates the ways in which man perceives and utilizes his environment and considers the ways in which human occupation affects the landscape and how the consequences of occupation in turn affect human communities. These themes are developed in discussions of Australian Aboriginal man, the traditional cultures of southeastern Asia and the urban-industrial societies of the Western world.

### GEOG291 BIOGEOGRAPHY (SCIENCE)

*Second session; 8 credit points (2 lectures, 2 hrs practical, 1 hr tutorial per week, fieldwork 6 days, normally including a 4 day residential field camp)*

*Assessment, Description and Books:* See GEOG212

### GEOG296 ARID LANDSCAPES (SCIENCE)

*First session; 8 credit points (2 lectures, 3 hrs practical/seminar/tutorial per week, fieldwork)*

*Assessment, Description and Books:* See GEOG206.

#### 300-LEVEL

### GEOG311 FLUVIAL GEOMORPHOLOGY

*First session; 12 credit points (2 lectures, 4 hrs practical/seminar/tutorial per week, fieldwork 6 days, normally including a 4 day residential field camp)*

*Assessment:* 1 examination; laboratory/fieldwork reports; essays

This subject studies the processes which control the formation of stream channels and drainage basins. The course provides an introduction to fluid mechanics, describes the morphology of rivers and fluvial landscapes, examines the main processes operating in fluvial systems, and attempts to explain the formation of fluvial landforms. Emphasis is also given to the interpretation of sedimentary structures for reconstructing flow environments.

Surface water hydrology is included as an integral part of drainage basin analysis.



**TEXTBOOK**

*Either*

Leopold, L.B., Wolman, M. G. & Miller, J.P. *Fluvial Processes in Geomorphology*.  
Freeman, San Francisco, 1964.

*or*

Gregory, K.J. & Walling, D.E. *Drainage Basin Form and Process*. Arnold, London,  
1973.

**GEOG391 FLUVIAL GEOMORPHOLOGY (SCIENCE)**

*First session: 12 credit points (2 lectures, 4 hrs practical/seminar/tutorial per week, fieldwork 6 days, normally 4 days in a residential field camp)*

*Assessment, Description and Books: See GEOG311*

**GEOG313 COASTAL GEOMORPHOLOGY**

*Second session: 12 credit points (3 lectures, 3 hrs practical/seminar/tutorial per week, fieldwork)*

*Assessment: 1 examination, essays, field project and class discussion*

This subject considers contemporary processes affecting the geomorphology of sandy beaches and coastal lagoons. Topics covered include: nearshore morphology, wave and water circulation patterns; nearshore zone sediment transport; interactions among waves, water table and beach front geomorphology; aeolian processes and coastal dune morphology; and estuarine geomorphology.

Particular attention will be given to field measurement techniques, and the application of all principles considered to beaches of Southeastern Australia (Adelaide to Southern Queensland).

**PRELIMINARY READING**

Bascom, W. *Waves and Beaches: The Dynamics of the Ocean Surface*. Anchor  
Doubleday Paperbacks, New York, 1964.

**GEOG393 COASTAL GEOMORPHOLOGY (SCIENCE)**

*Second session: 12 credit points (3 lectures, 3 hrs practical/seminar/tutorial per week, fieldwork)*

*Assessment, Description and Books: See GEOG313*

**GEOG314 EVOLUTION OF LANDSCAPE\***

*First session: 12 credit points (3 lectures, 3 hrs practical/seminar per week, fieldwork 6 days)*

*Assessment: Examination, essays and reports*

The interaction of time and place in the evolution of landscape is the prime focus of this subject. Emphasis is placed firstly on the functional inter-dependence of landform, vegetation and soil, and secondly on the transformation of relationships among these phenomena arising both from natural causes and from man's impact on his environment. Topics include: problems in interpreting the denudation of highlands; survival of ancient landscapes; development of deposition landscapes; variations among landform - vegetation relationships; man's transformation of soil-vegetation-landform assemblages over the last 40,000 years; a critical review of scientific perception of landscape. Relevant case studies will be drawn mainly from Australia, North America and Eurasia.

\* Will not be offered in 1981.



Practical classes will include advanced photographic and cartographic analysis and the macro- and micro-scopic study of palaeosols and weathering profiles.

#### TEXTBOOKS

Jennings, J.N., & Mabbutt, J.A. eds. *Landform Studies from Australia and New Guinea*. A.N.U., Canberra, 1968.

Vita-Finzi, C. *Recent Earth History*. Macmillan, London, 1973.

### GEOG394 EVOLUTION OF LANDSCAPE (SCIENCE)

*First session; 12 credit points (3 lectures, 3 hrs practical/seminar per week, field-work 6 days)*

*Assessment, Description and Books:* See GEOG314.

### GEOG315 CULTURE, SOCIETY & DEVELOPMENT IN ASIA (ADVANCED)

*Second session; 12 credit points (2 lectures, 4 hrs practical/seminar/tutorial per week)*

*Assessment:* 1 examination, research report, essay

*Description and Books:* As for GEOG210 Culture, Society & Development in Asia.

### GEOG320 WELFARE: A GEOGRAPHICAL PERSPECTIVE

*First session; 12 credit points (2 lectures, 4 hrs tutorial/workshop/seminar per week)*

*Assessment:* 1 examination, seminar/tutorial/workshop/research reports. Precise details are to be determined after consultation with the class. Up to 3 days field-work may be required.

A subject in applied human geography, *Welfare: A Geographical Perspective* deals with theoretical and empirical problems in the definition, measurement and exploration of socio-spatial variations in welfare, and in the planning and delivery of welfare services (such as income supplementation schemes, education, public transport and medical care). On a theoretical level, the subject explores such questions as the definition of welfare, the social, economic and political roots of sectoral and spatial welfare disparities, definitions of an acceptable distribution of welfare, alternative methods of achieving such distributions, and the resolution of supposedly conflicting objectives (notably, equity and efficiency). On a more immediate and empirical level, attention is directed toward techniques for describing and evaluating the distributions of welfare, access-opportunity, welfare services and service-consumption, methods of determining optimal and acceptable facility-locations, problems faced by contemporary service providers, and methods of manipulating the spatial distributions of public, private and charitable welfare services.

### GEOG322 RURAL AND REGIONAL DEVELOPMENT

*Second session; 12 credit points (2 lectures, 4 hrs practical/seminar/tutorial per week)*

*Assessment:* 1 examination, research report, essays. Precise details will be determined after consultation with the class.

The focus of this subject is on practical questions relating to rural and regional development in various parts of the world. It considers regional development theories as a means to understanding the emergence within national space-economies of 'problem regions' of various types, and canvasses some of the strategies employed by planning agencies in the resolution of regional stresses in these areas. Particular issues examined will include the identification of the dimensions of rural and regional problems, the cases for and against strategies of decentral-

isation from metropolitan regions, the formulation of rural development plans and the resolution of problems associated with their implementation, and policies for rural settlement in undeveloped areas. The principal illustrative context will be Australia, but cases drawn from other parts of the world will be utilised where appropriate.

### **GEOG381 DIRECTED STUDIES IN GEOGRAPHY**

*Double session; 6 credit points (2 hrs tutorial/seminar/ lecture)*

*Assessment:* Seminar presentation; essays; research report

This subject consists of directed reading, field and laboratory work (as required) and writing leading to the production of a major research essay/project report in a field selected by the student and approved by the Chairman of Department. Normally enrolment will be restricted to students who have satisfactorily completed, or are concurrently enrolled in, at least 12 credit points of 300-level Geography.

### **GEOG382 DIRECTED STUDIES IN GEOGRAPHY (SCIENCE)**

*Double session; 6 credit points (2 hrs tutorial/seminar/ lecture)*

*Assessment and Description:* See GEOG381

**400-LEVEL**

### **GEOG402 GEOGRAPHY IV HONOURS**

*Double session; 48 credit points*

Final year Honours students are required to write a thesis of approximately 20-25,000 words on an approved topic embodying the results of a piece of supervised research and to participate in a seminar programme.

In the first session the seminar programme is concerned with questions of methodological and philosophical significance to research and teaching in modern Geography. In addition candidates will be involved in a directed reading/seminar course which explores a particular research field and culminates in the preparation of a research proposal. The second session is devoted mainly to research but participation in a workshop seminar is also required.

Assessment is based upon seminar papers and thesis: the thesis is examined both externally and internally.

### **GEOG403 GEOGRAPHY HONOURS (SCIENCE)**

*Double session; 48 credit points*

Final year students for the Honours science degree are required to write a thesis of approximately 20-25,000 words on an approved topic embodying the results of a piece of supervised research and to participate in a reading/seminar programme.

In the first session the seminar programme is concerned with questions of methodological and philosophical significance to research and teaching in Geography. In addition candidates are required to undertake directed reading and participate in seminars which explore a particular research field for which an adequate foundation has been provided by previous 200- and 300-level subjects in the Science Schedule, and culminates in the defence of a thesis proposal. The second session will be devoted mainly to thesis writing but participation in an ongoing workshop seminar is also required. Students will also undertake a programme of directed reading in fields of Physical Geography outside the immediate area of their research.

Assessment is based upon the thesis (70%), which will be examined internally and externally, submitted seminar papers (20%) and a examination on directed read-

ings (10%).

### **GEOG460 JOINT HONOURS IN GEOGRAPHY AND PSYCHOLOGY**

Students enrolling in this subject must have completed at 200- and 300-levels a programme meeting the requirements specified in Schedule A for PSYC460.

In the fourth year students are required to

- (a) write a thesis of 20-25,000 words embodying the results of a theoretically based empirical investigation in a field acceptable to and jointly supervised by both Departments,
- (b) attend for credit the seminar "Issues in the Philosophy and Methodology of Geography," and
- (c) attend Psychology seminars and complete coursework requirements for PSYC499.

**GEOLOGY**

The three year pass degree in Geology is normally taken within the BSc degree requirements but may be taken for the BA degree. 400-level studies in Geology are available for the BSc Honours Degree or the BA Honours Degree.

The double-session GEOL103 subject provides a basic grounding in Geology for 200-, 300- and 400-level Geology subjects, but is also suitable for students who do not wish to specialize in Geology. The 200- and 300-level subjects are single session. Students are advised to complete GEOL221, 222, 223 and 224 satisfactorily before enrolling in 300-level Geology subjects. Students wishing to specialize in Geology should take six out of the seven 300-level Geology subjects. Entry to the Geology honours year normally requires completion of six 300-level Geology subjects (48 credit points at 300-level in Geology) except that, when a joint Honours programme is approved, students must have completed at least three 300-level subjects in Geology (at least 24 credit points at 300-level in Geology).

Field work is an integral part of Geology course. Details of the field work required are listed for each subject. In addition, students are encouraged to participate in the activities of the University of Wollongong Geological Society, especially field excursions. Subject are assessed on the basis of a formal examination taken in the examination period(s) after the session(s) in which the subject is taught, together with assessment of essays, assignments, seminars, field and practical work, practical examinations and other examinations which are prescribed. (Note: formal examinations for GEOL103 will be held in the examination periods following both Session 1 and Session 2). The marks making up the complete assessment in each subject will be advised early in the first session in which the subject is taught.

Students should consult the Chairman, Department of Geology, if they have enquiries concerning transition arrangements following courses taken up to, and including, 1980.

*Schedule Entry*

All subjects in this section (except GEOL252, GEOL352) are listed in schedules A and E. The schedules give details of the session in which the subjects are offered and provide pre- and co-requisites and exclusions.

*100-LEVEL***GEOL103 INTRODUCTORY GEOLOGY**

*Double session; 12 credit points (2 hrs lectures, 1 hr lecture/tutorial and 2.5 hrs practical per week and 4 days of field work)*

*Assessment: 2 theory examinations; 4 multiple choice tests; 3 exercises; 1 essay; 2 practical examinations; 2 field tutorial essays.*

The science of Geology is concerned with: understanding the origin, age and structure of the earth; minerals and rocks; plate tectonics; the geological cycle; earth resources; and the origin and evolution of life.

The study of symmetry, forms and systems of crystals provides the basis for describing the physical properties of minerals. The mode of occurrence, lithological characters and classification of igneous, sedimentary and metamorphic rocks is presented. The study of fossils and rocks leads to an interpretation of the stratigraphy and geological history of the Australian continent and, more specifically, of New South Wales and the Sydney Basin. Landscape evolution is described in the context of introducing an understanding of our environment.

*Practical Work:* This involves the study of crystals, the identification and des-



cription of common minerals, rocks and fossils in hand-specimen, the interpretation and preparation of geological maps and cross-sections and the use of simple geological instruments. Four days (two in first session and two in second session) of field tutorials will be conducted to illustrate lecture and practical work.

**TEXTBOOKS**

Gilluly, J., Waters, A.C. & Woodford, A.D. *Principles of Geology*. 3rd ed. Freeman, San Francisco, 1975.

or

Press, F. & Siever, R. *Earth*. 2nd ed. W. H. Freeman, San Francisco, 1978.

or

Read, H.H. & Watson, J. *Introduction to Geology*. 2nd ed. Macmillan, London, 1968.

*Wollongong Sheet Geologica: Map 1:250,000*. Mines Dept., N.S.W.  
Handbook prepared by the Department of Geology.

**200-LEVEL**

**GEOL221 MINERALOGY**

*First session; 6 credit points (2 hrs lectures and 4 hrs practical per week)*

*Assessment:* 1 theory examination; practical exercises; 1 practical examination.

*The Crystallography* course advances the foundation in crystallography established at 100-level. Subjects covered include zones and the zone law, the stereographic project and point groups and an introduction to Bravais lattices. The use of spherical triangles and the equation to the normal is outlined. In addition, internal symmetry and space groups are discussed.

An introduction is made to *Optical Crystallography* starting with the properties of waves, refraction in isotropic and anisotropic media and refractive indices. Other subjects covered include pleochroism, interference colours and extinction, uniaxial and biaxial indicatrices, uniaxial and biaxial interference figures and the determination of optic sign.

In *Crystal Chemistry* the chemical composition and unit cell content are related to the bonding of atoms and the effect of ionic radius on crystal structure. Isomorphism, atomic substitution and solid solution, polymorphism, and the classification of minerals complete the crystal chemistry course.

*Silicate Minerals* are discussed in detail, and this involves studying their physical and chemical properties and applying the principles of crystal chemistry to systematize these properties.

In *Practical Classes* use is made of the petrological microscope to study the optical properties of minerals and this is complemented by hand-specimen examination of crystals and minerals.

**TEXTBOOKS**

Deer, W. A., Howie, F.A. & Zussman, J. *An Introduction to the Rock-Forming Minerals*. Longmans, London, 1966.

Keer, P.J. *Optical Mineralogy*. 4th ed. McGraw-Hill, New York, 1977.

or Shelley, D. *Manual of Optical Mineralogy*. Elsevier, Amsterdam, 1975.

Mason, B. & Berry, L. *Elements of Mineralogy*. Freeman, San Francisco, 1968.

or Hurlbut, C.S., & Klein, C. *Manual of Mineralogy*. 19th ed. John Wiley & Sons, New York, 1977.

Phillips, F.C. *An Introduction to Crystallography*. 4th ed. Longmans, London, 1971.



**GEO222 PETROLOGY**

*Second session; 6 credit points (2 hrs lectures and 4 hrs practical per week)*

*Assessment:* 1 theory examination; practical exercises; 1 practical examination

The aim of this course is to enable students to identify rocks in thin-section and hand-specimen and to give them an outline of the elementary aspects of theoretical petrology. The course discusses the classification of rocks in general and some classifications of igneous, sedimentary and metamorphic rocks.

Under *Igneous Rocks* topics include: the CIPW norm, variations in associated igneous rocks, the consolidation of magma and a study of some synthetic silicate systems. The main igneous rock types are also described.

The course on *Sedimentary Rocks* starts with a description of clastic and sedimentary minerals, heavy minerals and clay minerals. Textures of terrigenous and carbonate rocks are covered and their diagenesis is discussed. An outline of sedimentary provenances is given.

*Metamorphic Rocks* are described and defined and types of metamorphism are discussed. The following topics are then presented: the facies classification of metamorphic rocks, progressive regional metamorphism, dynamic metamorphism, contact metamorphic rocks, granulites and eclogites.

In *Practical* classes rocks are studied in thin-section and hand-specimen.

**TEXTBOOKS**

Folk, R.L. *Petrology of Sedimentary Rocks*. Hemphill, Austin, Texas, 1974.

Mason, R. *Petrology of the Metamorphic Rocks*. George Allen & Unwin, London, 1978.

Nockolds, S.R., Knox, R.W. O'B., & Chinner, G.A. *Petrology for Students*. C.U.P., Cambridge, 1978.

**GEO223 GEOLOGICAL MAPPING AND STRATIGRAPHY I**

*Second session; 6 credit points (1 hrs lecture, 1.5 hrs practical work, up to 10 days field work)*

*Assessment:* 1 theory examination, 2 reports, field mapping assignments, practical exercises, seminars.

This subject will provide a basic course in field geology. Commencing with laboratory techniques such as air photo interpretation, the practical work is carried out while on a field camp in the August vacation. Study of the field mapping results in the laboratory leads to preparation of a report including a geological map. A section will be measured in the Illawarra district. To permit a basic understanding of the regions studied, there will be a short course in Australian stratigraphy.

Introductory lectures on field techniques, air photographs and their interpretation, satellite photography and its uses. Field mapping tutorial and measurement of a section. Study of geology of selected areas. Map compilation and progress reports on each day's work, with final interpretation and preparation of report plus map in the laboratory after the field tutorial. Lecture course in aspects of Australian stratigraphy.

**TEXTBOOKS**

Kottlowski, F.E. *Measuring Stratigraphic Sections*. Holt, Rinehart & Winston, New York, 1965.

Lahee, F.H. *Field Geology*. 6th ed. McGraw-Hill, New York, 1961.

Lattman, L. & Ray, R.G. *Aerial Photographs in Field Geology*. Holt, Rinehart & Winston, New York, 1965.

Brown, D.A., Campbell, K.S.W., & Crook, K.A.W. *The Geological Evolution of Australia and New Zealand*. Pergamon, Oxford, 1968.

## GEOL224 PALAEOONTOLOGY

*First session; 6 credit points (2 hrs lectures, 3 hrs practical per week, 2 days field work)*

*Assessment:* 1 theory examination; 1 practical examination; 1 essay; practical exercises in the field and laboratory.

This course is designed to provide a sound basis in many aspects of the study of fossils.

Morphology, classification, evolution, ecology and biogeography of principle invertebrate, vertebrate and plant macrofossil groups, as well as selected micro-fossil groups. Important theoretical aspects of palaeontology.

*Practical:* Study of fossils to illustrate the lecture course.

### TEXTBOOKS

Clarkeson, E.N.K. *Invertebrate Palaeontology and Evolution*. George Allen & Unwin, London, 1979.

Raup, D.M. & Stanley, S.M. *Principles of Palaeontology*. 2nd ed. Freeman, San Francisco, 1978.

Haq, B.J. & Boersma, A. *Introduction to Marine Micropalaeontology*. Elsevier, New York, 1978.

Scagel, R.F., Bandoni, R.J., Reuse, G.E., Schofield, W.B., Stein, J.R. & Taylor, T.M.C. *An Evolutionary Survey of the Plant Kingdom*. Wadsworth, London, 1965.

Romer, A.S. *Vertebrate Palaeontology*. 3rd ed. University of Chicago Press, Chicago, 1966.

## GEOL225 RESOURCE GEOLOGY I

*Second session; 6 credit points (2 hrs lectures, 1 hr tutorial, 2 hrs practical per week, including field work)*

*Assessment:* 1 theory examination; essays and tutorial presentations; practical exercises.

The importance of Earth's resources is such that an understanding of these resources and the problems of their exploitation is fundamental to survival. The role of minerals and fuels in modern society will be discussed, along with the complexity of mineral and fuel supply. The nature and geographic distribution of economic deposits, including fuels, metals, industrial and construction materials, groundwater and geothermal energy will be outlined. Ore reserves assessment techniques, together with aspects of infrastructure costs, marketing procedures and cash flow considerations are important components of this subject. Problems of exploitation and processing — including environmental impact and alienation of reserves — must be considered in present economies and societies. Limits to world reserves will be assessed in the light of contemporary knowledge.

*Practical:* Tutorial and practical work will include the study of suites of samples from ore deposits. Essay preparation and tutorial presentation of mineral economics and related problems will be arranged so that students will present material to complement the work of others. Fieldwork will include inspection of mineral extraction industries.

### TEXTBOOKS

Govett, G.J.S. & Govett, M.H., etc. *World mineral supplies: assessment and*

*perspective*. Elsevier, Amsterdam, 1976.

Kesler, S.E. *Our Finite Mineral Resources*. McGraw-Hill, New York, 1976.

or McDivitt, J.F. & Manners, G. *Mineral and Men*. Johns Hopkins, for Resources for the Future Inc., (or Freeman, Cooper, San Francisco), 1974.

or Park, C.F. *Earthbound: Minerals, Energy, and Man's Future*. Freeman, Cooper, San Francisco, 1975.

## GEO252 GEOLOGY FOR ENGINEERS I

*First session; (3 hrs lectures and 2.5 hrs practical per week and 2 days of field work)*

*Assessment:* 1 theory examination; 3 multiple choice tests; 1 essay; 1 practical examination; 1 field tutorial essay.

The subject presents an introduction to: theories on the origin, age and structure of the earth; minerals and rocks; plate tectonics; the geological cycle; earth resources; and the origin of life. The study of crystal symmetry, forms and systems provides the basis for describing the physical properties of minerals. The mode of occurrence and lithological characters of igneous and sedimentary rocks and the classification of igneous rocks is presented.

*Practical:* This involves the study of crystals, the identification and description of common minerals and igneous rocks, an introduction to the interpretation of geological maps and the use of simple geological instruments. Two days of field tutorials will be conducted to illustrate lecture and practical work.

### TEXTBOOKS

McLean, A.C. & Gribble, C.D. *Geology for Civil Engineers*. George Allen & Unwin, London, 1979.

### 300-LEVEL

## GEO331 MINERALOGY AND PETROLOGY

*First session; 8 credit points (2 hrs lectures and 4 hrs practical per week; up to 2 days field work)*

*Assessment:* 1 theory examination; practical exercises; 1 practical examination.

This course takes up some more advanced aspects of topics covered in GEOL221 and GEOL222.

In *Mineralogy* one main topic introduces oil immersion techniques and mineral determination by dispersion of R.I. liquids. The other major topic concerns the theory of practice and X-ray determinative techniques.

*Crystal Chemistry* deals with topics such as: phase transitions involving transformations of primary and secondary co-ordination; crystal pathology; order-disorder reactions and exsolution in the feldspars.

In *Theoretical Petrology* the following topics are dealt with: the phase rule; systems of one, two and three components; experimental and theoretical petrology as applied to metamorphic rocks; direct determination of equilibrium curves.

The course in *Igneous Petrology* outlines: some rock textures; the concept of primary and derivative magmas; crustal anatexis; magma generation in the upper mantle; partial melting; and the description of some rock associations.

In *Metamorphic Petrology* discussion is based on topics such as: the types of metamorphism; metamorphic zones; facies and facies series; metamorphic reactions in carbonate rocks; the development of hornfelses; metasomatism; and retrograde metamorphism.

## TEXTBOOKS

- Bloss, J.D. *Crystallography and Crystal Chemistry*. Holt, Rinehart & Winston, New York, 1971.
- Carmichael, I., Turner, F.J. & Verhoogen, J. *Igneous Petrology*. McGraw-Hill, New York, 1974.
- Cox, K.G., Bell, J.D. & Pankhurst, R.J. *The Interpretation of Igneous Rocks*. George Allen & Unwin, London, 1979.
- Turner, F.J. *Metamorphic Petrology*. McGraw-Hill, New York, 1968.
- Yoder, H. S. (ed.) *The Evolution of the Igneous Rocks*. Princeton University Press, Princeton, New Jersey, 1979.

## GEOL332 SEDIMENTOLOGY

*First session; 8 credit points (2 hrs lectures and 3 hrs practical per week and 4 days of field work)*

*Assessment:* 1 theory examination; 4 assignments; 1 seminar.

This subject includes a study of the physical characteristics of sedimentary particles and the mechanics and results of erosion, transportation and deposition of granular solids by fluid media and mass flows. The distribution and character of deep ocean sediments is discussed. The above information is intergrated in the delineation of sedimentary facies, in the study of tectonic controls upon sedimentation and in sedimentary basin analysis.

*Practical:* Sediment size analysis. Examination of sedimentary structures in the laboratory. Field experiments on erosion, transportation and deposition of sand by water and wind. Field examination of sedimentary structures, vectorial properties and environmental interpretation of Permian and Triassic rocks.

## TEXTBOOKS

- Allen, J.R.L. *Physical Processes of Sedimentation*. George Allen & Unwin, London, 1977.
- Blatt, H., Middleton, G. & Murray, R. *Origin of Sedimentary Rocks*. Prentice-Hall, Englewood Cliffs, 1980.
- Conybeare, C.E.B. & Crook, K.A.W. *Manual of Sedimentary Structures*. Bureau of Mineral Resources Bulletin 102, Canberra, 1968.
- Folk, R. L. *Petrology of Sedimentary Rocks*. Hemphill, Austin, 1974.
- Selley, R.C. *Ancient Sedimentary Environments*. Chapman & Hall, London, 1978.

## GEOL333 GEOLOGICAL MAPPING AND STRATIGRAPHY II

*First session; 8 credit points (1 hr lecture and 2 hrs practical work per week and up to 10 days of field work)*

*Assessment:* 1 theory examination; field mapping assignment and seminar; practical exercises.

*Geological Practice:* Field work will normally be conducted at the end of the vacation before first session. Students intending to enrol in GEOL333 should consult the Chairman of the Department during the previous session.

*Description:* Aerial and satellite photographs will be used in the compilation of a detailed geological map of a geologically complex area. Map compilation and progress reports are required after each day of field work. The geological interpretation of the area will be undertaken in the laboratory tutorials and will include petrographic, structural and facies analysis.

*Stratigraphy:* A systematic study of type sections, together with other important overseas and Australian successions, will be used as a basis for describing the history of the Tasman, Caledonian and Alpine Geosynclines and other classical sequences.



*Practical:* Field mapping together with petrographic, structural and facies analysis of field data. Demonstrations of suites of rocks and fossils from type stratigraphic sections.

### TEXTBOOKS

- Anderton, A.R., Bridges, P.H., Leeder, M.R. & Sellwood, B.W. *Dynamic Stratigraphy of the British Isles*. George Allen & Unwin, London, 1979.
- Brown, D.A., Campbell, K.S.W. & Crook, K.A. W. *The Geological Evolution of Australia & New Zealand*. Pergamon, Oxford, 1968.
- Lahee, F.H. *Field Geology*. 6th ed. McGraw-Hill, New York, 1961.
- Packham, G. H. (ed.) *The Geology of New South Wales. Jour. Geol. Soc. Australia*, Vol. 16, Part 1, 1969.

## GEOL334 ECONOMIC GEOLOGY

*Second session; 8 credit points (2 hrs lectures, 4 hrs practical per week)*

*Assessment:* 1 theory examination; practical examination, assignments, practical exercises.

**Ore Deposits:** This subject will commence with an outline of the scope of economic geology. This will be followed by discussion of the need for concentration of elements to form ore deposits. Processes of concentration of economically important elements and minerals will be described – which leads to discussion of the main types of ore deposits in igneous, sedimentary metamorphic rocks, and the effects of metamorphism. Metallogenic analysis and the exploration for ore deposits using geochemical techniques will be discussed. Emphasis will be on Australian ore deposits as examples where appropriate.

**Fuels:** The formation and occurrences of peat and coals will be described. Rank and type concepts in coal studies will be emphasized. Discussion of macerals and minerals in coals and the microscopy of coal and coal products will outline the role of coal petrography in coal assessment.

The generation, migration and accumulation of petroleum will be discussed and this treatment will lead to descriptions of petroleum exploration methods and to evaluation of petroleum deposits. Australian occurrences will be described.

*Practical:* Practical work will include the following: reflected and transmitted light ore microscopy; reflected and transmitted light microscopy of coals, including oil immersion techniques and reflectivity studies; the study of cores, rotary drill cuttings, geophysical logs, data on petroleum prospects (including maps and sections), and map exercises.

### TEXTBOOKS

- Levorsen, A.I. *Geology of Petroleum*. 2nd ed., Freeman, San Francisco, 1967.
- Murchison, D.G. & Westoll, T.S., (eds). *Coal and Coal Bearing Strata*. Oliver & Boyd, London, 1968.
- Stanton, R.L. *Ore Petrology*. McGraw-Hill, New York, 1972.
- Stach, E., and others. *Stach's textbook on Coal Petrology*, 2nd ed. Gebruder Borntraeger, 1975.

## GEOL335 RESOURCE GEOLOGY II

*Second session; 8 credit points (2 hrs lectures; 2 hrs tutorials; 2 hrs practical per week, including field work)*

*Assessment:* 1 theory examination; essays and tutorial presentations; practical exercises.

The importance of Earth's resources is such that geologists should have an understanding of these resources and the problems of their exploitation, as this knowledge is fundamental to future development. The role of minerals and fuels in modern society will be discussed, along with the complexity of mineral and fuel



supply. The nature and geographic distribution of economic deposits, including fuels, metals, industrial and construction materials, groundwater and geothermal energy will be outlined. Reserves assessment techniques for metals, non-metals and fuels deposits, together with aspects of infrastructure costs, marketing procedures and cash flow considerations are important components of this subject. Problems of exploitation and processing — including environmental impact and alienation of reserves — must be considered in present economies and societies. Limits to world reserves will be assessed in the light of contemporary knowledge.

*Practical:* Tutorial and practical work will include the study of suites of samples from ore deposits. Reserve assessment exercises will be carried out for different commodities, with essay preparation and discussion of resource project assessment exercises. Fieldwork will include inspection of mineral extraction industries.

#### TEXTBOOKS

Govett, G.J.S. & Govett, M.H., eds. *World mineral supplies: assessment and perspective*. Elsevier, Amsterdam, 1976.  
or Park, C.F. *Earthbound: Minerals, Energy, and Man's Future*. Freeman, Cooper, San Francisco, 1975.

### GEOL336 GEOPHYSICS

*First session; 8 credit points (2 hrs lectures, 1 hr tutorial, 3 hrs practical per week including field work)*

*Assessment:* 1 theory examination; 2 essays, seminar, practical exercises.

This subject outlines the geophysical characteristics of the Earth and describes most of the techniques used in Exploration Geophysics. The topics covered include: the Earth, as part of the Solar System; seismology — earthquakes and the study of the Earth's interior, and various aspects of seismic exploration; gravity and geodesy — the study of the shape of the Earth and its gravitational field and gravity exploration; geomagnetism — the Earth's magnetic field and its variation in space and time and its use in exploration; geochronology, especially radiometric dating; radiometric exploration; electrical and electromagnetic methods of exploration using natural and artificial fields; downhole logging; geothermy — thermal properties of the Earth and heat flow. Where the study of Geophysics in Australia requires special considerations these will be emphasized.

*Practical:* Calculation of real and theoretical problems and study of Australian (and other) case histories will be major aspects of the practical work. Field work will be carried out using available instrumentation and the results will be interpreted.

#### TEXTBOOKS

Dobrin, M.B. *Introduction to Geophysical Exploration*. 3rd ed., McGraw-Hill, New York, 1976.  
or Parasnis, D.S. *Mining Geophysics*. 2nd ed., Elsevier, Amsterdam, 1973.  
Jacobs, J.A. *A Textbook of Geonomy*. A. Hilger, London, 1974.

### GEOL337 STRUCTURAL GEOLOGY AND MATHEMATICAL GEOLOGY

*Second session; 8 credit points (2 hrs lectures, 4 hrs practical per week, up to 2 days field work)*

*Assessment:* 1 theory examination; laboratory practical exercises and assignments.

This subject combines both an "old" and a "new" branch of Geology — including study of mountain building, and mathematical manipulation of geological data.

*Mathematical Geology:* This deals with computer based mathematical analysis of geological data. The subject is concerned with scale, mathematical and conceptual geological models, attributes of types of data, and accuracy and precision. The

calculation of means, standard deviations and variance and the testing of some distributions commonly found in geological phenomena, are described. Response surface analysis in stratigraphic, geochemical and mineralogical studies is described, along with classification methods, discriminant functions, factor analysis and time series analysis. The important application of mathematical geology to aspects of reserve estimation and problem solving is then pointed out.

*Structural Geology:* This deals with aspects of the deformation of rocks, and structures in rocks. Large scale deformations to be discussed include the structural evolution of mountain chains such as the European Alps and the Himalayas. The study of folds, folding and superposed folding will be related to structural analysis – geometrical, kinematic and dynamic analysis. The importance of stress and strain in rocks will be outlined, especially in the context of the development of fractures – faults, joints and cleavage in rocks. Much of the course will be considered in the context of plate tectonics.

*Practical:*

*Mathematical Geology:* This part of the practical work will involve the use of computer programs to solve geological problems.

*Structural Geology:* This practical work will include map problems and stereographic projection problems. Study of deformed rocks in hand-specimen and under the microscope is an important part of the work.

#### TEXTBOOKS

- Davis, J.C. *Statistics and Data Analysis in Geology*. Wiley, New York, 1972.  
 or Harbaugh, J. & Merriam, D.C. *Computer Methods in Geology*. Wiley, New York, 1968.  
 Hobbs, B.E., Means, W.D. & Williams, P.F. *An Outline of Structural Geology*. Wiley, New York, 1976.  
 Phillips, F.C. *The Use of Stereographic Projections in Structural Geology*. 3rd ed., E. Arnold, London, 1971.

### GEO352 GEOLOGY FOR ENGINEERS II

*First session; (3 hrs lectures, 1 hr lecture/tutorial and 2 hrs practical per week and 3 days of field work)*

*Assessment:* 1 theory examination; 1 multiple choice test, 3 exercises; 1 practical examination; 1 field tutorial essay.

This subject includes an introduction to the study of minerals in thin-section and is followed by a study of igneous, sedimentary and metamorphic rocks. A study of structural geology, introductory geophysics, slope and mine stability and the methods of assessing ore, coal, oil and natural gas reserves is presented. The evolution of the main animal and plant phyla is discussed. The study of fossils and rocks leads to an interpretation of the stratigraphy and geological history of the Australian continent and, more specifically, of New South Wales and the Sydney Basin.

*Practical Work:* This involves the study of minerals, rocks and fossils, and the interpretation and preparation of geological maps and cross-sections. Field tutorials will be conducted to illustrate lecture and practical work.

#### TEXTBOOKS

- McLean, A.C. & Gribble, C.D. *Geology for Civil Engineers*. George Allen & Unwin, London, 1979.  
 Parasnis, D.S. *Mining Geophysics*. 2nd ed. Elsevier, Amsterdam, 1973.

### GEO360 SPECIAL TOPICS IN GEOLOGY A

*First session; 4 credit points (normally 1 hr lecture and 2 hrs practical per week, which may include or involve additional field work)*

*Assessment:* 1 theory examination, essays, practical work and test.

**NOTE:** This subject is only available to students who have difficulties of enrolment consequent on the introduction of new 200- and 300-level courses in Geology in 1981. Enrolment in this course is restricted to students in transition between subjects available during 1975 to 1980 (inclusive) and those subjects available during 1981 and subsequently. Approval must be given by the Chairman of the Department of Geology to enrol in this course.

*Subject Description; Practical and Textbooks.*

This subject is intended to be normally one-half of one of the subjects GEOL224, 331, 332, 334, or 336. Subject description, etc., are to be found under the appropriate subject heading.

### **GEOL361 SPECIAL TOPICS IN GEOLOGY B**

*First session; 4 credit points (normally 1 hr lecture and 2 hrs practical per week, which may include field work)*

*Assessment:* 1 theory examination, practical work and test.

**NOTE:** This subject is only available to students who have difficulties of enrolment consequent on the introduction of new 200- and 300-level courses in Geology in 1981. Enrolment in this course is restricted to students in transition between subjects available during 1975 to 1980 (inclusive) and those subjects available during 1981 and subsequently. Approval must be given by the Chairman of the Department of Geology to enrol in this course.

*Subject Description: Practical and Textbooks.*

This subject is intended to be normally one-half of one of the subjects GEOL224, 331, 332, 334, or 336. Subject descriptions, etc., are to be found under the appropriate subject heading.

### **GEOL362 SPECIAL TOPICS IN GEOLOGY C**

*Second session; 4 credit points (normally 1 hr lecture and 2 hrs practical per week, which may include or involve additional field work)*

*Assessment:* 1 theory examination, essays, practical work and test.

**NOTE:** This subject is only available to students who have difficulties of enrolment consequent on the introduction of new 200- and 300-level courses in Geology in 1981. Enrolment in this course is restricted to students in transition between subjects available during 1975 to 1980 (inclusive) and those subjects available during 1981 and subsequently. Approval must be given by the Chairman of the Department of Geology to enrol in this course.

*Subject Description: Practical and Textbooks.*

This subject is intended to be normally one-half of one of the subjects GEOL224, 331, 332, 334, or 336. Subject descriptions, etc., are to be found under the appropriate subject heading.

### **GEOL363 SPECIAL TOPICS IN GEOLOGY D**

*Second session; 4 credit points (normally 1 hr lecture and 2 hrs practical per week, which may include field work)*

*Assessment:* 1 theory examination, practical work and test.

**NOTE:** This subject is only available to students who have difficulties of enrolment consequent on the introduction of new 200- and 300-level courses in Geology in 1981. Enrolment in this course is restricted to students in transition between subjects available during 1975 to 1980 (inclusive) and those subjects available during 1981 and subsequently. Approval must be given by the Chair-

man of the Department of Geology to enrol in this course.

*Subject Description; Practical and Textbooks.*

This subject is intended to be normally one-half of one of the subjects GEOL224, 331, 332, 334, or 336. Subject descriptions, etc., are to be found under the appropriate subject heading.

**400-LEVEL**

**GEOL401 GEOLOGY HONOURS**

*Double session; 48 credit points*

*Pre-requisites:* Students must satisfy requirements for the award of the degree of BSc. in the Faculty of Science or another appropriate degree. Normally a student should have satisfactorily completed at least four 200-level and at least six 300-level Geology subjects (48 credit points at 300-level).

*Assessment:* 2 theses; 4 theory examinations; 4 seminars.

*Description:* The formal parts of this subject will consist of at least four courses to be offered per year from the following: history of geological thought; some topical aspects of geology; mineral paragenesis; rock magnetism; biostratigraphy; mathematical geology; coal and petroleum geology; sedimentology. The other parts of the course will be field and laboratory projects, seminars and study of selected references.

**GEOL402 GEOLOGY JOINT HONOURS**

*Double session; 24 credit points* (note 24 credit points will be required from the honours programme of another Department, normally a member Department in the Faculty of Science.)

*Pre-requisites:* Students must satisfy requirements for the award of the degree of BSc in the Faculty of Science or another appropriate degree. Normally a student should have satisfactorily completed at least three 300-level Geology subjects (24 credit points at 300-level).

*Assessment* (for the Department of Geology): 1 thesis, 2 theory examinations, 2 seminars.

*Description:* The formal parts of this subject will consist of at least two courses to be offered per year from the following: history of geological thought; some topical aspects of geology; mineral paragenesis; rock magnetism; biostratigraphy; mathematical geology; coal and petroleum geology; and sedimentology. The other parts of the course will be a field or laboratory project as appropriate, seminars and study of selected references.



*Schedule Entries*

Refer to the schedules entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A.

**100-LEVEL****HIST102 ENGLISH SOCIAL HISTORY, 1815 - 1945**

*Double session; 12 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* 3 essays: 1,000 words, 2,000 words and 3,000 words; 2 tutorial papers; 750 words each.

This subject is concerned with the shape of English society and in particular with changes in the class structure and in political, religious, legal and educational institutions. The other, and related, areas of concern are industrialisation, popular taste and culture in the 19th century, crime and public order, Victorian respectability, the emergence of the welfare state, and the social impact of the two world wars.

**PRELIMINARY READING**

Perkin, H. *The Origin of Modern English Society 1780 - 1880*. R. & K. P., London, 1969.

Webb, R.K. *Modern England from the Eighteenth Century to the Present*. Dodd, Mead, New York, 1975.

**HIST103 ITALIAN HISTORY, 1849 - 1968**

*Double session; 12 credit points (3 hrs per week; lectures and tutorials)*

*Assessment:* 3 essays; 2 tutorial presentations; participation in tutorials

This subject deals with the leadership of the national movement; national unification and international relations; the development of Italian society and economy since unification; political life and parliamentary behaviour; nationalism; colonialism; Italy's participation in World War I; socialism; fascism; imperialism; World War II and the resistance movement; contemporary Italy. Emigration from Italy to Australia will also receive attention.

**PRELIMINARY READING**

Procaccio, G. *History of the Italian People*. New York, 1970.

**TEXTBOOK**

Smith, D. Mack. *Italy: A Modern History*. Michigan, 1969.

**200-LEVEL****HIST204 HISTORY AND POLITICS**

*Second session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* 1 essay, 4 tutorial presentations, tutorial participation

Definition of Politics. Ideology, power, institutions, behaviour. Decision making process, political parties, interest groups. Elites and political participation. Social stratification, political personality, political culture. These concepts will be studied within an historical context.

**TEXTBOOK**

Cord, R.L., Medeiros, J.A., and Jones, W.S. *Political Science. An Introduction*.



Appleton-Century-Crofts, New York, 1974.

## HIST221 AUSTRALIAN SOCIAL HISTORY, 1850 - 1939 A

*Double session; 16 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Four 2,000 word essays and tutorial performance.

*Other Details:* This subject combines the content of HIST235 and HIST238.

## HIST222 FRENCH HISTORY, 1700 - 1940 A

*Double session; 16 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Essays: total number of words 7,500 (normally three 2,500 word essays)

Session 1 - The chief events in French History from the age of Louis XIV to 1815 with emphasis on the growth of the state; the relationship of state and society; and with particular reference to science, enlightenment and revolution in French History to 1815. The emphasis in this part of the course will be on the relationship of the Enlightenment to French Revolution.

Session 2 - The approach will be the same as in Session 1, the only difference being in the period to be covered, namely from 1815 to 1940. The course will include a detailed study of France in the age of Napoleon III.

### TEXTBOOKS

Brumfitt, J.H. *The French Enlightenment*. London, 1972.

Craig, G.A. *Europe since 1815*. N.Y., 1971.

Kiernan, C. *The Enlightenment and Science in Eighteenth Century France*. Oxford, 1973.

Martin, K. *French Liberal Thought in the Eighteenth Century*. London, 1962.

McManners, J. *Lectures in European History, 1789 - 1914*. Oxford, 1966.

## HIST223 RELIGION AND SOCIETY IN BRITAIN FROM THE REFORMATION A

*Double session; 16 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,500 word essays, 2 reports on documents and 6 summaries of selected extracts

*Other Details:* This subject combines the content of HIST226 and HIST227.

## HIST224 MODERN SOUTHEAST ASIAN HISTORY A

*Double session; 16 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,000 word essays, one 3,500 word essay, two brief tutorial papers

*Other Details:* This subject combines the content of HIST236 and HIST237.

## HIST226 REFORMATION AND REVOLUTION, 1517 - 1660 A

*First session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* One 2,500 word essay, 1 report on a document and 3 summaries of selected extracts

This subject deals with the history of religion in relation to three revolutionary movements:- (i) Theological Revolution - The Protestant Reformation (Luther, Calvin) and the Catholic Counter-Reformation (Ignatius Loyola). (ii) Governmental Revolution - the Reformation in England under Henry VIII, the Elizabethan Church Settlement and the Puritan Revolution (Oliver Cromwell). (iii) Social Revolution - Religion and the rise of capitalism; changing patterns of family

life.

**TEXTBOOKS**

Ashley, M.P. *England in the Seventeenth Century*. Penguin, 1952.  
Bindoff, S.T. *Tudor England*. Penguin, 1950.  
Chadwick, O. *The Reformation*. Penguin, 1964.

**HIST227 RELIGION AND SOCIETY, 1738 - 1860 A**

*First session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* One 2,500 word essay plus 1 report on documents and 3 summaries of selected extracts

This course on the Church in the eighteenth and nineteenth centuries is designed as a sequel to HIST226. It begins with the revival and expansion of the Church (the Evangelical Revival in Britain, the Great Awakening in America, the modern missionary movement, and the Catholic Revival). This is followed by an analysis of Church/State conflict: the persecuted Church in the French Revolution, the movement towards disestablishment of the Church in Britain, and civil religion in America. Challenges to traditional belief and practice from industrialisation and scientific progress are also studied.

**TEXTBOOKS**

Cragg, G.R. *The Church and the Age of Reason, 1648 - 1789*. Penguin, 1960.  
Vidler, A.R. *The Church in an Age of Revolution*. Penguin, 1961.

**HIST231 RUSSIA, THE SOVIET UNION AND  
INTERNATIONAL COMMUNISM, 1885 - 1962 A**

*Double session; 16 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,000 word seminar papers per session and one 2,000 word essay during the year plus one critical commentary on tutorial papers per week

Session 1 will be devoted to a discussion of the collapse of the Tsarist Empire, the rise of Social-Democracy in Russia, its links with the International Socialist movement and the formation of the Soviet Union. Session 2 will concentrate on the development of the Soviet Union, the origins of the Cold War and the establishment and activities of the Communist International. Throughout, class relationships will be explored and economic development and its implications for society and politics will be emphasized.

Credit for completion of the first session will be given only after successful completion of the second session.

**TEXTBOOKS**

Lenin, V.I. *Selected Works*. 3 vols. F.L.P.H., Moscow, 1970.  
Marx, K. & Engels, F. *Selected Works*. 2 vols. F.L.P.H., Moscow, 1962.  
Nettl, J.P. *The Soviet Achievement*. Thames & Hudson, London, 1967.  
Trotsky, L.D. *History of the Russian Revolution*. 3 vols. Sphere Books, London, 1967.

**HIST232 THE SOVIET UNION AND  
INTERNATIONAL COMMUNISM, 1917 - 1970 A**

*Second session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 1,000 word seminar papers and one 1,000 word essay

This subject will concentrate on the development of the Soviet Union, the origins of the Cold War and the establishment and activities of the Communist International. Throughout, class relationships will be explored and economic develop-

ment and its implications for society and politics will be emphasized.

### TEXTBOOKS

Nettl, J.P. *The Soviet Achievement*. Thames & Hudson, London, 1967.  
Trotsky, L.D. *History of the Russian Revolution*. 3 vols. Sphere Books, London, 1967.

## HIST233 HISTORY OF RUSSIA FROM THE EARLIEST TIMES TO THE PRESENT DAY A

*Double session; 16 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 1,000 word seminar papers per session, one 2,000 word essay per year, plus one critical commentary per week on tutorial papers

This course is designed to provide students with an outline of Russian history from the formation of the earliest princely states, through the rise of the Muscovite empire until the collapse of the autocracy in 1917. The latter part of the course will deal with the formation and development of the U.S.S.R.

### PRELIMINARY READING

Florinsky, M. *Russia, A History and an Interpretation*. vols. 1 and 2. Macmillan, New York, 1971.

Riasanovsky, N.V. *History of Russia*. O.U.P., London, 1969.

*A History of the U.S.S.R.* 3 vols. Progress Publishers, Moscow, 1977.

## HIST234 FRENCH HISTORY, 1700 - 1799 A

*First session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,000 word essays and tutorial performance

The subject is concerned with the relations of state and society, from the reign of Louis XIV to the French Revolution, and political change until the end of the eighteenth century. Particular attention will be given to the role of the French Enlightenment in social and political developments.

### PRELIMINARY READING

Adams, W.E. et al. eds. *The Western World, Vol. II*. New York, 1968.

Church, W.F. ed. *Influence of the Enlightenment on the French Revolution*. New York, 1965.

Hampson, N. *The Enlightenment*. Penguin, London, 1968.

Rudé, G. *Revolutionary Europe, 1783 - 1815*. London, 1966.

## HIST235 AUSTRALIAN SOCIAL HISTORY, 1850 - 1900 A

*First session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,000 word essays and tutorial performance

The subject studies society in Australia from the making of the colonial self-governing constitutions to the formation of the Commonwealth. It examines relations between social groups affected by the gold rushes, land policy, urban development, education and social welfare.

### PRELIMINARY READING

Clark, C.M.H. ed. *Selected Documents in Australian History*. Vol. 2. Sydney, 1955.

Ebbels, R.N. ed. *The Australian Labour Movement 1850 - 1907*. Sydney, 1965.

Gollan, R. *Radical and Working Class Politics*. Canberra, 1966.

Ward, R.B. *The Australian Legend*. Melbourne, 1960.

## HIST236 MODERN INDONESIAN AND MALAYSIAN HISTORY A

*First session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,000 word essays plus one tutorial paper

This course is designed to provide a brief introduction to the modern history of the Malay countries of Southeast Asia, with particular emphasis on the Western colonial impact (political, social, and economic) and the emergence of nationalism.

### TEXTBOOKS

- Corpuz, O.D. *The Philippines*. Prentice-Hall, Englewood Cliffs, 1966.  
Hall, D.G.E. *A History of Southeast Asia*. 4th ed. Macmillan, London, 1980.  
Legge, J.D. *Indonesia*. 2nd ed. Prentice-hall, Sydney, 1977.  
Winstedt, R. *Malaya and Its Hisotry*. 7th ed. Hutchinson, London, 1966.

## HIST237 HISTORY OF MODERN MAINLAND SOUTHEAST ASIA A

*Second session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,000 word essays plus one tutorial paper

This course is designed to build on the foundation in non-western history provided by HIST236. It involves a brief examination of the modern history of the Buddhist countries of Southeast Asia, with special emphasis on the Western colonial impact and resulting patterns of nationalism. In the final weeks of the course this historical background is related to current problems in the region.

### TEXTBOOKS

- Cady, J. F. *Burma, Thailand, Laos and Cambodia*. Prentice-Hall, Englewood Cliffs, 1969.  
Hall, D.G.E. *A History of Southeast Asia*. 4th ed. Macmillan, London, 1980.  
Higgins, H. *Vietnam*. Heinemann, London, 1975.  
Steinberg, D.J. (ed.) *In Search of Southeast Asia - A Modern History*. Pall Mall, London/Praeger, New York, 1971.

## HIST238 AUSTRALIAN SOCIAL HISTORY, 1900 - 1939 A

*Second session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,000 word essays and tutorial performance

The subject studies Australian society from the formation of the Commonwealth to the eve of the Second World War. It examines the social effects of the Arbitration System, female suffrage, the First World War and the Conscription plebiscites, post-war development, the Great Depression and its aftermath.

### PRELIMINARY READING

- Barcan, A. *A Short History of Education in N.S.W.* Sydney, 1965.  
Crowley, F.K. ed. *Modern Australia in Documents, vol. 1, 1901-1939*. Melbourne, 1973.  
Ebbels, R.N. ed. *The Australian Labour Movement 1850 - 1907*. Sydney, 1965.  
Turner, I. *Industrial Labour and Politics, 1900 - 1921*. Canberra, 1965.

## HIST240 FRENCH HISTORY, 1800 - 1871 A

*Second session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,000 word essays and tutorial performance

The subject examines the relation of state and society from the First Empire of Napoleon I to the fall of the second Empire of Napoleon III. Matters for part-



icular attention will include the revolutions of 1830 and 1848, and the Paris Commune of 1871.

#### PRELIMINARY READING

Adams, W.E. et al. eds. *The Western World, Vol. II*. New York, 1968.

Cobban, A. *A History of Modern France, Vol. II, 1799 - 1871*. Penguin, Harmondsworth, 1968.

Gooch, B.D. ed. *Napoleon III - Man of Destiny*. New York, 1966.

Hobsbawm, E.J. *The Age of Revolution, 1789 - 1848*. New York, 1962.

### HIST241 EUROCOMMUNISM A

*First session; 8 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* 2 essays, 2 tutorial presentations, tutorial participation.

History of the Communist Parties of France, Italy, and Spain. The power strategies of the French, Italian and Spanish Communist Parties since the end of World War II, examined both within the context of the International communist movement and the Western European situation.

#### TEXTBOOK

Della Torre, J., Mortimer, E. & Story, J. *Eurocommunism, Myth or Reality?* Penguin, Harmondsworth, 1980.

#### 300-LEVEL

### HIST310 AUSTRALIAN SOCIAL HISTORY, 1850 - 1939 B

*Double session; 24 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Four 2,500 word essays and tutorial performance

*Other details:* As for HIST221.

### HIST311 FRENCH HISTORY, 1700 - 1940 B

*Double session; 24 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Four 2,500 word essays

*Other details:* As for HIST222

### HIST312 MODERN SOUTHEAST ASIAN HISTORY B

*Double session; 24 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Three 2,500 word essays, one 4,500 word essay, two brief tutorial papers

*Other details:* As for HIST224

### HIST313 RELIGION AND SOCIETY FROM THE REFORMATION B

*Double session; 24 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 5,000 word essays, 4 reports on documents and 8 summaries of selected extracts

*Other details:* As for HIST223

### HIST314 AUSTRALIAN SOCIAL HISTORY SINCE THE DEPRESSION B

*Double session, 24 credit points*

This subject will be concerned with the description and analysis of changes in Australian society since 1930. Its principal topics of study are:

(1) Changes in the quality and quantity of the population, with special refer-



- ence to Immigration.
- (2) The changing role of women.
  - (3) Changes in the purposes and activities of trade unions.
  - (4) Policy and structural changes within the Labour Party.
  - (5) The "New Nationalism", with special reference to Australian attitudes to Asia.
  - (6) The adaptation of the non-Labour parties to social change.
  - (7) Changing leisure patterns, and attitudes towards work.
  - (8) The history of education.
  - (9) The shares of wealth and the problem of poverty.
  - (10) The relationship between social class and political control.
  - (11) Urbanization and its social results.
  - (12) The "new consciousness" of aborigines.

The study of these topics will involve some comparison between their Australian context and that of some other country, usually the United Kingdom. Students will be expected to draw principally on primary sources for their evidence.

For details of textbooks and reference books students are advised to contact the Department.

### **HIST316 REFORMATION AND REVOLUTION, 1517 - 1660 B**

*First session; 12 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* One 5,000 word essay, 2 reports on a document and 4 summaries of selected extracts

*Other details:* As for HIST226

### **HIST317 RELIGION AND SOCIETY IN BRITAIN, 1738 - 1860 B**

*First session; 12 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* One 5,000 word essay, 2 reports on documents and 4 summaries of selected extracts

*Other details:* As for HIST227

### **HIST318 ENGLISH POLITICAL HISTORY, 1884 - 1914**

*Double session; 24 credit points (two 1 1/2 seminars per week)*

*Other details:* This subject combines the content of HIST329 and HIST331

### **HIST319 MODERN INDONESIAN AND MALAYSIAN HISTORY B**

*First session; 12 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,500 word essays plus a tutorial paper

*Other details:* As for HIST236

### **HIST320 HISTORY OF MODERN MAINLAND SOUTHEAST ASIA B**

*Second session; 12 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,500 word essays and one tutorial paper

*Other details:* As for HIST237

### **HIST321 RUSSIA, THE SOVIET UNION AND INTERNATIONAL COMMUNISM, 1885 - 1962 B**

*Double session; 24 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 2,500 word seminar papers per session; one 2,500 word essay, plus one critical commentary on tutorial papers per week

*Other details:* As for HIST231

### HIST325 THEORY AND METHOD OF HISTORY (ADVANCED)

*Second session; 8 credit points (1 tutorial per week)*

*Assessment:* One long essay (5,000 - 7,000 words)

NOTE: This subject will normally be a pre-requisite for entry to History IV Honours.

A detailed study of the nature of historical enquiry.

### HIST326 THE SOVIET UNION AND INTERNATIONAL COMMUNISM, 1917 - 1970 B

*Second session; 12 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 1,500 word seminar papers and one 1,500 word essay

*Other details:* As for HIST232

### HIST327 FRENCH HISTORY, 1700 - 1799 B

*First session; 12 credit points (1 lecture, one 2 hour seminar per week)*

*Assessment:* Two 2,500 word essays and seminar performance

*Other details:* As for HIST234

### HIST328 AUSTRALIAN SOCIAL HISTORY, 1850 - 1900 B

*First session; 12 credit points (1 lecture, one 2 hour seminar per week)*

*Assessment:* Two 2,500 word essays and seminar performance.

*Other details:* As for HIST235

### HIST329 ENGLISH POLITICAL HISTORY, 1884 - 1906

*First session; 12 credit points (two 1 1/2 hr seminars per week)*

*Assessment:* One 5,000 word essay, plus tutorial attendance and performance plus one 1,000 word tutorial paper

The subject is concerned with the personalities and political impacts of major politicians of the period covered by the course. The role of each in the decline of the Liberal party is discussed in depth.

#### PRELIMINARY READING

Neither textbooks nor reference books are recommended for this course. Students are expected to do their own bibliographical work. However, the following books which contain useful bibliographies, and are available in the campus bookshop, are suggested for preliminary reading.

Adelman, Paul. *Gladstone, Disraeli and Later Victorian Politics*. London, 1970.  
Morgan, K.O. *The Age of Lloyd George*. Allen & Unwin, 1975.

### HIST330 AUSTRALIAN SOCIAL HISTORY, 1900 - 1939 B

*Second session; 12 credit points (1 lecture, one 2 hour seminar per week)*

*Assessment:* Two 2,500 word essays and seminar performance

*Other details:* As for HIST238

### HIST331 ENGLISH POLITICAL HISTORY, 1906 - 1914

*Second session; 12 credit points (two 1 1/2 hr seminars per week)*

*Assessment:* One 5,000 word essay, plus tutorial attendance and performance plus one 1,000 word tutorial paper

This subject, designed as a sequel to HIST329, which provides a background to it, is concerned with the personalities and political impacts of major politicians of

the period covered by the course. The attitudes of each to party affiliations and social reform will receive particular attention, as will the decline of the Liberal Party.

**PRELIMINARY READING**

Neither textbooks nor reference books are recommended for this course. Students are expected to do their own bibliographical work. However, the following book, which contains useful bibliographies, is available in the campus bookshop, and is suggested for preliminary reading.

Morgan, K.O. *The Age of Lloyd Geogre*. Allen & Unwin, 1975.

**HIST332 FRENCH HISTORY, 1800 - 1871 B**

*Second session; 12 credit points (1 lecture, one 2 hour seminar per week)*

*Assessment:* Two 2,500 word essays and seminar performance

*Other details:* As for HIST240

**HIST333 HISTORY OF RUSSIA FROM THE EARLIEST TIMES TO THE PRESENT DAY B**

*Double session; 24 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* Two 1,500 word seminar papers per session, one 2,500 word essay per year, plus one critical commentary per week on tutorial papers.

*Other details:* As for HIST233

**HIST334 EUROCOMMUNISM B**

*First session; 12 credit points (1 lecture, 2 tutorials per week)*

*Assessment:* 2 essays; 3 tutorial presentations; tutorial participation

*Other details:* As for HIST241

**400-LEVEL**

**HIST401 HISTORY IV (HONOURS)**

*Double session; 48 credit points*

Students are advised to contact the Department. In broad outline, the course consists of a thesis, worth 24 credit points and two courses, each of which counts for 12 credit points. Details of these courses are available in the Department.

**HISTORY AND PHILOSOPHY OF SCIENCE***Schedule Entries*

Refer to the schedule entries for further details of subjects, pre requisites and exclusions. All subjects described in this section are included in Schedule A.

**100-LEVEL****HPS110 THE INDUSTRIAL REVOLUTION:  
TECHNOLOGY AND SOCIAL CHANGE A**

*First session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment: 2 essays and 1 examination*

The purpose of this course is to provide students with an understanding of the nature of the development of technology and how it was shaped by and in turn affected, the social and economic conditions of the eighteenth and nineteenth century.

Topics include the origins of the industrial revolution, the industrialisation of society, the technology triumphs of Newtonian physics, the interconnection between growth in scientific knowledge in chemistry and geology and the development of the transport, steel, coal, textile, chemical and construction industries, and public health.

**TEXTBOOKS**

Landes, D.S. *The Unbound Prometheus*, Cambridge University Press, 1969.

Hobsbawn, E.J. *Industry and Empire*. Sphere Books, 1962.

Musson, A.E. & Robinson, E. *Science and Technology in the Industrial Revolution*. Manchester University Press, 1969.

Mathias, P. *The First Industrial Nation*, Methuen, 1969.

**HPS120 TECHNOLOGY AND THE MODERN  
INDUSTRIAL STATE A**

*Second session; 6 credit points (2 lectures, 1 tutorial per week)*

*Assessment: 2 essays and 1 examination*

The contemporary social system of science and technology in the industrially advanced countries (capitalist and socialist) has two distinguishing characteristics. First, the process of development and application of technology has become highly differentiated, specialised and capital intensive, involving scientists and engineers with diverse skills in the research and development (R and D) laboratories of industry, the universities and government. Second, R and D activities are undertaken in relation to three, inter-related objectives: the survival and development of industry, the development of military weapons, and the development of prestigious 'high technology' (e.g. nuclear, space, aircraft, advanced electronics).

Topics include patterns of industrial innovation and their contribution to industrial growth, the emergence of science-based industries, the rise of science-based industries, the military-industrial complex, technology and war, growth of State involvement in the support and direction of technology, post-industrial society, social effects of technological change.

**TEXTBOOKS**

Freeman, C. *The Economics of Industrial Innovation*. Penguin, 1974.

Pavitt, K. and Worboys, M. *Science, Technology and the Modern Industrial State*. Butterworth, 1977.

Galbraith, J. K. *The New Industrial State*. Penguin, 1974.



- Young, E. *Farewell to Arms Control*. Penguin, 1972.  
Elliot, D. & R. *The Control of Technology*. Wykeham, 1976.  
Johnston, R. & Gummett, P. *Directing Technology*. Croom Helm, 1979.

### HPS130 THE ORIGINS OF MODERN EUROPEAN SCIENCE 1500 - 1700 A

*Double session; 12 credit points (2 lectures, 1 tutorial per week)*  
*Assessment: 2 examinations; 4 essays.*

In the sixteenth and seventeenth centuries a major upheaval occurred in the way European man approached the study and exploitation of Nature. This 'Scientific Revolution' was a unique event in world history, breaking with traditional (Western and Oriental) modes of natural inquiry and laying the framework for modern science and technology. Within three generations the traditional mathematical and medical sciences had been revolutionised: a new mathematical physics created: magic, alchemy and astrology pushed to the margins of culture; the Copernican world-view established; and the institutionalisation and professionalisation of modern science begun.

This subject is intended to explore and explain the Scientific Revolution as a coherent historical process in which social, institutional, technical and intellectual factors were inextricably combined.

Specific topics will include: The mathematical and natural philosophical heritage of Antiquity and the Latin Middle Ages. Social, economic and intellectual factors in the erosion of Scholastic Aristotelianism and in the rejuvenation of magical, alchemical and neo-Platonic visions of man and nature in the sixteenth century. Historical and philosophical analysis of the revolution in astronomy, cosmology and physics promoted by Copernicus, Kepler, Galileo, Descartes Huygens and Newton. The social, intellectual and religious roots of the 'mechanical philosophy' of Descartes, Hobbes and Boyle and of the Baconian ideology of experiment. Causes and consequences of the late seventeenth century institutional consensus merging 'mechanism' and Baconianism, especially in England and France. The practice of the sciences (including medicine and physiology) under the 'metaphysics' of mechanism and experimentalism. The consensus-destroying work of Newton in physics, natural philosophy and optics, and its consequences for eighteenth century science and natural philosophy.

The subject also serves as an introduction to such general problems in the field of HPS as: the explanation of theory change in science; the integration of historical, sociological and 'internal' perspectives in the history of science; the demystification of such scientific concepts as 'method', 'objectivity', 'value-neutrality' and 'progress'.

#### TEXTBOOKS

- Debus, A. *Man and Nature in the Renaissance*. C.U.P., Cambridge, 1978.  
Grant, E. *Physical Science in the Middle Ages*. C.U.P., Cambridge, 1971.  
Hall, A. R. *From Galileo to Newton 1630-1720*. Fontana, Collins, London, 1970.  
Kuhn, T.S. *The Copernican Revolution*. Harvard University Press, Cambridge, Mass., 1966.  
Westfall, R.S. *The Construction of Modern Science*. C.U.P., Cambridge 1977.

#### 200-LEVEL

### HPS210 THE INDUSTRIAL REVOLUTION: TECHNOLOGY AND SOCIAL CHANGE B

*First session; 8 credit points (2 lectures, 1 tutorial, 1 seminar per week)*  
*Assessment: 1 essay, 1 seminar paper and 1 examination*



*Description and Textbooks:* See HPS110 The Industrial Revolution: Technology and Social Change A

### **HPS220 TECHNOLOGY AND THE MODERN INDUSTRIAL STATE B**

*Second session; 8 credit points (2 lectures, 1 tutorial, 1 seminar per week)*  
*Assessment:* 2 essays, 1 seminar paper and 1 examination.

*Description and Textbooks:* See HPS120 Technology and the Modern Industrial State A.

### **HPS230 THE ORIGINS OF MODERN EUROPEAN SCIENCE 1500 - 1700 B**

*Double session; 16 credit points (2 lectures, 1 seminar per week)*  
*Assessment:* 1 examination; 2 essays; 2 seminar papers

*Description and Textbooks:* See HPS130 The Origins of Modern European Science 1500 - 1700 A.

### **HPS232 THE DARWINIAN REVOLUTION A**

*Double session; 16 credit points (2 lectures, 1 tutorial per week)*  
*Assessment:* 1 examination; 2 essays.

The intense public debate on man's place in nature in the nineteenth century centred on Charles Darwin's theory of evolution by natural selection. 'Darwinism', it is generally claimed, not only revolutionised the linked sciences of biology and geology, but profoundly altered our conceptions of man, God, nature and society.

This course aims to examine and explain the substance of the Darwinian debate in its context of nineteenth century industrial capitalism, and the structure of political, economic and related theories erected on the basis of extrapolations from and rationalizations of evolutionary theory. The intent is not only to arrive at a coherent historical explanation of the sources, content and social and political roles of Darwinism, but at a deeper understanding of the interplay between science and society.

Topics to be explored include: the social and intellectual roots of evolutionary theory; the state of pre-Darwinian biology and geology; evolution and the politics of science in the French Revolution; natural theology, Malthus and the "Struggle for existence;" the sources and arguments of the *Origin*; the scientific and theological response; *The Descent of Man* and Social Darwinism; Liberal and Radical Darwinism; Lysenkoism; biological determinism and reductionism; evolution and ideology, then and now.

#### **TEXTBOOKS**

Gould, S.J. *Ever Since Darwin*. W. W. Norton & Co., N.Y. and London, 1977.  
 Hobsbawm, E.J. *The Age of Revolution*. Cardinal Books, London, 1973.  
 Appleman, P. *Darwin - A Norton Critical Edition*. 2nd ed. Norton and Co., N.Y., 1979.

### **HPS233 KNOWLEDGE AND POWER: THE POLITICS OF SCIENCE AND TECHNOLOGY A**

*Double session; 16 credit points (2 lectures, 1 tutorial, 1 seminar per week)*  
*Assessment:* 1 essay, 2 seminar papers, 1 research project.

An examination of the political and economic dimensions of science and technology in the modern industrial state.

Topics to be studied will include: the nature of contemporary science and technology; critiques of the role of science and technology; the environmental attack and responses to it; controversies over the applications of contemporary technology (including nuclear power, genetic engineering, chemicals and cancer, weapons technology, automation and the changing nature of work); social, economic and political factors in the present and future development of science and technology; the role of military, government and corporations, and national and global trends in the world economy; political and social implications of current technological developments; proposals for the control of science and technology from within the technical community and outside it; and proposals for socio-technical developments which could provide alternatives to current trends.

#### TEXTBOOKS

Commoner, B. *The Closing Circle*. Jonathan Cape.  
Elliott, D. and Elliott, R. *The Control of Technology*. Wykeham, 1976.  
Dickson, D. *Alternative Technology*. Fontana, 1974.

### HPS231 GREEK SCIENCE

*Double session; 16 credit points (2 lectures, 1 seminar per week)*  
*Assessment:* 1 examination; 2 essays; 2 seminar papers.

It is commonly stated that natural science as an intellectual discipline had its origins in Greece about 600B.C. The subject begins with a brief account of Egyptian and Babylonian science and civilizations and examines in detail the following topics: presocratic philosophy; the metaphysics of Socrates; Plato and Aristotle and the influence these views had on the development of science; Aristotle and his scientific thought; Hellenistic science and the decline of Greek Science. Each topic is discussed in the context of political, social, religious and economic developments which influenced the progress of science itself and which were influenced in turn by that progress. The course does not require any previous training in science or mathematics.

#### TEXTBOOKS

Clagett, M. *Greek Science in Antiquity*. Collier Books, N.Y., 4th Printing, 1973.  
Cornford, F.M. *Before and After Socrates*. Cambridge U.P., Cambridge, 1972.  
Guthrie, W.K.C. *The Greek Philosophers From Thales to Aristotle*. University Paperbacks, London, 1967.  
Kuhn, T.S. *The Copernican Revolution*. Random House, N.Y., 1959.  
Plato. *The Republic*. Penguin, Harmondsworth, 1955.  
Santillana, G. de, *The Origins of Scientific Thought*. Mentor, New York, 1961.  
Taylor, A.E. *Aristotle*. Dover, N.Y., 1955.

### HPS214 METHODOLOGY OF THE NATURAL AND SOCIAL SCIENCES

*First session; 8 credit points (one 2-hour lecture/seminar, 1 hour tutorial per week)*  
*Assessment:* One essay, one examination and tutorial assessment

A critical examination of the nature of explanation and understanding in the various sciences. Attempts to establish a unified philosophy of science will be contrasted with methodological debates within a number of scientific fields - quantum mechanics, evolutionary biology, psychology and sociology. Implications for developments in the philosophy of science and sociology of knowledge will be explored.

This subject is to be taught jointly by the departments of History and Philosophy of Science and Philosophy.

**TEXTBOOKS**

- Chalmers, A.F. *What is This Thing Called Science*. Queensland Uni. Press, 1976.  
 Barnes, B. *Scientific Knowledge and Social Theory*. Routledge and Kegan Paul, 1974.  
 Hull, D. *Philosophy of Biological Science*. Prentice-Hall, 1974.  
 Pratt, V. *The Philosophy of the Social Sciences*. Methuen, 1978.

### **HPS216 SCIENTIFIC EXPLANATION AND SCIENTIFIC UNDERSTANDING (SCIENCE)**

*First session; 6 credit points (two 2 hour lecture/discussions)*

*Assessment:* One essay, one examination and continuous assessment of discussion

The aim of this subject is to examine the concepts of scientific explanation and scientific understanding. In particular the way in which science, both physical and biological, can provide us with explanations and understanding will be considered. This will involve an examination of the concepts of theory, law and model as they are applied in the natural sciences.

These concepts will be illustrated by reference to some of the scientific developments of the twentieth century. The revolutionary change from classical to post classical science has implied a radical change in our ideas of the natural world. It has even been suggested that in the light of these developments we can no longer understand natural phenomena because we cannot visualize them. A major focus of the subject will be to examine this suggestion.

**TEXTBOOK**

- Hempel, C.G. *Aspects of Scientific Explanation*. Macmillan, London, 1965.

### **HPS217 MATERIALS IN THE TWENTIETH CENTURY**

*Double session; 6 credit points (1 lecture, 1 tutorial/seminar per week)*

*Assessment:* 2 essays, 1 seminar paper, 1 examination

This will lead on to a study of the diversification of materials in the twentieth century, the various factors which have shaped their development, including state of knowledge and technology, available raw material and economic demand. The impact of these materials on society and the likely patterns of use of materials in the future will be explored.

**TEXTBOOKS**

- Gordon, J.E., *The New Science of Strong Materials*, 2nd ed., Penguin Books, 1976.  
 Price, D. de Solla. *Little Science, Big Science*. Columbia University Press, New York, 1963.  
 Ziman, J. *Public Knowledge*. Cambridge University Press, London, 1968.

### **HPS234 SCIENTIFIC CHANGE IN THE TWENTIETH CENTURY**

*Double session; 12 credit points (1 lecture, 1 tutorial/seminar per week)*

*Assessment:* 3 essays (or 2 essays and 1 project) and 1 final three hour written examination

This subject is intended to develop in students an awareness of the dramatic intellectual and social changes that science has undergone in the twentieth century.

Through an examination of developments in theories, concepts and techniques, such as probabilistic and statistical modes of explanation, atomic theory, mole-

cular structure and electronic instrumentation, the more significant factors in shaping changes in scientific knowledge will be explored. The effect of the sheer growth of science on its organisation, forms of research practice and communication, patterns of funding and relationship with government will also be studied.

In Session 2, topics drawn from the following list will be explored in more depth: the chemistry of life and the 'Double Helix' adventure; the effects of changing patterns of funding; philosophical and ethical implications of advances in the life sciences; Lysenkoism; the control of recombinant DNA research; assessment of the risk of toxic chemicals; sociobiology; the growth of science-based industries; and the role of scientific knowledge in public issues such as uranium mining, civil nuclear power, flouridation, food additives, leaded petrol and asbestos.

Students will be expected to read extensively and critically, to develop and discuss their own ideas, to produce coherent written argument and to engage in an assessment of the strengths and weaknesses of an inter-disciplinary approach.

#### TEXTBOOKS

Holton, G. *Thematic Origins of Scientific Thought*. Harvard University Press, Cambridge, Mass., 1973.

Price, D. de Solla. *Little Science, Big Science*. Columbia University Press, New York, 1963.

Ziman, J. *Public Knowledge*. Cambridge University Press, Londong, 1968.

### HPS237 THE INTEGRATION OF BIOLOGY AND CHEMISTRY IN THE TWENTIETH CENTURY

*Double session; 6 credit points (1 lecture, 1 tutorial/seminar per week)*

*Assessment:* 2 essays (or 1 essay and 1 project) and one final 3 hour written examination

This subject is intended to develop in students an awareness of the dramatic intellectual and social changes that science, biology and chemistry in particular, have undergone in the twentieth century. The emphasis is on the common integrating themes rather than the specialist disciplines.

Through an examination of developments in theories, concepts and techniques, such as probabilistic and statistical modes of explanation, atomic theory, molecular structure and electronic instrumentation, the more significant factors in shaping changes in scientific knowledge will be explored. The effect of the sheer growth of science on its organisation, forms of research practice and communication, patterns of funding and relationship with government will also be examined.

In Session 2, the interaction of chemistry and biology in their development and some of their implications will be studied in detail by reference to such issues as the integrating role of biochemistry, the growth of the experimental basis of the sciences, the transfer of concepts and scientists from one field to another, the chemistry of life, and chemistry and biology in industry.

Students will be expected to read extensively and critically, to develop and discuss their own ideas, to produce coherent written argument and to engage in an assessment of the strengths and weaknesses of an inter-disciplinary approach.

#### TEXTBOOK

No single suitable book.

### HPS228 COMPUTERS IN SOCIETY

*Second session; 8 credit points (2 hours lecture/seminar and 1 hour tutorial per week)*



*Assessment:* 1 seminar paper and 1 long essay

This course examines the development, role and implications of computers in contemporary and future society. Issues to be examined include the history of computing, the development of computers through mechanical, valve, transistor and integrated circuit technology; defence and space programs as catalysts for development; applications of computers in corporate decision-making, government planning, education and health-care; automation, robotics, information processing, databanks; implications for privacy and surveillance; the nature of work, employment, social management and control; the power of the State; machine intelligence and human identity.

#### TEXTBOOKS

Moshowitz, A. *The Conquest of Will: Information Processing in Human Affairs*. Addison-Wesley, 1976.

Weiner, N. *The Human Use of Human Beings: Cybernetics and Society*. Sphere Books, 1968.

#### 300-LEVEL

### HPS332 THE DARWINIAN REVOLUTION B

*Double session; 24 credit points (2 lectures, 1 tutorial, 1 seminar per week)*

*Assessment:* 1 examination; 2 essays; 1 research project; 2 seminar papers

An advanced subject in the historical and philosophical development of the idea of biological evolution and its impact on Western thought.

*Description and Textbooks:* See HPS232 the Darwinian Revolution A.

### HPS333 KNOWLEDGE AND POWER: THE POLITICS OF SCIENCE AND TECHNOLOGY B

*Double session; 24 credit points (2 lectures, 1 tutorial, 1 seminar per week)*

*Assessment:* 1 essay; 2 seminar papers; 1 research project.

*Description and Textbooks:* See HPS233 Knowledge and Power: The Politics of Science and Technology A.

### HPS316 GENETICS: ITS HISTORY AND SOCIAL IMPLICATIONS

*First session; 12 credit points (2 lectures, 1 tutorial/seminar per week)*

*Assessment:* One 5,000 word essay and one tutorial paper

A major biological revolution has taken place in the twentieth century. Although this has its roots in nineteenth century classical genetics, the elucidation of the chemical structure of DNA opens up possibilities which can only be described as revolutionary. While the precise effects of this chemical identification of the genetic material are only emerging, understandings based on genetics have assisted in the recognition of the effects on living organisms of x-rays, radioactive substances, chlorinated hydrocarbons and other mutagens.

This course will look at the historical origins of genetics; at its development during this century and at the direction of possible further developments. Techniques utilized by researchers and their exploitation in medicine and industry will be discussed. The problems encountered in assessing the mutagenic action of agents released in the environment will be considered.

#### TEXTBOOKS

No single suitable text.



## HPS319 THE POLITICS OF ENERGY

*First session; 12 credit points (two 2 hour lecture/seminars per week)*

*Assessment:* 1 essay and 1 seminar paper

This subject focuses on the factors and issues underlying the major debate that has developed throughout the industrialised world over the generation and use of energy.

Through an examination of the political and economic factors which underly the debate and influence the choice of different energy technologies, the possibilities of, and constraints on different energy paths will be explored.

Topics studied will include: global energy resources, available energy technologies, the flow of energy through the modern industrial economy, the assessment of risk for different energy options, the energy resources in world trade, role of the major oil corporations, horizontal and vertical integration and trends in the global economy, the economics and diseconomies of scale, the role of government, community, corporations and other social structures and forces in shaping energy developments, the extent of social change necessary to incorporate different energy paths, and the social environmental and political implications of different energy options.

Students will be expected to read extensively and critically, to engage in coherent and documented argument and to approach the problems raised on the basis of multi-disciplinary analysis.

### TEXTBOOKS

Commoner, B. *The Poverty of Power: Energy and the Economic Crisis*. Jonathan Cape, 1976.

Lovins, A.B. *Soft Energy Paths: Toward a Durable Peace*. Pelican, 1977.

## HPS324 THE POLITICS OF MEDICINE AND HEALTH

*Second session; 12 credit points (two 2-hour lecture/seminars per week)*

*Assessment:* 1 essay and 1 seminar paper.

This course explores the socio-economic and political dimensions of medicine and health care in modern society.

An initial examination of western medicine and health care in the nineteenth and twentieth centuries will provide a foundation for the analysis of the forces shaping modern medical knowledge and practice and health care, their social implications and limitations. Themes to be explored include: the concepts of health and sickness; institutionalized medicine and health care and free-market medicine and health; curable and non-curable illness and drug-induced illness; profit and risk assessment of new remedies; automation in medicine and health care; health and medical policy; the politics of cancer; health in the work place; ethical and moral considerations; critiques of contemporary medicine and health care (Illich, the women's movement, workers' health action groups); the response to the critiques (medical reform, deprofessionalization, alternative medicine, the bare-foot doctors).

### TEXTBOOKS

Diesendorf, M. (ed). *The Magic Bullet*. SSRS(ACT), Southwood Press, Marrickville, 1976.

Dixon, B. *Beyond the Magic Bullet*. George Allen and Unwin, 1978.

Ehrenreich, J. (ed.) *The Cultural Critique of Modern Medicine*. Monthly Review Press, N.Y., 1978.

Taylor, R. *Medicine out of Control, The Anatomy of a Malignant Technology*. Sun Books, Melbourne, 1979.

## HPS317 ARISTOTELIAN THOUGHT IN THE MIDDLE AGES

*First session; 12 credit points (1 lecture, 1 two hour seminar per week)*

*Assessment: 1 essay; 2 seminar papers*

During the so-called Dark Ages, Greek philosophy and science were almost completely unknown in Western Europe. Towards the end of the period, however, the educational innovations of Charlemagne began to revive interest in dialectic, which in the hands of thinkers such as Anselm, Abelard and John of Salisbury, proved a powerful intellectual weapon. After about 1100, Greek learning gradually became available to the West via the Arabs who had colonized the frontier zones of Spain and Sicily. Aristotelian thought in particular was examined in great detail by Roger Bacon, Albert, Bonaventure and others. This examination and the problems it produced culminated in the great synthesis of Thomas Aquinas which was soon attacked by the corrosive analysis of William of Ockham, which in turn led directly to a renewal of interest in physical science. In the work of Buridan and Oresme we see the signs of impending scientific revolution of the fifteenth and sixteenth centuries.

The rise and decline of Aristotelianism in the Middle Ages is studied in the context of educational reform, the development of universities, the growth of religious orders, and the interest taken in the debates by men of letters, particularly the poet Dante.

### TEXTBOOK

Knowles, D. *The Evolution of Medieval Thought*. Longmans, London, 1963.

## HPS327 MEDIEVAL SCIENCE

*Second session; 12 credit points (2 lectures, 1 two hour seminar per week)*

*Assessment: 1 essay; 2 seminar papers*

Until recently historians have agreed with Kant that, with the conceptions and methods of science put into practice by Galileo and his contemporaries 'a new light flashed upon all students of nature' compared with which previous studies have been mere groping in the dark. The work of Duhem and his successors has clearly shown that this view is far too harsh when applied to the medieval period. While the precise relationship between medieval science and seventeenth century science is still a matter of dispute, it is clear that many of the most important developments in astronomy, physics and scientific thought which occurred during the renaissance had their intellectual roots in the middle ages.

The subject examines medieval ideas about the nature of science, its relationship to mathematics and the methods appropriated to it. It studies the growth of interest in such fields as alchemy, astrology, and magic as well as the development of physics, astronomy and medicine. Finally, an attempt is made to unravel the complex problem of the relationship between medieval science and medieval technology.

### TEXTBOOKS

No single suitable book.

## HPS329 DYNAMICS OF THEORY CHANGE IN SCIENCE: HISTORICAL AND PHILOSOPHICAL PERSPECTIVES

*Second session; 12 credit points (2 lectures, 1 tutorial per week and one 1-hour seminar per fortnight)*

*Assessment: 1 essay, 1 seminar paper and 1 examination*

Of late historians and philosophers of science have questioned the traditional view of scientific knowledge as a smoothly growing body of true generalisations

and laws concerning hard matters of unproblematically objective fact. Scientific theories have been seen as fluid and dynamic historical entities, laboriously created, successfully or unsuccessfully articulated, and periodically radically altered or entirely rejected. Facts have come to be viewed as highly selected and conditioned by theory; and the directions and content of research have appeared to be determined by socially negotiated goals, aims and standards. Accordingly, serious questions have arisen about what we might mean by the 'rationality', 'progress' and 'objectivity' of scientific knowledge.

This subject considers the theories of scientific development offered by Popper, Kuhn, Lakatos, Toulmin, Hesse and Bachelard. Their views will be compared and contrasted, as well as applied in some case studies in the history of science. A main aim will be to explore what these philosophers can contribute to the writing of the history of science, and conversely, what close historical and textual study can contribute to the modification and improvement of their schemes.

#### TEXTBOOKS

- Chalmers, A.F. *What is This Thing Called Science?* University of Queensland Press, Brisbane, 1976.  
 Hanson, N.R. *Patterns of Discovery*. C.U.P., Cambridge, 1958.  
 Kuhn, T.S. *The Structure of Scientific Revolutions*. 2nd ed. University of Chicago Press, Chicago, 1971.  
 Lakatos, I. and Musgrave, A. (eds), *Criticism and the Growth of Knowledge*. C.U.P., Cambridge, 1970.  
 Mulkay, M. *Science and the Sociology of Knowledge*. George Allen and Unwin, London, 1979.

#### 400-LEVEL

### HPS400 HISTORY AND PHILOSOPHY OF SCIENCE IV

*Double session; 48 credit points*

Students are advised to contact the Department. On broad outline, the course consists of a thesis, worth 16 credit points and four courses, each of which counts for 8 credit points. Details of these courses are available in the Department.

### HPS430 JOINT HONOURS IN HISTORY AND PHILOSOPHY OF SCIENCE AND ANOTHER DISCIPLINE

*Double session; 48 credit points*

*Admission:* (Calendar 1980, 22.1):

Where in this clause it is required that the student seeking admission as a candidate for the degree with honours shall be qualified for the award of a bachelor degree of the University in the same course, the course in question will include a combination of the two disciplines approved by the two chairmen of departments as a substantial and coherent study. For this purpose a substantial and coherent study in HPS (including 24 credit points in approved subjects at 300-level) may include a 300-level subject in another discipline accepted as relevant to the programme of study in HPS by the chairman of the HPS department.

*Course Content* (Calendar 1980, 23.1 - 23.2.2):

The content of the course for joint honours will include subject components selected from the 400-level programmes of the two disciplines to form a joint honours programme of 48 credit points.

In coursework and research the nature and manner of combination of the two disciplines will require the approval of the two chairmen of departments. Approval will imply:

- (a) the substantial and coherent nature of the proposed programme

- (b) the availability of supervision
- (c) the availability of source material
- (d) dependence of the whole study programme on the two disciplines.

*Interdisciplinary Seminar*

All candidates are required to attend and contribute to a series of regular informal seminars and discussion meetings held within the Department of History and Philosophy of Science during Sessions 1 and 2.



## MATHEMATICS

Students wishing to take a major sequence of Mathematics should enrol in a Bachelor of Mathematics Degree. The only requirement relating to compulsory subjects in this degree is that a student must take at least 84 credit points (\*) of subjects selected from Schedule F (24 of which must form a substantial and coherent study at the 300-level). By virtue of pre- and co-requisites, MATH101 - Mathematics IA will need to be included, and it is strongly advised that MATH102 - Mathematics IB should also be included.

(\*) It is possible to take only 72 credit points of subjects from Schedule F (24 of which must form a substantial and coherent study at the 300-level), provided a further minimum of 48 credit points are taken from subjects offered by, or on behalf of, one other department of the University (24 of which must form a substantial and coherent study at the 300-level).

When planning a programme and course of study in Mathematics, students are strongly advised to consult with the Departmental Academic Advisors before enrolment, and at any time during the course when the need arises.

### *Academic Advisors*

Professor John Blake  
Dr. Tom Horner  
Dr. Grahame Morris

### *Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. The subjects described in this section are included in the following schedules:

<i>Subject</i>	<i>Schedules</i>
MATH101	A, C, D, E, & F
MATH102	A & F
MATH131	A
MATH132	A
MATH201	A, C, E, & F
MATH211	A, E, & F
MATH221	A & F
MATH231	A & F
MATH233	A & D
MATH234	A
MATH281	C
MATH282	D
MATH286	A, C & E
MATH301	C
MATH306	A, E & F
MATH307	A, E & F
MATH308	A, E & F
MATH309	A, E & F
MATH311	A & F
MATH312	A & F
MATH313	A & F
MATH314	A & F
MATH315	A & F
MATH316	A & F
MATH321	A & F
MATH322	A & F
MATH323	A & F
MATH324	A & F
MATH325	A & F



MATH331	A & F
MATH332	A & F
MATH333	A & F
MATH334	A & E
MATH335	A & F
MATH336	A & F
MATH337	A & F
MATH338	A & F
MATH401	A & F
MATH411	A

*Textbooks*

Students will be advised on the appropriate textbooks for each subject in the first lecture of the subject. In all cases, the lecturer should be consulted before textbooks are purchased.

*Method of Assessment*

Unless otherwise indicated, all 100-, 200-, 300- and 400-level subjects offered by the Department of Mathematics will be assessed by attendance at classes, formal examination, tests and assignments.

Students who have particular questions regarding an individual subject are asked to refer their questions to the subject co-ordinator(s) for that subject.

*100-LEVEL***MATH101 MATHEMATICS IA**

*Double session; 12 credit points (6 hrs per week)*

*Assumed knowledge for the subject Mathematics IA is the 3 unit N.S.W. H.S.C. course.*

*Subject co-ordinator: F. Prokop*

- Calculus Methods (Functions, differentiation, integration and applications, partial differentiation).
- Algebra Methods (Complex numbers, matrices, determinants, systems of equations,  $i, j, k$  vectors).
- Numerical Analysis (Finite difference calculus, iterative techniques, elementary FORTRAN).
- Further Calculus Methods (Polar co-ordinates, introduction to sequences and series, first and second order differential equations).

**MATH102 MATHEMATICS IB**

*Double session; 12 credit points (6 hrs per week)*

*Subject co-ordinator: F. Prokop*

This subject is normally taken by students who intend to major in any branch of Mathematics. It presents the fundamentals as a background for further study at higher levels in Mathematics. The subject is recommended for intending teachers in Mathematics.

- Linear Algebra (Real numbers, functions, real  $n$ -dimensional space, bases, linear functions, matrices, applications to eigenvalues, difference equations, differential equations).
- Introduction to Analysis (Further properties of integers, rational, real and complex numbers, sequences, series, limits, continuity, Riemann integration and the fundamental theorem of calculus).

## 410 DESCRIPTION OF SUBJECTS - MATHEMATICS

- (c) Introduction to Probability Theory and Operations Research (Basic probability theory, sample space, discrete random variable, discrete probability distributions, introduction to linear programming and simplex method).
- (d) Introduction to Statistics (Continuous distributions, probability density function, normal, exponential and uniform distributions, conditional and marginal distributions, function of a random variable, expected value and moment generating function).

### MATH131 MATHEMATICS IC

*Double session; 12 credit points (6 hrs per week)*

*Assumed knowledge for the subject Mathematics IC is the 3 unit N.S.W. H.S.C. Mathematic course.*

*Subject co-ordinator; F. Prokop*

- (a) Calculus (Functions, differentiation, integration and applications, partial differentiation).
- (b) Algebra (Complex numbers, matrices, determinants, systems of equations,  $i, j, k$  vectors).
- (c) Introduction to Probability Theory and Operations Research (Basic probability theory, sample space, discrete random variable, discrete probability distributions, introduction to linear programming and simplex method).
- (d) Introduction to Statistics (Continuous distributions, probability density function, normal, exponential and uniform distributions, conditional and marginal distributions, function of a random variable, expected value and moment generating function).

### MATH132 MATHEMATICS ID

*Double session; 12 credit points (6 hrs per week)*

*Assumed knowledge for the subject Mathematics ID is the 2 unit N.S.W. H.S.C. Mathematics course.*

*Subject co-ordinator: F. Prokop*

- (a) Preliminary (Polynomials, surds, indices, logarithms, properties of straight line and circle, arithmetic and geometric series, the binomial theorem, trigonometric formulae).
- (b) Calculus (Functions, differentiation, integration and applications, partial differentiation).
- (c) Algebra (Complex numbers, matrices, determinants, systems of equations,  $i, j, k$  vectors).
- (d) Descriptive Statistics (Frequency distributions, histograms, measures of central tendency and dispersion; mean, mode, median, range, standard deviation, probability, normal distribution, testing of hypothesis, one sample case).
- (e) Inferential Statistics (Testing of Hypothesis: Two sample test,  $\psi^2$  test of independence, Non-Parametric tests; Mann-Whitney U test, sign test, Wilcoxon matched pairs signed rank test, power of a test, regression and correlation, one way analysis of variance).

200-LEVEL

### MATH201 MATHEMATICS IIA

*Double session; 12 credit points (4 hrs per week)*

*Subject co-ordinator:* G. Morris

- (a) (i) Multivariable Calculus (Partial derivatives and their applications, multiple integrals).
- (ii) Fourier Series.
- (b) Complex Variable (Complex functions, analytic functions, Laurent series, singularities, residues, contour integrals and applications, conformal transformations).
- (c) Integral Transforms (Introduction to Laplace and Fourier transforms, and their applications to the solution of differential and integral equations, inverse transforms).

### MATH211 MATHEMATICS IIB

*Double session; 12 credit points (4 hrs per week)*

*(Essential for majors in Applied Mathematics)*

*Subject co-ordinator:* T. Horner

- (a) Vector Calculus (Vector functions of several variables, general integral theorems).
- (b) Matrix Analysis (Further properties of matrices, eigenvalues, eigenvectors, quadratic forms).
- (c) Numerical Analysis (Numerical processes applied to functions, equations, differential equations, integration, matrices).
- (d) Dynamic Systems (Mathematical modelling of mechanical and electrical systems, particle dynamics, transfer functions, control theory, spectral analysis).

### MATH221 MATHEMATICS IIC

*Double session; 12 credit points (4 hrs per week)*

*(Essential for majors in Pure Mathematics)*

*Subject co-ordinator:* P. Laird

- (a) Linear Analysis (Linear Algebra, eigenvalues and eigenvectors, diagonalization and canonical forms, inner product spaces, orthogonalization, application to Fourier series and linear differential equations).
- (b) Multivariate Differential Analysis (Differentiable functions between  $\mathbb{R}^n$  and  $\mathbb{R}^m$ , the derivative as a linear function, the chain rule, implicit and inverse function theorems).
- (c) Real Analysis (Sequences and series of functions, uniform convergence).
- (d) Elementary theory of finite groups.

### MATH231 MATHEMATICS IID

*Double session; 12 credit points (4 hrs per week)*

*(Essential for majors in Probability, Statistics, or Operations Research)*

*Subject co-ordinator:* K. Tognetti

- (a) Statistics (Estimation, sampling distributions, chi-square distribution, t distribution, F distribution, testing of hypotheses, UMP tests, contingency tables, non-parametric statistics, linear regression).
- (b) Finite Mathematics and Combinatorics (Network theory, graph theory).

### MATH233 MATHEMATICS IIP

*Double session; 6 credit points (2 hrs per week)*

*Subject co-ordinator: C. Gulati*

Probability, discrete and continuous distributions, random variables and expected values, sampling distributions, estimation, testing of hypotheses, regression analysis and analysis of variance.

### MATH234 STATISTICAL METHOD

*Double session; 6 credit points (2 hrs per week: 1 lecture & 1 tutorial)*

*Subject co-ordinator: C. Gulati*

Session 1: Frequency distributions, histograms, measures of central tendency and dispersion; Mean, Mode, Median, Range, Standard Deviation, Probability, Normal Distribution, Testing of Hypothesis, one sample case.

Session 2: Testing of hypothesis: Two sample Test,  $\chi^2$  test of independence, Non-Parametric Tests: Mann-Whitney U test, sign test, Wilcoxon matched pairs signed rank test, Power of a test, Regression and Correlation, one way Analysis of Variance.

#### TEXTBOOK

Runyon, R. & Haber, P. *Fundamentals of Behavioural Statistics*. Addison-Wesley.

### MATH281 MATHEMATICS IIE

*Double session; (5 hrs per week)*

*Subject co-ordinator: T. Horner*

- (a) Matrix algebra, eigenvalues, eigenvectors, vector algebra, vector calculus, general integral theorems.
- (b) Partial differentiation, multiple integrals, Fourier series, special functions, complex variable.
- (c) Further differential equations, series solutions, Laplace and other transforms, introduction to boundary value problems.

### MATH282 MATHEMATICS IIM

*First session; (4 hrs per week)*

*Subject co-ordinator: T. Horner*

Partial differentiation, multiple integrals, Fourier series, further work in the solution of differential equations of the first and second order.

### MATH286 MATHEMATICS IIZ

*Double session; 8 credit points (4 hrs Session 1, 1 hr Session 2 per week)*

*Subject co-ordinator: T. Horner*

- (a) Vector Calculus (Vector functions of several variables, general integral theorems).
- (b) Matrix Analysis (Further properties of matrices, eigenvalues, eigenvectors, quadratic forms).
- (c) Numerical Analysis (Numerical processes applied to functions, equations, differential equations, integration, matrices).

## 300-LEVEL

**MATH301 MATHEMATICS IIIA***Double session; 12 credit points (4 hrs per week)**Subject co-ordinator: A. Worthy*

- (a) Special Functions (Error, gamma, beta, Bessel, Hypergeometric, Legendre, Laguerre and Hermite functions).
- (b) Integral Transforms (Laplace, Fourier, Hankel and Mellin transforms).
- (c) Conformal Transformations (Elementary transformations, Schwarz-Christoffel transformation, and applications).
- (d) Variational Calculus (Fundamentals).

**MATH306 MATHEMATICAL METHODS A:  
INTEGRAL TRANSFORMS AND SPECIAL FUNCTIONS***TRANSITION SUBJECT: AVAILABLE ONLY IN 1981**Double session; 6 credit points (2 hrs per week)**Subject co-ordinator: A. Worthy*

- (a) Special Functions (Error, gamma, beta, Bessel, hypergeometric, Legendre, Laguerre and Hermite functions).
- (b) Integral Transforms (Laplace, Fourier, Hankel and Mellin transforms).

**MATH307 MATHEMATICAL METHODS B:  
COMPLEX VARIABLES AND CALCULUS OF VARIATIONS***TRANSITION SUBJECT: AVAILABLE ONLY IN 1981**Double session; 6 credit points (2 hrs per week)**Subject co-ordinator: G. Morris*

- (a) Conformal Transformations (Elementary transformations, Schwarz-Christoffel transformations, and applications).
- (b) Variational Calculus (Fundamentals).

**MATH308 MATHEMATICAL METHODS C:  
ORDINARY DIFFERENTIAL EQUATIONS***TRANSITION SUBJECT: AVAILABLE ONLY IN 1981**First session; 6 credit points (2 hrs per week)**Subject co-ordinator: F. Hille*

The study of existence and uniqueness of solutions, stability theory of non-linear systems. Some qualitative theory of differential equations, discussion of Sturm-Liouville equations and Lagrange's theory of adjoint operators.

**MATH309 MATHEMATICAL METHODS D:  
PARTIAL DIFFERENTIAL EQUATIONS***TRANSITION SUBJECT: AVAILABLE ONLY IN 1981**Second session; 6 credit points (2 hrs per week)**Subject co-ordinator: A. Worthy*



First order linear and some non-linear partial differential equations and second order partial differential equations of Mathematical Physics.

### **MATH311 MATHEMATICAL METHODS: DIFFERENTIAL EQUATIONS AND SPECIAL FUNCTIONS**

*AVAILABLE FROM 1982*

*First session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: G. Morris*

- (a) Differential Equations (Taylor and Frobenius series solutions, introduction to partial differential equations and boundary value problems, separation of variables and applications).
- (b) Special Functions (Error, gamma, beta, Bessel, hypergeometric, Legendre, Hermite and Laguerre functions).

### **MATH312 NUMERICAL ANALYSIS A**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: G. Doherty*

The course attempts to give the student a further exposure to the numerical techniques applied in computer solutions of mathematical problems. Topics include: curve fitting and non-linear optimisation techniques; the use of orthogonal polynomials, splines, and rational approximations in the representation of functions.

### **MATH313 NUMERICAL ANALYSIS B**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: T. Horner*

Numerical processes in linear algebra: LU, QR decomposition of a matrix, eigenvalues and eigenvectors of a matrix, power method, Sturm sequences, LR and QR algorithms, inverse iteration, special methods for symmetric matrices.

### **MATH314 OCEAN DYNAMICS**

*Second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: D. Clarke*

Properties of water waves and ocean currents.

### **MATH315 MATHEMATICAL MODELLING**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: J. Blake*

Casebook study of applications of differential and integral equations to problems from science and industry.

### **MATH316 CONTINUUM MECHANICS**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: J. Hill*

Elementary continuum mechanics with selected problems from elasticity theory and fluid mechanics.

### **MATH321 FUNCTIONAL ANALYSIS**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: R. Nilsen*

Hilbert and Banach spaces, linear operators, dual spaces, application to (some of) Fourier series, differential and integral equations, quadrature formulae, orthogonal functions and expansions.

### **MATH322 ABSTRACT ALGEBRA**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: P. Laird*

Algebraic structures such as groups, rings, fields, Boolean algebras and their quotient structures, embedding of integral domains, construction of the reals, introduction to Galois theory and number theory.

### **MATH323 LOGIC AND SET THEORY**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: M. Bunder*

Axiomatic, propositional, and predicate calculus; axiomatic set theory, cardinal and ordinal numbers, the axiom of choice, Zorn's Lemma and applications.

### **MATH324 TOPOLOGY AND COMPLEX ANALYSIS**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: R. Nilsen*

Elementary general topology, open sets, closed sets, connected sets, continuous functions, curves in the plane, winding numbers, Cauchy's theorem, entire and meromorphic functions, application to differential equations and approximation theory.

### **MATH325 DIFFERENTIAL EQUATIONS**

*AVAILABLE FROM 1982*

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: F. Hille*

Qualitative theory of ordinary differential equations.

### **MATH331 TIME SERIES**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: C. Gulati*

Autocorrelation function, models for stationary and non-stationary models, identification and estimation of ARIMA models, seasonal models, analysis of residuals.

### **MATH332 MULTIPLE REGRESSION AND ANALYSIS OF VARIANCE**

*First session or second session; 6 credit points (3 hrs per week)*

*Subject co-ordinator: C. Gulati*

Linear regression, multiple regression, Gauss Markov Theorem, stepwise regression, model building, analysis of residuals, analysis of variance and covariance.

### MATH333 DECISION THEORY

*First session or second session; 6 credit points (3 hrs per week)*  
*Subject co-ordinator: C. Gulati*

Subjective probability, utility theory, conjugate prior distributions, decision making under uncertainty, Bayesian decision making, sequential sampling, search theory.

### MATH334 DESIGN AND ANALYSIS

*Double session; 6 credit points (2 hrs per week: 1 lecture & 1 tutorial)*  
*Subject co-ordinator: P. Castle*

Topics will include the structure and planning of experiments: one way analysis of variance; two-way analysis of variance; three way analysis of variance; multiple comparison procedures; non-parametric analysis of variance - - the Kruskal-Wallis test; analysis of co-variance; regression analysis; multiple correlation and multiple regression; correlations involving ranks and dichotomous data; and introduction to factor analysis.

### MATH335 ADVANCED TOPICS IN STATISTICS

*First session or second session; 6 credit points (3 hrs per week)*  
*Subject co-ordinator: K. Tognetti*

Branching processes, renewal processes, Markov chains, birth and death processes, queueing theory.

### MATH337 OPERATIONS RESEARCH

*First session or second session; 6 credit points (3 hrs per week)*  
*Subject co-ordinator: K. Tognetti*

Linear, non-linear and dynamic programming, game theory.

### MATH338 POPULATION DYNAMICS

*First or second session; 6 credit points (3 hrs per week)*  
*Subject co-ordinator: K. Tognetti*

The mathematical modelling of demographic and biological populations which will range over ordinary, partial and delay differential equations as well as integral equations. Stochastic and deterministic (Leslie matrix) formulations will be described. Interactions between populations such as competition and predation. Age dependent processes. Diffusion approximations. Stability analysis.

#### 400-LEVEL

### MATH401 MATHEMATICS IV (HONOURS)

*Double session; 48 credit points*  
*Subject co-ordinator: G. Morris*

A student taking Honours would normally take a selection of topics at 4th year level (subject to approval by the Chairman of the Department) and a minor thesis, under the supervision of an appropriate member of staff.

The subject may include topics from: Numerical Analysis; Ocean Dynamics; Nuclear Reactor Theory; Computing Science; Statistics; Probability; Operations Research; Functional Analysis; Measure Theory; Abstract Algebra; Logic; Set Theory; Topology; Perturbation Theory; Matrix Analysis; Continuum Mechanics; Non-Linear Partial Differential Equations; Mathematical Methods; or Classical Analysis.

**MATH411 MATHEMATICS HONOURS SEMINAR**

*Double session; 12 credit points*

*Subject co-ordinator: G. Morris*

The Honours Seminar, which is available as a separate subject to candidates for MSc or DipMath only, requires the undertaking of a reading course in the appropriate field of study and the presentation of a substantial essay together with a Seminar to the Department of Mathematics.

The method of assessment of the Mathematics Honours Seminar will be on the quality of the essay and of the Seminar and will be made by the relevant departmental staff.

**COHERENT STUDIES IN MATHEMATICS**

One of the following methods must normally be used by Mathematics students to declare the 24 credit points of substantial and coherent study at the 300-level as required by the Bachelor Degree Regulations 16.2, 20A.2.2 and 20A.3.1.

**(a) APPLIED MATHEMATICS:**

By the successful completion of:

three of the following 300-level Mathematics subjects MATH311, either MATH312 or MATH313, MATH314, MATH315, MATH316, MATH338 and any one other 300-level Schedule F Mathematics subject.

**(b) PURE MATHEMATICS:**

By the successful completion of:

three of the following 300-level Mathematics subjects MATH321, MATH322, MATH323, MATH324, MATH325; and any one other 300-level Schedule F Mathematics subject.

**(c) STATISTICS AND OPERATIONS RESEARCH:**

By the successful completion of:

three of the following 300-level Mathematics subjects MATH331, MATH332, MATH333, MATH335, MATH336, MATH337, MATH338 and any one other 300-level Schedule F Mathematics subject.

**(d) PHYSICAL OCEANOGRAPHY (Regulation 16.2 only)**

By the successful completion of each of:  
MATH311, MATH314, GEOG313.

NOTE: Not all 300-level subjects will necessarily be on offer in any one year.

In 1981, the following 300-level Mathematics subjects will be on offer: MATH306, MATH307, MATH308, MATH309, MATH312, MATH313, MATH314, MATH315, MATH316, MATH321, MATH322, MATH323, MATH324, MATH331, MATH332, MATH334, MATH336, MATH338.

**SUGGESTED UNDERGRADUATE DEGREE PROGRAMMES IN MATHEMATICS**

The following information is intended as a guideline to the student in selecting suitable supplementary subjects to do to make a reasonable pattern for Mathematics degrees in the various fields of Mathematics.

All students are expected to consult with the Mathematics Department and Faculty advisors before committing themselves completely to any particular pattern, whether outlined below or not.



## 418 DESCRIPTION OF SUBJECTS - MATHEMATICS

It is emphasised that the following programmes are based on the usual 48 credit points per year, totalling 144 credit points over 3 years.

### PROGRAMME 1: APPLIED MATHEMATICS (General)

- First year - Mathematics IA and IB (and 24 other credit points normally being CSCI101 and PHYS141 and PHYS142).
- Second year - Mathematics IIA, IIB (at least 1 other Schedule F Mathematics subject, and 12 other credit points)
- Third year - A substantial and coherent study in Applied Mathematics (and 24 other credit points of Schedule F Mathematics).

### Programme 2: NUMERICAL ANALYSIS

- First year - Mathematics IA
- Second year - Mathematics IIA, IIB
- Third year - A substantial and coherent study in Applied Mathematics including the subjects MATH312 and MATH313.

#### *Supplementary Subjects:*

For a Mathematics major it is suggested that the completed course should include Computing Science subjects and Mathematics IB.

### PROGRAMME 3: OCEAN DYNAMICS

#### (a) Mathematical

- First year - Mathematics IA, IB
- Second year - Mathematics IIA, IIB, IID
- Third year - MATH311, MATH312, MATH313, MATH314 (and 24 other credit points of Schedule F Mathematics subjects, possibly including 300-level Schedule F statistics subjects).

#### *Supporting Programmes:*

36 credit points chosen from 100-level Physics, Geography, Geology; 200-level GEOG212 Biogeography (8 credit points), GEOL211 Basin Analysis and Oceanography (6 credit points); 300-level GEOG313 Coastal Geomorphology (12 credit points)

#### (b) Mathematics and Coastal Dynamics

- First year - Mathematics IA, GEOG112 & 102, GEOL101, & 102, BIOL102
- Second year - Mathematics IIA, IIB, IIP (6 credit points), GEOL211
- Third year - MATH311, MATH312, MATH313, MATH314; GEOG313, GEOG 311 plus 4 credit points which could be achieved by replacing Mathematics IIP with Mathematics IB

### PROGRAMME 4: STATISTICS

- First year - Mathematics IA and IB (and 24 other credit points)
- Second year - Mathematics IIA, IID (and at least 1 other Schedule F Mathematics subject, and 12 other credit points)
- Third year - A substantial and coherent study in Statistics and Operations Research (and 24 other credit points of Schedule F Mathematics).

### PROGRAMME 5: PURE MATHEMATICS (GENERAL)

- First Year - Mathematics IA and IB (and 24 credit points)
- Second Year - Mathematics IIA, IID (and at least 1 other Schedule F Mathematics subject, and 12 other credit points)
- Third Year - A substantial and coherent study in Statistics and Operations Research (and 24 other credit points of Schedule F Mathematics,



possibly including MATH312, MATH313.

#### PROGRAMME 6: INTENDING HIGH SCHOOL TEACHERS IN MATHEMATICS

- First year - Mathematics IA and IB (and 24 other credit points, possibly including Computing Science I)
- Second year - 48 credit points at 200-level of Schedule F Mathematics subjects
- Alternative - 36 credit points at 200-level of Schedule F Mathematics subjects (and 12 other credit points)
- Second year - 48 credit points at 300-level of Schedule F Mathematics subjects
- Alternative - 36 credit points at 300-level of Schedule F Mathematics subjects
- Third year - 36 credit points at 300-level of Schedule F Mathematics subjects (and 12 other credit points)

Notes on PROGRAMME 6 for Students who are on N.S.W. Teacher Education Mathematics Scholarships:

1. The minimum requirement for these students is 60 credit points of Mathematics, including a coherent study at 300-level, although a student is encouraged to do a Mathematics degree (through Schedule F), which requires either
  - (a) 84 credit points of Schedule F Mathematics subjects as a minimum; or
  - (b) 72 credit points of Schedule F Mathematics subjects, together with 48 credit points of subjects offered by, or on behalf of, one other Department in the University.
2. In order to gain increments in the "Teachers College Scholarships" allowance, students should seek advice on the possibility of including some 200- and 300-level Education subjects in their programme.
3. These students should get *written* approval for their programme from the Education Department's advisory office before embarking on any programme in mathematical studies.

#### PROGRAMME 7: MATHEMATICS/PSYCHOLOGY

- First year - Mathematics IA and IB, Psychology IA and IB (and 12 other credit points)
- Second year - Any 24 credit points of 200-level Schedule F Mathematics Subjects, and any 18 credit points 200-level Psychology subjects, (and 6 other credit points)
- Third year - A substantial and coherent study in Mathematics, together with any 24 credit points 300-level Psychology subjects.

*Notes on PROGRAMME 7:*

A student wishing to take this combined programme (e.g. under degree regulations 20A.3.1 and 20A.3.2) should consult jointly with the Departments of Mathematics and Psychology to determine the best possible combinations of 200- and 300-level subjects for the type of employment the student may be requiring at the completion of the degree.

#### PROGRAMME 8: LOGIC (AND PHILOSOPHY)

- First year - Mathematics IA and IB, PHIL112 Logic A (6 credit points) and 18 other credit points at least 12 of which should be in Philosophy
- Second year - Mathematics IIA and IIC, PHIL231 Formal Logic A and PHIL222 Set Theory (8 credit points each) and 8 other credit points (e.g. PHIL211 or 212)
- Third year - PHIL381 Formal Logic D (8 credit points) and PHIL362 Modal Logic (12 credit points), and 24 credit points of Schedule F Math-

## 420 DESCRIPTION OF SUBJECTS - MATHEMATICS

ematics (probably including MATH321 and MATH324), and 4 other credit points.

### PROGRAMME 9: MATHEMATICS/GEOGRAPHY

#### (a) Physical Geography

- First year - Mathematics IA and IB, GEOG102 and GEOG112 (and 12 other credit points)
- Second year - Mathematics IIA and IIB, GEOG212 and GEOG206 (and 8 other credit points)
- Third year - A coherent study in Applied Mathematics, including the subjects MATH311 and MATH314, together with GEOG311 and GEOG313

#### (b) Human Geography

- First year - Mathematics IA and Mathematics IB, GEOG102 and GEOG112 (and 12 other credit points)
- Second year - Mathematics IIA and IID, GEOG202 and GEOG220 (and 2 other credit points, which could be achieved by including Mathematics IIB)
- Third year - A coherent study in Statistics and Operations Research, together with GEOG320 and GEOG322.

#### *Notes on PROGRAMME 9:*

A student wishing to take this combined programme (e.g. under degree regulations 20A.3.1 and 20A.3.2) should consult jointly with the Departments of Mathematics and Geography to determine other possible combinations of 200- and 300-level subjects depending on the type of employment the student may be requiring at the completion of the degree.

### PROGRAMME 10: MATHEMATICS/PHYSICAL CHEMISTRY

- First year - Mathematics IA and IB, CHEM101, CHEM102 (and 12 other credit points)
- Second year - Mathematics IIA and IIB, CHEM212, CHEM213, CHEM219 (and 6 other credit points)
- Third year - A coherent study in Applied mathematics, including the subjects MATH311, MATH312, and MATH313, together with CHEM322, CHEM323 and CHEM324.

#### *Notes on PROGRAMME 10:*

A student wishing to take this combined programme (e.g. under degree regulations 20A.3.1 and 20A.3.2) should consult jointly with the Departments of Mathematics and Chemistry to determine other possible combinations of 200- and 300-level subjects depending on the type of employment the student may be contemplating at the completion of the degree.

**MECHANICAL ENGINEERING***Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule C.

**100-LEVEL****MECH101 STATICS**

*First session; (28 lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at the end of course. Other short examinations and tutorial performances will be incorporated in the final assessment

Two dimensional force systems; laws of equilibrium; concurrent and non-concurrent forces; funicular polygon; statics applied to rigid bars; statics of pin-jointed frames, analytical and graphical treatment; concepts of shear force, axial force and bending moment; simple states of stress; three-dimensional statics; composition and resolution of forces; general laws of equilibrium.

**TEXTBOOK**

Meriam, J.L. *Statics*. 2nd ed. (S.I. version), Wiley.

**MECH103 STATICS***Second session*

All details, with the exception of the session offered, are identical with MECH101 Statics.

**MECH102 DYNAMICS**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorial performances will be incorporated in the final assessment

Kinematics of a particle; Kinetics of a particle; equations of motion; dynamic equilibrium; work and energy; impulse and momentum. Systems of particles. Introduction to rigid body dynamics.

**TEXTBOOK**

Meriam, J.L. *Dynamics*. 2nd ed. (S.I. version), Wiley.

**MECH121 ENGINEERING DRAWING AND GRAPHICS**

*First session; (14 hrs lectures; 28 hrs tutorials)*

*Assessment:* Parts (a) and (b) by class examinations. Part (c) by 2 hour examination at the end of course

**(a) Engineering Drawing and Design**

Introduction and standards information; geometrical constructions; the production of a mechanical drawing; pictorial drawing (isometric and oblique parallel projection); drawing analysis; elementary ideas of design.

**(b) Descriptive Geometry.**

Fundamental principles of projection; visibility; applications of the fundamental principles of orthographic projection including true length of a line segment, bearing and grade of a line, point view of a line, edge view of a plane surface

## 422 DESCRIPTION OF SUBJECTS - MECHANICAL ENGINEERING

and true shape of a plane surface; angle between plane surfaces; angle between intersecting and skew lines; angle between a line and a plane.

(c) Graphical Computation.

Graphical presentation of data including nomograms; graphical integration; graphical differentiation; empirical equations including semi-log and log-log plots.

### TEXTBOOKS

AS CZI - 1976 *Australian Standard Engineering Drawing Practice*. (S.I. Units), I.E.Aust., 1976.

Boundy, A.W. *Engineering Drawing*. McGraw-Hill.

## MECH122 INTRODUCTION TO DESIGN

*Second session; (14 hrs lectures; 28 hrs tutorials)*

*Assessment:* Parts (a) and (b) by class examinations. Part (c) by design assignments and a creative design project

(a) Descriptive Geometry.

Developments including prisms, cylinders, pyramids, cones and transition pieces: intersection of solids bounded by plane surfaces; intersection of conics.

(b) Engineering Drawing.

Auxiliary views; advanced exercises in drawing analysis; advanced exercises in orthographic projection.

(c) Design I.

The phases of design; design processes; models; design economics; decision processes; creative design.

### TEXTBOOKS

AS CZI - 1976 *Australian Standard Engineering Drawing Practice*. (S.I. Units), I.E. Aust., 1976.

Boundy, A.W. *Engineering Drawing*. McGraw-Hill.

## MECH131 ENGINEERING PROCESSES AND PRACTICE

*First session; (42 hrs lectures and tutorials)*

*Assessment:* Assignments during session and one 3 hour examination at end of course

Workshop practices. Manufacturing processes. Quality control. Corrosion protection. Safety procedures. Environmental aspects and ethical considerations in the practice of engineering.

- MECH198 INDUSTRIAL EXPERIENCE I
- MECH199 INDUSTRIAL EXPERIENCE II
- MECH298 INDUSTRIAL EXPERIENCE III
- MECH299 INDUSTRIAL EXPERIENCE IV
- MECH398 INDUSTRIAL EXPERIENCE V
- MECH399 INDUSTRIAL EXPERIENCE VI

For students in full-time employment who are enrolled in a part-time programme, each year of appropriate employment will be credited as one elective with a maximum accreditation of six electives for the course.

In the last week of Session 2 of each ~~stage of the course~~ students must submit a



report on their industrial activities during the foregoing year. The report should be approximately 1000 words long.

Accreditation is granted if the report is passed as satisfactory by the Chairman of Department.

**200-LEVEL**

**MECH201 MECHANICS OF SOLIDS I**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at the end of course. Other short examinations and tutorials will be incorporated in the final assessment

Analysis of stress and strain for elastic materials. Axial load on bars. Torsion and bending. Problems in combined stresses.

**TEXTBOOK**

Timoshenko & Gere. *Mechanics of Materials*. S.I. Edition. Van Nostrand Reinhold.

**MECH202 ENGINEERING MATERIALS I**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and assignments will be incorporated in the final assessment

Explanation of the difference between theoretical strength and actual strength of material; Relationship between microstructure and properties of engineering materials; Control and modification of microstructure; Relationship between microstructure and properties of special purpose metals; Relationship between the microstructure and properties of non-metallic materials; Modes of failure; Theories of failure; Materials Selection; New developments in materials.

**MECH213 MECHANICAL ENGINEERING DESIGN I**

*Second session; (42 hrs lectures and Drawing Office)*

*Assessment:* Assignments, one 3 hour class examination during the session and one 3 hour examination at end of course

Limits and fits; Bolt loading; Keys and power screws; Spur gear design; Brakes; Clutches; Mass moment of inertia; Shaft design; Rolling contact bearings.

**TEXTBOOK**

Faires, V.M. *Design of Machine Elements*. Macmillan.

**MECH214 STRUCTURAL DESIGN FOR  
MECHANICAL ENGINEERS**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* Assignments, one 3 hour class examination during the session and one 3 hour examination at end of course

Basic design of steel structures and of simple elements in reinforced concrete using codes of practice.

**TEXTBOOKS**

Gorenc, B.E. & Tinyou, R. *Steel Designer's Handbook*. NSWUP, 1976.  
BHP-AIS. *Hot Rolled Carbon Steel Sections and Plates*. BHP Co. Ltd.  
SAA *Steel structures code*. AS 1250, 1975.



*SAA Code for Welding in Buildings.* AS 1554 Pt. I Manual Welding, 1974.  
*SAA Code for Concrete in Buildings.* AS 1480, 1975.

### MECH223 ENGINEERING DYNAMICS

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorial performances will be incorporated in the final assessment

Kinematics of rigid bodies. Dynamics of rigid bodies in plane motion; moments of inertia, equations of motion, dynamic equilibrium; momentum and impulse, energy analysis. Dynamics of simple mechanisms. Introduction to mechanical vibrations.

#### TEXTBOOK

Meriam, J.L. *Dynamics*. 2nd ed. S.I. Version. Wiley.

### MECH251 EXPERIMENTAL ENGINEERING I

*First session; (12 hrs lectures; 30 hrs tutorials and laboratory)*

*Assessment:* No formal examination. Assessment will be based on laboratory reports, all of which are compulsory

Measuring techniques as applied to temperature, pressure, stress, displacement, velocity, acceleration and fluid flow, under static and dynamic conditions. Sensing elements. Recording instruments and associated equipment. Calibration of instruments. Analysis of experimental results - errors and curve fitting techniques.

### MECH231 FLUID MECHANICS I

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. One mid-session text and assignments will be incorporated in the final assessment

Properties of fluids; Hydrostatics; Principles of fluid motion; Momentum of fluid; Concepts of turbulent flow; Two dimensional laminar flow; Fluid flow measurements.

#### TEXTBOOK

Massey, B.S. *Mechanics of Fluids*. 4th ed. Van Nostrand.

### MECH224 SYSTEM DYNAMICS

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorial performances will be incorporated in the final assessment

System classification - ordinary and partial differential equations that commonly occur in engineering problems. Circuit diagrams for mechanical systems; "through" and "across" variables; equilibrium analysis; block diagrams; reduction of equations; concept of state; free and forced response; system functions; stability; sinusoidal response; Fourier Series and Integral; Laplace Transform applied to linear systems.

### MECH241 THERMODYNAMICS I

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorial performances will be incorporated in the final assessment

Concepts and definitions. Properties of a pure substance. Work and heat. The First Law of Thermodynamics. The Second Law. Entropy.

**TEXTBOOKS**

- Van Wylen, G.T. & Sonntag, R.E. *Fundamentals of Classical Thermodynamics*. S.I. Version. 2nd ed. Wiley, 1976.  
Mayhew, Y.R. & Rogers, G.F.C. *Thermodynamic and Transport Properties of Fluids*. S.I. Units. 2nd ed. Basil Blackwell, Oxford, 1976.

**MECH281 ENVIRONMENTAL ENGINEERING I**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* Tutorial problems, assignments and one 3 hour examination at end of course

An introduction to the following topics:

- (a) The environmental crisis.

Air pollution : its causes and control.  
Water pollution : its causes and control.  
Noise pollution : its causes and control.  
Solid-Waste : its generation and disposal.

- (b) The energy crisis.

**300-LEVEL**

**MECH313 MECHANICAL ENGINEERING DESIGN II**

*First session; (42 hrs lectures and Drawing Office)*

*Assessment:* Assignments, one 3 hour class examination during session and one 3 hour examination at end of course

Design of helical gears, worm gears and epicyclic gears. Design of springs. Curved beam design. Application of the design of machine elements to mechanical engineering systems.

**TEXTBOOK**

Faires, V.M. *Design of Machine Elements*. Macmillan.

**MECH361 CONTROL SYSTEMS I**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course. Other short examinations and assignments will be incorporated in the final assessment

Principles and techniques applicable to the analysis and design of feedback control systems with particular application to industrial processes. Modelling of control systems. Basic control actions, time domain and frequency domain analysis of linear systems, stability analysis, Nyquist Criterion, Bode Diagrams, Nichols Charts. Analogue computers.

**TEXTBOOK**

Ogata, K. *Modern Control Engineering*. Prentice-Hall.

**MECH362 CONTROL SYSTEMS II**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course. Other short examinations and assignments will be incorporated in the final assessment

Further methods applied to analysis and design of feedback control systems. Root locus analysis. State space analysis of linear systems. Design and com-

## 426 DESCRIPTION OF SUBJECTS - MECHANICAL ENGINEERING

pensation techniques. Introduction to non-linear systems and techniques of analysis. Liapunov stability analysis. Introduction to optimal control theory.

### TEXTBOOK

Ogata, K. *Modern Control Engineering*. Prentice-Hall.

## MECH353 EXPERIMENTAL ENGINEERING II

*Second session; (14 hrs lectures; 28 hrs laboratory)*

*Assessment:* No formal examinations. Assessment will be based on laboratory reports, all of which are compulsory

Testing of reciprocating and rotodynamic machine; refrigeration plant, nozzles; heat exchangers.

## MECH332 FLUID MECHANICS II

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorial performances will be incorporated in the final assessment

Dimensional analysis. Dynamic similarity. Modelling. Boundary layer theory. Dynamic drag and lift. Flow of real fluids in ducts. Pipe networks. Theory of turbomachinery. Performance characteristics.

### TEXTBOOK

Massey, B.S. *Mechanics of Fluids*. 4th ed. Van Nostrand.

## MECH333 FLUID MECHANICS III

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course. Assignments will be incorporated in the final assessment

One dimensional compressible fluid flow. Isentropic variable area flow. Nozzles and diffusers. Normal and oblique shocks. Effects of friction and heat transfer. Shapiro-Hawthorne generalized analysis. Boundary layer theory. Equations of motion. Exact solutions for laminar flow. Turbulent flow and parameters. Universal velocity distribution. Resistance formulae for ducts. Boundary layers with pressure gradient. Separation and vortex formation. Boundary layer control. Drag and pressure distribution relationships for bluff bodies.

### TEXTBOOK

Massey, B.S. *Mechanics of Fluids*. 4th ed. Van Nostrand.

## MECH344 HEAT TRANSFER

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at mid-session and one 2 hour paper at end of course

One- and two-dimensional steady state conduction. Radiation. Forced and free convection. Applications.

### TEXTBOOK

Holman, J.P. *Heat Transfer*. 4th ed. McGraw-Hill.

## MECH342 THERMODYNAMICS II

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at mid-session and one 2 hour paper at end of course

Vapour, gas power and refrigeration cycles. Thermodynamic relations. Mixtures. Psychrometry.

**TEXTBOOK**

Van Wylen, G.J. & Sonntag, R.E. *Fundamentals of Classical Thermodynamics*. S.I. Version. 2nd ed. Wiley, 1976.

**MECH325 MACHINE DYNAMICS**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course

Dynamics of simple mechanisms. Kinematics of involute gears. Balancing of rotors. Plane cam mechanisms.

**MECH363 SYSTEMS ANALYSIS I**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and assignments will be incorporated in the final assessment

Linear programming; network analysis; dynamic programming; queueing theory.

**TEXTBOOK**

Hillier, F.S. & Lieberman, G.J. *Introduction to Operations Research*. 2nd ed. Holden-Day.

**MECH364 MECHANICAL ENGINEERING APPLICATIONS OF COMPUTERS**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* Four assignments throughout the session all of which are compulsory

Review of Fortran-programming; introduction to other computer languages; graphics; numerical methods.

Application of computers in industry. Topics to be selected from critical path analysis, distribution of materials in blast furnaces, finite element analysis of pressure vessels, temperature profiles in blast furnace stoves and computer control of an industrial process.

**MECH391 HEAT TRANSFER FOR CIVIL ENGINEERS**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course

One- and two-dimensional steady state conduction; radiation; applications in Civil Engineering.

**TEXTBOOK**

Holman, J.P. *Heat Transfer*. 4th ed. McGraw-Hill.

**MECH392 INTRODUCTORY THERMOFLUID DYNAMICS**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination will be held at end of course. Short tests may be held during the course and will count towards the final result



Concepts and definitions; energy transfer and the first law; fluid properties; control mass and control volume analysis; dimensional analysis; dynamic similitude; boundary layer theory; flow around bluff bodies; flow of real fluids in ducts; some practical demonstrations.

**TEXTBOOKS**

Holman, J.P. *Heat Transfer*. 4th ed. McGraw-Hill.  
Mayhew, J.R. & Rogers, G.F.C. *Thermodynamic and Transport Properties of Fluids*. S.I. Units. 2nd ed. Basil Blackwell, Oxford, 1976.  
Pefley, R.K. & Murray, R.I. *Thermofluid Mechanics*. McGraw-Hill, 1966.

**400-LEVEL**

**MECH402 ENGINEERING MATERIALS II**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorials will be incorporated in the final assessment

Phase equilibrium; alloying; diffusion; grain growth; heat treatment; thermal, magnetic and special properties of engineering materials; selection of materials for special application, high strength, high temperature, wear, bearing, impact and corrosion resistant; use of specifications; composite materials.

**MECH403 MECHANICS OF SOLIDS III**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorials will be incorporated in the final assessment

Bending of flat plates; membrane stresses in shells; torsion of non-circular shafts; membrane analogy; application of strain energy methods to thin-walled curved tubes and plates and to buckling problems; bending of thick curved beams; real and complex stress functions; stress concentrations; stress waves; introduction to finite element method; bounds for plastic collapse loads in two-dimensional structures.

**MECH404 MECHANICS OF SOLIDS II**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorials will be incorporated in the final assessment

Bending of curved beams; statically indeterminate structures, plastic analysis methods; strain energy methods; struts; deformation symmetrical about an axis; residual stresses; dynamic loading; introduction to elasticity theory.

**TEXTBOOK**

Timoshenko & Gere. *Mechanics of Materials*. S.I. Edition. Van Nostrand Reinhold.

**MECH413 MECHANICAL ENGINEERING DESIGN III**

*First session; (14 hrs lectures; 28 hrs tutorials)*

*Assessment:* No formal examination. Assessment will be based on drawing office assignments

Design of process and industrial machinery with reference to internal combustion engines, turbo-machines, air pollution control equipment, heat transfer apparatus, etc.



**TEXTBOOKS**

To be advised during course, depending on projects undertaken.

**MECH415 OPTIMUM DESIGN**

*Second session; (14 hrs lectures; 28 hrs tutorials)*

*Assessment:* No formal examination. Assessment will be based on drawing office assignments

The use of computers for mechanical engineering design. Optimization techniques and their application to selected machine elements. Case studies and assignments to exemplify the principles of optimum design.

**TEXTBOOK**

Johnson, R.C. *Optimum Design of Mechanical Elements*. Wiley, 1961.

**MECH423 APPLIED DYNAMICS I**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorial performances will be incorporated in the final assessment

Kinematics of particles and rigid bodies in three dimensions. Three dimensional dynamics of rigid bodies; inertia tensor; Euler's equations of motion. Relativistic dynamics. Dynamic analysis of mechanisms.

**TEXTBOOKS**

Hirschhorn, J. *Kinematics and Dynamics of Plane Mechanisms*. McGraw-Hill.  
Huang, T.C. *Engineering Mechanics - Dynamics*. Addison-Wesley.

**MECH424 APPLIED DYNAMICS II**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. Other short examinations and tutorial performances will be incorporated in the final assessment

Lagrangian Dynamics and Hamilton's Principle applied to particles and rigid bodies; holonomic and non-holonomic constraints; dynamics of continuous systems; introduction to statistical mechanics.

**TEXTBOOKS**

To be advised.

**MECH425 HYDRAULIC AND PNEUMATIC SYSTEMS**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. All set assignments must be completed satisfactorily

Analysis of hydraulic, pneumatic and vacuum power units for the provision of power and/or control in machines; circuit component characteristics; safety features, synthesis of systems.

**MECH433 LUBRICATION**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course

Navier-Stokes and energy equations of fluid flow and their application to hydrodynamic lubrication. Characteristics of hydrodynamic and hydrostatic bearings.

## 430 DESCRIPTION OF SUBJECTS - MECHANICAL ENGINEERING

Bearing selection and design. Elasto-hydrodynamic lubrication. Friction and wear processes. Properties of lubricants and bearing materials and their interaction. Lubrication in metal-working processes.

### MECH434 FLUID MECHANICS IV

*Second session; (28 hrs lectures; 14 hrs tutorials)*  
*Assessment:* One 2 hour paper at end of course

Two-dimensional potential flow. Flow representations by complex potentials. Conformal transformation and its applications. Contour integration and Blasius Theorem. Flow past slender bodies and thin aerofoils. Linearized two-dimensional compressible flow with small perturbation.

### MECH443 THERMODYNAMICS III

*First session; (28 hrs lectures; 14 hrs tutorials)*  
*Assessment:* One 2 hour paper at end of course

Property relations-Jacobians. Thermographics. Availability and irreversibility. Statistical thermodynamics; Maxwell-Boltzman, Fermi-Dirac and Bose-Einstein statistics; partition function and relation to macroscopic properties of ideal gases. Irreversible processes; coupled flows and phenomenological relations; Thermomechanical and thermo-electric effects. Combustion & thermo-chemistry. Chemical equilibrium.

### MECH444 THERMODYNAMICS IV

*Second session; (28 hrs lectures; 14 hrs tutorials)*  
*Assessment:* One 2 hour paper at end of course

Thermodynamic analysis of combustion engines, steam turbines and complete power systems.

### MECH445 REFRIGERATION AND AIR CONDITIONING

*First session; (28 hrs lectures; 14 hrs tutorials)*  
*Assessment:* One 2 hour examination at end of course

Studies of components used in refrigeration and air conditioning systems. Industrial applications.

#### TEXTBOOK

Stoecker, W.F. *Refrigeration and Air Conditioning*. McGraw-Hill.

### MECH451 EXPERIMENTAL ENGINEERING III

*Second session; (14 hrs lectures; 28 hrs laboratory)*  
*Assessment:* No formal examinations. Assessment will be based on laboratory reports, all of which are compulsory

Case studies in experimental engineering; advanced testing of engineering systems in such areas as thermodynamics, fluid dynamics, environmental engineering, materials handling and/or process control.

### MECH463 CONTROL SYSTEMS III

*Second session; (28 hrs lectures; 14 hrs tutorials)*  
*Assessment:* One 2 hour paper at end of course. Assignments may be incorporated into final assessment

Review of classical control techniques; matrix calculus, multi-input multi-output systems; state-space analysis; stability; optimal control; interaction; Inverse Nyquist array.

## MECH464 SYSTEMS ANALYSIS II

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course. Other short examinations and assignments will be incorporated in the final assessment

Probabilistic models; simulation; reliability and inventory theory; non-linear programming.

## MECH465 SYSTEMS ANALYSIS III

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course. Assignments may be incorporated in final assessment

Random signal analysis; experimental identification; analytical modelling; solution of equations; rate expressions; introduction to reactor design; non-ideal flow in reactors.

### TEXTBOOK

Wylie, C.R. *Advanced Engineering Mathematics*. 4th ed. McGraw-Hill, 1975.

## MECH473 MATERIALS HANDLING SYSTEMS I

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. All set assignments must be completed satisfactorily

Principles of granular mechanics; flow patterns in hoppers and bins; measurement of flow properties in relation to hopper design; feeders; flow rate prediction; prediction of pressures on bin walls.

### TEXTBOOK

Arnold, P.C., McLean, A.G., & Roberts, A.W. *Bulk Solids : Storage, Flow and Handling*. Tunra Ltd., 1979.

## MECH474 MATERIALS HANDLING SYSTEMS II

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour paper at end of course. All set assignments must be completed satisfactorily

Advanced techniques for predicting bin loads; methods for improving hopper flow characteristics; flow of fine powders from storage; considerations of failure criteria for granular materials; solids mixing; dust hazards.

## MECH475 FLUID TRANSPORT OF BULK SOLIDS

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course. All set assignments must be completed satisfactorily

Classification of systems for the hydraulic or pneumatic transport of bulk solids; fluid/solid flow studies; friction losses; conveying equipment; system design; economics; wear of plant and degradation of materials.

## MECH481 SPECIAL TOPICS IN MECHANICAL ENGINEERING I

*First session; (42 hrs lectures and tutorials)*

There is no set syllabus for this subject. It is intended that it normally be offered

## 432 DESCRIPTION OF SUBJECTS - MECHANICAL ENGINEERING

on a specialised mechanical engineering topic given by members of the Department or visiting academic staff or engineering consultants.

### **MECH482 SPECIAL TOPICS IN MECHANICAL ENGINEERING II**

*Second session; (42 hrs lectures and tutorials)*

There is no set syllabus for this subject. It is intended that it normally be offered on a specialised mechanical engineering topic given by members of the Department or visiting academic staff or engineering consultants.

### **MECH483 ENVIRONMENTAL ENGINEERING II**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course together with one 2 hour class examination held during the course

The course aims to examine in detail industrial water pollution identification and control.

### **MECH484 ENVIRONMENTAL ENGINEERING III**

*First session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course together with one 2 hour class examination held during the course

The course aims to examine in detail the causes and control of air pollution.

### **MECH485 ENVIRONMENTAL ENGINEERING IV**

*Second session; (28 hrs lectures; 14 hrs tutorials)*

*Assessment:* One 2 hour examination at end of course together with one 2 hour examination held during the course

The course aims to discuss in detail the causes and control of noise pollution.

### **MECH486 SPECIAL TOPICS IN MECHANICAL ENGINEERING III**

*Second session; (42 hrs lectures and tutorials)*

There is no set syllabus for this subject. It is intended that it will normally be offered on a specialised mechanical engineering topic by members of the Department or visiting academic staff or engineering consultants.

### **MECH497 INDUSTRIAL TRAINING**

While enrolled in the Mechanical Engineering course students are required to obtain an aggregate of at least twelve weeks of relevant practical experience during the summer recesses. This training period must be spent in a suitable industrial environment outside the University.

Upon completion of their industrial training students must prepare a report on their training activities for submission to the Department for assessment.

An exemption in this subject is given to students who have completed one of the Industrial Experience subjects taken by part-time students.

### **MECH401 THESIS**

*Double session; 20 credit points*

*Assessment:* Assessment of a submitted written thesis

During the final year of study for the Bachelor of Engineering Degree, each student is required to prepare a thesis on a subject or topic approved by the Chairman of the Department. Two bound copies of the completed thesis must be lodged with the Chairman of the Department by the due date posted.

The subject of a thesis may cover:

- (a) A critical literature survey of a topic, design or installation in the Mechanical Engineering field,
- (b) a theoretical, computational and/or experimental investigation of a Mechanical Engineering problem,
- (c) a set of drawings and calculations covering a Mechanical Engineering design.

The aim of the thesis is for the student to learn how to examine published and experimental data, set objectives, organize a programme of work, and analyse results and evaluate these in relation to existing knowledge. Each student is required to deliver a seminar paper on the results of his thesis work. The thesis will be judged on the extent and quality of the student's work, and particularly how critical, perceptive and constructive he has been in assessing his own work and the work of others.

Students anticipating an Honours Degree are required to show facility in original and critical thought. Although sufficient time is allowed in their final year, part-time students are recommended to commence their thesis at the end of Stage V and then attend the University full-time for a period of three weeks during January, February or June of their final year.



**METALLURGY**

Society uses a very wide variety of materials; metals, plastics, semiconductor materials and ceramics, to mention only the most familiar. Metallurgy is an applied science concerned with the extraction of metals from their ores and with the processes used to convert them into useful products. Although metallurgists are particularly concerned with metallic materials, they pursue their profession in the broad context of materials generally. Accordingly, the course is a diverse one and is divided into several branches. The fundamental principle guiding *physical metallurgy* is that the properties of all materials are determined by their detailed atomic architecture, so that if the relationship between structure and properties is understood it is possible to synthesize materials suited to any particular application. This relationship is investigated mainly by the methods of the physical sciences such as optical and electron-optical microscopy, x-ray and electron diffraction.

In *extractive metallurgy* the methods of chemistry and chemical engineering are used to develop processes for "extracting" metals from their ores and refining them to a satisfactory purity. Topics of special interest include high-temperature physical chemistry, heat transfer and the flow of liquids and gases.

The course provided in the Department of Metallurgy is broadly based and prepares a graduate for later specialization in any chosen branch of the profession.

While the course is largely prescribed, options are provided and are chosen in consultation with the Chairman of the Department.

*Assessment:* Subjects are assessed by written examinations at the end of session and the performance in assignments and laboratory work. The subjects Metallurgy Project 1 and 2 are assessed by thesis and performance in seminars.

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre- and co-requisites. All subjects described in this section are included in Schedule D (with the exception of METL201). Subjects which also appear in other schedules are:

<i>Subject</i>	<i>Schedule</i>
METL105	A
METL201	C

**100-LEVEL****METL105 NATURE OF MATERIALS**

*Second session; 6 credit points*

Crystals: lattices, cells, macro- and micro-symmetry, classification, geometrical properties. Bonding and structures: elements, compounds, solid solution, defects, lattice properties. X-ray diffraction, determination of structure. Non-crystalline materials: liquids, polymers, glasses. Microscopy, microstructure, physical and mechanical properties of materials.

**TEXTBOOKS**

Kennon, N.F. *Patterns in Crystals*. Wiley, Chichester, 1978.

Wulff, J. ed. *Structure and Properties of Materials*. Vol. 1. Wiley, London, 1966.

**METL195 TECHNICAL COMMUNICATIONS 1**

*First or second session*

## DESCRIPTION OF SUBJECTS - METALLURGY 435

The student in metallurgy: note taking, study methods, use of library facilities, examinations and assessments.

### **METL196 TECHNICAL COMMUNICATIONS 2**

*First or second session*

Written communication: essentials of technical writing, nature of reports, essays, theses etc., laboratory note books, recording and presentation of experimental data.

### **METL197 TECHNICAL COMMUNICATIONS 3**

*First session*

Oral communication: essentials of lecture preparation and presentation, lecture aids.

**200-LEVEL**

### **METL201 MATERIALS 1**

*Second session*

Atomic bonding and the nature of solids; phase relationships and microstructure; mechanical behaviour of materials; electrical and magnetic properties; corrosion and oxidation of metals.

### **METL211 THERMODYNAMICS 1**

*First or second session*

Definitions: first, second and third laws, auxiliary functions. Experimental methods and calculations. Elementary thermodynamics in metallurgy, particularly metal extraction and refining: uses and limitations.

**TEXTBOOK**

Gaskell, R.D. *Introduction to Metallurgical Thermodynamics*. McGraw-Hill, New York, 1973.

### **METL225 MECHANICAL BEHAVIOUR 1**

*First or second session*

Introduction to mechanical behaviour and testing of materials, fracture of brittle materials, theoretical strength of crystals, flow strength of metals, elementary dislocation theory.

### **METL245 TRANSPORT PROCESSES 1**

*First or second session*

Introduction to transport processes: fundamentals of transport, molecular and turbulent transport, formulation of the transport equations, steady and unsteady state transport, solutions to the equations for simple boundary conditions. Dimensional analysis.

### **METL255 STRUCTURE OF METALS 1**

*First or second session*

Binary phase equilibria: genesis of microstructure, microstructures of pure metals and binary alloys, solidification of pure metals and binary alloys, heat treatment

## 436 DESCRIPTION OF SUBJECTS - METALLURGY

of binary alloys. Relationships between microstructure and properties. Optical metallography, quantitative metallography.

### TEXTBOOKS

Chadwick, G. *Metallography of Phase Transformations*. Butterworths, London, 1972.

Reed-Hill, R. *Physical Metallurgy Principles*. Van Nostrand, New York, 1964.

Wulff, J. ed. *Structure and Properties of Materials*. Vol. 2. Wiley, London, 1966.

## METL265 COMPUTERS IN METALLURGY

### Double session

Fundamental concepts of analogue and digital computers and computing, basic programming skills including BASIC and FORTRAN languages, problem solving methods. Applications of analogue and digital computing to metallurgical processes.

### TEXTBOOKS

Bennett, W.R. Jr. *Scientific and Engineering Problem Solving with the Computer*. Prentice-Hall, 1976.

Dickson, T.R. *The Computer and Chemistry*. Freeman, 1968.

Forsythe, G.E., Malcolm, M.A. & Moler, C.P. *Computer Methods for Mathematical Computations*. Prentice-Hall, 1977.

### 300-LEVEL

## METL301 CERAMICS

### First or second session

Crystal structures of oxides and silicates. Non-crystalline phases. Phase equilibria in ceramic systems. Structural changes during processing and in service. Properties and their control. Classification of refractories, significant properties and service behaviour, testing.

## METL305 METALLURGICAL RESOURCES 1

### First or second session

The influence of technology development in metallurgical industries. Criteria for technological decisions. Detailed consideration of problems affecting particular industries such as the iron and steel industry.

## METL306 POLYMERIC MATERIALS

### First or second session

Classification of polymers. Structure and properties of natural polymers, elastomers, thermosets, thermoplastics and synthetic fibres; effects of additives, applications.

## METL307 METALLURGICAL FUELS

### First or second session

Classification of fuels. Physical and chemical properties. Energy content and combustion temperature. Calculations of heat requirements for metallurgical processes. Efficient use of fuels in furnaces. Choice of fuel and design for fuel economy.

## METL308 MATERIALS SELECTION

### *First or second session*

Classification of materials, general properties of main groups of materials, specifications and standards. Property requirements of materials for particular applications, environmental constraints, manufacturing constraints. Bases for materials choice, testing and evaluation.

## METL311 THERMODYNAMICS 2

### *First or second session*

Solution thermodynamics: relative partial and integral quantities and their inter-relationships in binary solutions. Methods of measurement and calculations; applications and limitations. Multi-component solutions, interaction coefficients, change of standard state. Thermodynamics of phase equilibria.

### TEXTBOOKS

Gaskell, R. D. *Introduction to Metallurgical Thermodynamics*. McGraw-Hill, New York, 1973.

## METL315 CORROSION

### *First or second session*

Chemistry, thermodynamics and kinetics of aqueous and dry corrosion. Mechanical, environmental and design effects. Protection, prevention and testing. Associated processes.

### TEXTBOOK

von Fraunhofer, J. *Concise Corrosion Science*. Portcullis Press, Redhill, 1975.

## METL321 PHYSICS OF METALS

### *First or second session*

Electrons in solids: zone and band theory, conductivity and magnetism. Electron/Crystal interactions: x-ray diffraction, electron diffraction and transmission microscopy, scanning electron microscopy and other techniques.

### TEXTBOOKS

Barrett, C.S. & Massalski, T.B. *Structure of Metals*. 3rd ed. McGraw-Hill, New York, 1966.

Wulff, J. ed. *Structure and Properties of Materials*. Vol. 4. Wiley, London, 1966.

## METL325 MECHANICAL BEHAVIOUR 2

### *First session*

Dislocation motion and multiplication, dislocation interactions. Yielding and ageing, stress concentration, crack nucleation and propagation, straining rate sensitivity. Flow and fracture at high temperatures.

## METL326 MECHANICAL BEHAVIOUR 3

### *First or second session*

Elastic properties of dislocations, strain hardening of single crystals, multicrystals and polycrystalline metals and alloys. Development of preferred orientations by cold work; stereographic projections.

## METL335 MECHANICS OF DEFORMATION 1

*First or second session*

Introduction to concepts of strain and stress, Mohr circle representation of strain or stress. Stress-strain relationships for linear elastic isotropic continuum. Stress-strain relationships for plastic flow with strain hardening instability and flow localisations in uniaxial and biaxial stress.

## METL345 TRANSPORT PROCESSES 2

*First or second session*

Solid state diffusion: solution to the transport equation for various boundary conditions, calculations. Heat transfer mechanisms; conduction, convection and radiation. Applications in metallurgical processes.

**TEXTBOOK**

Geiger, G. & Poirier, D. *Transport Phenomena in Metallurgy*. Addison-Wesley, Mass., 1973.

## METL346 TRANSPORT PROCESSES 3

*First or second session*

Momentum and mass transport: flow regimes, boundary layers, flow of fluids in process equipment, dimensionless groups. Mass transport with and without chemical reaction in process vessels.

**TEXTBOOKS**

Geiger, G. & Poirier, D. *Transport Phenomena in Metallurgy*. Addison-Wesley, Mass., 1973.

Levenspiel, O. *Chemical Reaction Engineering*. 2nd ed. Wiley, New York, 1972.

## METL355 STRUCTURE OF METALS 2

*First or second session*

Ternary phase equilibria. Ternary alloys and alloy steels: structures, properties and heat treatment. Hardenability. Metals failure analysis.

**TEXTBOOK**

Reed-Hill, R. *Physical Metallurgy Principles*. Van Nostrand, New York, 1964.

## METL375 TRANSFORMATIONS 1

*First or second session*

Mechanisms of phase transformations in solids: nucleation, growth. Transformations, microstructures and properties in steels and cast iron. Heat treatment processes and transformation diagrams.

**TEXTBOOK**

Reed-Hill, R. *Physical Metallurgy Principles*. Van Nostrand, New York, 1964.

## METL376 SOLIDIFICATION 1

*First or second session*

Nucleation from the liquid. Growth structures in pure metals, single phase and



polyphase alloys. Heat flow, mass transport and interface kinetics.

**TEXTBOOK**

Flemings, M.C. *Solidification Processing*. McGraw-Hill, New York, 1974.

**METL385 EXTRACTIVE METALLURGY 1**

*First session*

Application of scientific principles to the unit processes involved in the extraction and refining of metals by pyrometallurgical, hydrometallurgical and electrometallurgical processes.

**TEXTBOOK**

Pehlke, R.O. *Unit Processes in Extractive Metallurgy*. Elsevier, New York, 1973.

**METL386 CHEMICAL REACTION ENGINEERING**

*First or second session*

Review of chemical kinetics, search for a rate equation. Introduction to reactor design: single ideal reactors, multiple reactor systems, temperature and pressure effects, non-ideal flow, mixing and segregation.

**TEXTBOOK**

Levenspiel, O. *Chemical Reaction Engineering*. 2nd ed. Wiley, New York, 1972.

**METL387 MINERAL PROCESSING**

*First or second session*

Texture of ore minerals, liberation, comminution. Size analyses and distribution. Movement of solids in fluids, classification, flowing film separation, jigging. Heavy media separation. Magnetic and electrostatic separation. Froth flotation. Flocculation, dewatering, treatment of effluents. Treatment of particular minerals, e.g. coal preparation.

**TEXTBOOK**

Wills, B.A. *Mineral Processing Technology*. Pergamon, Oxford, 1979.

**400-LEVEL**

**METL421 DIFFRACTION TECHNIQUES**

*First or second session*

Advanced theory and practice of X-ray diffraction and electron metallography.

**METL431 FRACTURE**

*First or second session*

Plastic constraint, fracture mechanics for conditions of plane stress and plane strain and of general yielding. Mechanisms of crack nucleation and propagation. C.O.D. testing, fatigue, stress corrosion.

**METL435 MECHANICS OF DEFORMATION 2**

*First or second session*

## 440 DESCRIPTION OF SUBJECTS - METALLURGY

Work balance, force equilibrium and shear line field methods of calculating working stresses. Deformation processing with steady state and with non-steady state flow, friction effects.

### *TEXTBOOK*

Rowe, G.W. *Introduction to the Fundamental Principles of Metallurgy*. Arnold, London, 1965.

## **METL436 MECHANICAL TESTING PROCESSES**

### *First or second session*

Uniaxial and biaxial tension, deep drawing and indentation tests for ductile metals. Testing machine characteristics, strain distribution, effects of strain hardening, anisotropy and friction.

## **METL455 RECRYSTALLISATION**

### *First or second session*

Microstructures of deformed metals, mechanisms and kinetics of recovery and recrystallisation in single phase alloys. Recrystallisation in two phase alloys.

## **METL456 ALLOY DESIGN**

### *Second session*

Alloy strengthening and softening mechanisms. Relationships between microstructure and strength, toughness, formability, abrasion resistance, weldability. Control of microstructure and properties by thermomechanical treatments.

### *TEXTBOOK*

Reed-Hill, R. *Physical Metallurgy Principles*. Van Nostrand, New York, 1964.

## **METL457 METAL JOINING**

### *First or second session*

Joining processes. Welding, structure of weld metal, defects and properties, heat affected zone, effects of welding variables. Metal cutting, brazing, soldering. Testing methods.

## **METL465 PROCESS MODELLING 1**

### *First or second session*

Studies of metallurgical processes by simulation and mathematical modelling.

## **METL471 TRANSFORMATIONS 2**

### *First or second session*

Detailed considerations of kinetic, crystallographic and structural characteristics of phase transformations in metals and alloys.

## **METL472 SOLIDIFICATION 2**

### *First or second session*

Cast structure development and control: grain refinement and modification, transport phenomena, microsegregation, macrosegregation. Thermodynamics of solidification. Processing and properties.

**METL485 EXTRACTIVE METALLURGY 2**

*Second session*

Discussion of selected topics to illustrate particular applications of metallurgical engineering principles of heat and mass transport, thermodynamics and reaction engineering to such topics as the development of a heat transfer model of continuous casting; the development of slag theories and their application in extractive metallurgy; reaction engineering of iron ore reduction in direct reduction processes and blast furnaces; the application of fluid flow theory to investigations of jets, nozzles and tuyeres.

**METL486 EXTRACTIVE METALLURGY 3**

*First or second session*

Detailed study of iron making; thermodynamics and kinetics of iron ore reduction and of coke gasification, fundamentals of the blast furnace process, blast furnace models, Rist diagrams, process efficiency and burden distribution, bell-less charging.

**METL495 METALLURGY PROJECT 1**

*Second session*

A literature survey, experimental investigation and preparation of a thesis on a topic in metallurgy approved by the Chairman of the Department.

**METL496 METALLURGY PROJECT 2**

*Double session*

A literature survey, extensive experimental investigation and preparation of a thesis on an advanced topic in metallurgy approved by the Chairman of the Department.

## PHILOSOPHY

Philosophy studies those problems which cannot be solved by the methods of the natural sciences; i.e. which cannot be solved by carrying out a physical experiment, making an observation, or doing a mathematical calculation. Examples of these non-scientific but nonetheless real problems are (1) Is there a God beyond the physical world? (2) Do moral distinctions rest on objective foundations or are good and bad matters of subjective preference? (3) How should I relate to other individuals and to institutions such as the state? (4) Am I a purely material being or does my having a mind set me apart from nature? (5) Is free will a reality or an illusion? and (6) the nature of truth and the methods by which it can be approached. The two main reasons for studying philosophy are firstly to attempt to formulate and justify one's own solutions to these and many other problems (and to find out and understand what others have said), and secondly to unearth and critically examine the many unstated assumptions implicit in our everyday thought and conduct. The study of philosophy does not depend upon any discipline or body of information acquired in secondary education.

Philosophy may be studied at first, second, third, and fourth year (Honours) levels, and at the postgraduate level. Various degrees of specialization are possible. Students who find that their interest in Philosophy is keen, and whose early work shows promise, are strongly recommended to plan a course of study which leaves open the possibility of taking a fourth (Honours) year, either exclusively in Philosophy ('Pure' Honours) or in conjunction with some other discipline ('Combined' Honours). An increasing number of other departments within the university do permit the possibility of an Honours degree combined with Philosophy, and students interested in combining the study of Philosophy with the study of a discipline offered by another Department to Honours level should contact both departments at the earliest opportunity, in order to ensure that they undertake a planned course of study which makes this possible at 400-level. Admission to the Honours year (400-level) in Philosophy (whether pure or combined) depends upon the quantity and quality of the student's philosophical studies at the 100-, 200-, and 300-levels, and compliance with the guidelines set out under (a) to (d) below.

Students contemplating progressing to Honours in Philosophy (pure or combined) should discuss their proposed programme of study with the Philosophy Honours (400-level) co-ordinator at the beginning of each year of enrolment. (Students contemplating combined Honours should also consult the equivalent person in the other department at the beginning of each year of enrolment.) Entry to Philosophy Honours is determined by the Academic Senate on the advice of the Chairman of the Department of Philosophy in the case of 'pure' Honours candidates, and on the joint advice of the Chairmen of both departments in the case of 'combined' Honours candidates. Students may be expected to be recommended for admission to 'pure' Philosophy Honours candidature if they:

- (a) complete at least 48 of their 144 credit points in PHIL subjects, including at least 24 credit points at 300-level, and
- (b) attain an average of Credit or better in post 100-level PHIL subjects, and
- (c) acquire a basic competence in Logic (e.g. as certified by at least a pass in PHIL112 or PHIL113 or PHIL153 or PHIL216 or PHIL231 or PHIL253 or PHIL361 or (for students enrolled prior to 1978) PHIL103 or PHIL123), and
- (d) acquire a basic competence in Metaphysics and Epistemology (e.g. as certified by at least a pass in PHIL262 or PHIL322 or PHIL321 or PHIL323).

Students may be expected to be recommended for admission to 'combined' Honours candidature (including Philosophy) if, in addition to meeting the above requirements, they also meet such requirements as are laid down by the other



Department in which Honours candidature is proposed.

Notwithstanding these provisions the Chairman of the Department of Philosophy may, in respect of any applicant for entry to Honours, request written work and/or the opinions of the applicant's previous teachers as further evidence of the applicant's capacity to undertake the study of Philosophy at advanced level.

Official departmental announcements concerning the details of subject requirements (e.g. deadlines for essays, procedures for applying for extensions etc.) and teaching arrangements (e.g. class times, locations, and variations) are made from time to time on the Philosophy departmental noticeboard, adjacent to the departmental office. Students are expected to consult the departmental noticeboard regularly (at least once a week) and should note that failure to meet departmental requirements through not consulting the noticeboard will not be viewed sympathetically.

Assessment requirements vary from subject to subject and are set out in general terms in each of the subject entries. It should be noted that, notwithstanding any of these provisions, the Philosophy Departmental Assessment Committee may, in respect of any subject in which assessment is by a combination of (a) in-session work and (b) end of session or end of year examinations, attach greater weight to (b) than the aggregate of (a) and (b), should the level of performance under (b) disclose significant evidence of improvement in respect of the subject as a whole.

#### *Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A.

#### *Subjects available in 1981, 1982 and 1983.*

All approved subjects are listed in the subject descriptions which follow. However, staffing restrictions make it impossible for the Department to offer every subject every year. Accordingly, some subjects will not be available in 1981, but will be available, on present planning, in 1982. To help students plan their courses ahead, the following table gives an indication of the Department's planned offerings in 1981, 1982 and 1983. Please understand that circumstances may prevent us from adhering completely to these plans: the following information is provided as a guide only.

<i>Subject No.</i>	<i>1981?</i>	<i>1982?</i>	<i>1983?</i>
PHIL103	YES	YES	YES
PHIL112	YES	YES	YES
PHIL143	YES	YES	YES
PHIL153	YES	YES	YES
PHIL173	YES	YES	YES
PHIL193	YES	YES	YES
PHIL203	YES	YES	YES
PHIL211	YES	YES*	YES*
PHIL216	YES	YES	YES
PHIL222	NO	Uncertain	Uncertain
PHIL231	YES	YES	YES
PHIL232	YES	NO	YES
PHIL243	YES	YES	YES
PHIL251	YES	YES	YES
PHIL252	YES	NO	YES
PHIL253	YES	YES	YES
PHIL254	YES	NO	YES
PHIL257	NO	YES	NO
PHIL259	YES	NO	YES
PHIL262	YES	YES*	YES*
PHIL271	YES	YES	YES



PHIL272	YES	YES	YES
PHIL273	YES	YES	YES
PHIL281	YES	NO	YES
PHIL282	NO	YES	NO
PHIL292	NO	YES	NO
PHIL301	YES	YES	YES
PHIL302	YES	NO	YES
PHIL303	YES	Uncertain	YES*
PHIL305	YES	YES	YES
PHIL306	YES	YES	YES
PHIL315	YES	NO	YES
PHIL316	NO	YES	NO
PHIL321	YES	YES	YES
PHIL322	YES	YES*	YES*
PHIL323	YES	YES	YES
PHIL342	YES	NO	Uncertain
PHIL354	YES	NO	YES
PHIL357	NO	YES	NO
PHIL359	YES	NO	YES
PHIL361	YES	YES	YES
PHIL362	NO	YES	Uncertain
PHIL371	Uncertain	Uncertain	Uncertain
PHIL381	Uncertain	Uncertain	Uncertain
PHIL392	NO	YES	NO
PHIL403	YES	YES	YES
PHIL413	YES	YES	YES

Please Note:

(1) Where a subject is marked 'Uncertain' in a given year, students interested in studying that subject in the year concerned should consult with a member of the staff of the Department of Philosophy.

(2) \* indicates that, even if the subject as described in this Calendar is not on offer in the year concerned, a subject with a very similar content is very likely to be offered instead.

### 100-LEVEL

### PHIL103 PHILOSOPHY 103

*Double session; 12 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Two 1,500 word essays - 50%; a 3-hour examination at the end of second session - 50%.

An introduction to Philosophy through the study of selected philosophical writings and important philosophical problems.

The first session begins with an examination of some issues Socrates raised at his trial and problems he discussed with his friends while awaiting execution. Special attention is given to Plato's dialogue, the *Crito*, and to such questions as whether one should ever return evil for evil and whether it may sometimes be justifiable to disobey the laws enacted by the state to which one belongs. After this introduction to philosophical techniques, the remainder of the session is devoted to a critical study of Descartes' *Meditations*. Issues for consideration include epistemological questions (can anything be known with certainty? how is it possible for us to understand the nature of an 'external world' which exists independently of us? what is the role of sensory experience in the achievement of knowledge?) and metaphysical questions (what is the essential nature of the self? is the mind capable of existence independently of the body? does the existence of God need proof, or is theistic belief just a matter of faith?). A contrast is drawn between rationalist and empiricist emphases in the theory of knowledge and some recent developments discussed. The session's work includes a brief introduction to philosophical vocabulary and the fundamental concepts of modern logic.

The second session builds on concerns introduced in the first. A critical study of David Hume's contributions to the philosophy of religion serves both to further issues raised by Descartes about belief in God and to provide an empiricist contrast to Descartes' rationalism. Special attention will be paid to the argument from evil (which maintains that the existence of evil entails that there cannot exist a deity who is both all-good and all-powerful) and to the question of the rationality of belief in miracles. Finally, Descartes' concern with the self is taken up again in a critical study of Jean-Paul Sartre's essay, 'Existentialism is a Humanism'. The character of existentialism will be discussed, including such topics as self-realisation, self-deception and bad faith. Sartre's essay raises intriguing problems in two areas: (1) problems of free will and determinism: if human actions are subject to the laws of nature, can they be genuinely free?; and (2) problems concerning morality, including whether morality is 'objective' or 'subjective', 'absolute' or 'relative', whether everything is permitted if God does not exist, and the nature of the relationship between moral responsibility and freedom.

#### TEXTBOOKS

- Anscombe, E. and Geach P. T. eds, *Descartes, Philosophical Writings*. Nelson, London, 1954.
- Dworkin, G. ed., *Determinism, Free Will and Moral Responsibility*. Prentice Hall, 1970.
- Gorovitz, S., and Williams, R.G. *Philosophical Analysis: an Introduction to its Language and Techniques*. Random House, 1969.
- Tredennick, H. ed., *Plato: The Last Days of Socrates*. Penguin, 1959.
- Textbook for Hume section of this subject is to be advised.

### PHIL112 LOGIC A

*Second session; 6 credit points (2 lectures per week; 1 tutorial per week)*

*Assessment:* 4 written assignments during the session - 40%, and one test paper at end of session 2 - 60%; or one 3 hour examination paper at the end of session 2 - 100%

A second session introduction to elementary logic and its relation to natural language and reasoning. Topics dealt with include: demonstrative and problematic arguments, logical form, propositional calculus, introduction to predicate calculus. Natural deduction techniques will be used in proof construction. No mathematical or technical knowledge is presupposed and connections will be made with everyday thought and language.

#### TEXTBOOK

- Lemmon, E.J. *Beginning Logic*. Nelson, London, 1965.

### PHIL143 POLITICAL THEORY

*Double session; 12 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Tutorial assessment - 10%; 2 essays (2,000 words each) - 40%; one 3 hour examination - 50%.

A full year introduction to the study of politics covering three closely related areas: political science, theory of democracy, and democracy in Australia. The course aims to develop skills in the analysis of conceptual, empirical, and normative issues in politics. The topics of the course include some central concepts of politics, classical and pluralist theory of democracy and their conservative and radical critiques, and Australia's political institutions.

#### TEXTBOOKS

- Dahl, R. A. *Modern Political Analysis*. 3rd ed., Prentice-Hall, Englewood Cliffs, 1976.
- Emy, H. V. *The Politics of Australian Democracy*. 2nd ed., Macmillan, Melbourne, 1978.

## 446 DESCRIPTION OF SUBJECTS - PHILOSOPHY

Mayer, H. & Nelson, H. eds. *Australian Politics - A Fifth Reader*. Cheshire, Melbourne, 1980.

Plamenatz, J. *Democracy and Illusion*. Longman, London, 1973.

### PHIL153 CLEAR THINKING AND ARGUMENTS

*Double session; 12 credit points (2 lectures per week; 1 tutorial per week)*

*Assessment:* 8 written assignments during the year - 40% and 2 test papers (1 at the end of each session) - 60%; or one 3 hour examination paper at the end of session 2 - 100%.

An elementary full-year course in (i) clarity of expression of thought, and (ii) sound reasoning. Under (i) consideration is given to different types of definition, precision and vagueness, ambiguity, and open texture. Under (ii) special attention is paid to the distinctions between truth and validity, and demonstrative versus problematical reasoning (including deduction and induction). Students will be trained in spotting bad inferences and in the recognition of common techniques of persuasion. The course is designed to be of general interest, and of use to students irrespective of whether they intend to proceed to further studies within the Department of Philosophy. Students will be given a working knowledge of the propositional calculus and predicate calculus, and invited to consider the relationship between formal logical systems and ordinary thought, reasoning, and language. No technical knowledge of mathematics is presupposed.

#### TEXTBOOKS

Lemmon, E.J. *Beginning Logic*. Nelson, London, 1965.

Quine, W.V. & Ullian, J.S. *The Web of Belief*. Random House, New York, 1970.

### PHIL173 PHILOSOPHY 173

*Double session; 12 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* One 1,500 word essay (25%), four logic assignments (25%) and a 3-hour examination at the end of second session (50%).

An introduction to Philosophy and Logic, designed to combine one session of introductory Philosophy with one session of introductory Logic.

In the first session, critical studies will be undertaken of a Platonic dialogue and the *Meditations* of Descartes. Students will be introduced to problems in epistemology (what can be known with certainty? How is knowledge of an independent external world possible?), in metaphysics (what is the essential nature of the self? How is the self related to the body? Can God's existence be proved or disproved?) and in ethics and political philosophy (is it right to harm those who wrong us? Is it right under any circumstances for a citizen to disobey the laws of the state to which he belongs?)

The second session consists of an introduction to elementary logic, and its relation to natural language and reasoning. Topics dealt with include: demonstrative and problematic arguments, logical form, propositional calculus, and introductory predicate calculus. Natural deduction techniques will be used in proof construction. No technical or mathematical knowledge is presupposed, and connections will be made with everyday thought and language.

#### TEXTBOOKS

Anscombe, E. and Geach P.T. Eds. *Descartes, Philosophical Writings*. Nelson, London, 1954.

Lemmon, E.J. *Beginning Logic*. Nelson, London, 1965.

Tredennick, H. ed. *Plato: The Last Days of Socrates*. Penguin, 1959.

*Note:* The timetable for lectures will be changed at the beginning of second session.

**PHIL193 HISTORY OF IDEAS**

*Double session; 12 credit points (2 lectures, 1 tutorial per week)*

*Assessment: 4 essays of 1,500 words (50%) and either 2 end of session 1 1/2 hour tests or one 3 hour end of year examination (50%).*

A full year critical selection of the most influential doctrines in Philosophy through a study, in the context of scientific, economic and other changes, of its evolution from ancient Greece to the present day. The course examines briefly the teachings of the influential pre-Socratics, Socrates and the Sophists, the Stoics, Plato and his theory of Forms and of the soul, and the logic of Aristotle.

It then proceeds to a consideration of some of the major philosophical contributions of Mediaeval Catholicism, and in particular of St. Thomas Aquinas. Post-Renaissance Continental Rationalism (Descartes, Spinoza, and Leibniz) is compared with British Empiricism (Locke, Berkeley, and Hume). Kant's impact in ethics and metaphysics is considered in relation to the subsequent dialectical philosophy of Hegel and the historical materialism of Marx. The political philosophies of Hobbes, Locke, Rousseau and Bentham are also discussed. Nineteenth century American pragmatism (James, Peirce) is contrasted with Italian and British Absolute Idealism of the early twentieth century. Special attention is given to the relationship between philosophical and scientific developments.

The Vienna Circle's logical positivism and its English versions (Popper, Ayer), Cambridge analytical philosophy (Moore, Russell, Wittgenstein), Oxford linguistic philosophy (Ryle, Hare, Strawson) and European existentialism and phenomenology (Husserl, Jaspers, Sartre) are considered as introducing students to contemporary philosophy. The course concludes with a survey of contemporary Australian philosophy. Students will be required to make use of available primary sources.

*Note:* Students should note that PHIL193 does not satisfy the pre-requisites for certain 200-level subjects in Philosophy. Those contemplating specializing in Philosophy should take PHIL103 instead of, or in addition to this subject.

**TEXTBOOK**

Russell, B. *History of Western Philosophy*. London, Allen and Unwin, 1946.

**200-LEVEL****PHIL203 PHILOSOPHY 203**

*Double session; 16 credit points (2 lectures, 1 tutorial per week)*

*Assessment: Two, 2,500-word essays (40%), a 3-hour examination at the end of second session (60%).*

This full year subject provides a basic study in philosophy, based on a critical examination of several famous philosophical texts (Plato's *Euthyphro*, *Apology*, *Crito* and *Phaedo*; Descartes' *Meditations*; Hume's *Dialogues Concerning Natural Religion* and Sartre's 'Existentialism is a Humanism') and a sustained discussion of several central philosophical problems, including the problem of knowledge, the problem of free will, determinism and responsibility, and problems in the philosophy of religion.

**TEXTBOOKS**

Anscombe, E. and Geach, P.T. eds. *Descartes, Philosophical Writings*. Nelson, London, 1954.

Dworkin, G. ed. *Determinism, Free Will and Moral Responsibility*. Prentice-Hall, 1970.

Gorovitz, S., and Williams, R.G. *Philosophical Analysis: an Introduction to its Language and Techniques*. Random House, 1969.



## 448 DESCRIPTION OF SUBJECTS - PHILOSOPHY

Tredennick, H. ed. *Plato: The Last Days of Socrates*. Penguin, 1959.  
The textbook for the Hume section of this subject is to be advised.

### PHIL211 CLASSICAL PHILOSOPHY

*First session; 8 credit points (three 1 hr lecture/discussions per week)*

*Assessment:* 80% - 3 hr examination paper at the end of session 1; 10% - essay of 2,500 words; 10% - teacher's assessment

A detailed examination of Plato's *Republic* and an assessment of Plato's opinions on such questions as the point of morality, the nature of knowledge, knowledge of the universal as well as the particular, assessment and evaluation by standards of ideals, the perfect form of government, the purposes of education, and the responsibilities of the philosopher.

#### TEXTBOOKS

Gorovitz, S. & Williams, R.G. *Philosophical Analysis: An Introduction to its Language and Techniques*. Random House, New York, 1969,  
Plato. *The Republic*. Penguin, Harmondsworth, 1963.

### PHIL216 LOGIC B

*Second session; 8 credit points (2 lectures per week; 1 tutorial per week)*

*Assessment:* Written assignments during the session - 50%; and one 2 hour examination at the end of session 2 - 50%

The subject is an introduction to elementary formal logic. Students will be introduced to the nature of reasoning, the propositional and predicate calculi and methods of proof in these logical systems. Particular attention will be paid to the techniques of natural deduction. Topics discussed will also include translation of sentences into the languages of the propositional and predicate calculi and the relationship between these languages and natural language. The subject does not presuppose any mathematical or technical knowledge.

#### TEXTBOOK

Lemmon, E.J. *Beginning Logic*. Nelson, London, 1965.

### PHIL222 SET THEORY 222

*Second session; 8 credit points (three 1 hr lecture/discussions per week)*

*Assessment:* 60% - 3 hr examination paper at the end of session 2; 10% - essay of 2,000 words; 20% - two sets of revision exercises; 10% - teacher's assessment

An examination of the origins and developments of the general theory of classes sufficient (1) to understand and consider philosophical controversies surrounding the foundations of mathematics number theory, and infinity, and (2) to comprehend applications of set theory to model theory in general and semantics in particular. This course assumes a working knowledge of the propositional and predicate calculi, and is assumed by the Advanced Formal Logic option in fourth year honours. The approach will generally be discursive and critical and will not emphasise the finer technicalities of proof construction. The system taught is a variant of von Neumann-Bernays-Gödel set theory, however Zermelo-Fraenkel and Russellian variations are noted. Topics discussed include (i) Paradoxes, (ii) Relations and their formal properties, (iii) Cardinals and Ordinals, (iv) Infinities, and (v) The Axiom of Choice.

(Students who have passed MATH321 are welcome to attend but cannot claim credit for this subject.)

#### TEXTBOOK

Lemmon, E. J. *Introduction to Axiomatic Set Theory*. Routledge & Kegan Paul, London, 1969.



**PHIL231 FORMAL LOGIC A**

*First session; 8 credit points (three 1 hr lecture/discussions per week. Additional practice classes optional)*

*Assessment: 50% - 3 hour examination paper at end of session 1; 50% - exercises submitted during the session*

The course consists of (i) an examination of some of the fundamental concepts involved in the study of logic and (ii) an introduction to some systems of truth-functional and quantificational logic. Topics discussed will include some basic set theory, the development of formal languages, properties of these languages and their relation to natural languages, translation into formal languages, the development of systems of sentential and predicate calculi and a study of methods of proof within these systems. A brief introduction to axiomatics will be included. Particular attention will be given to the role of formal logic in elucidating the nature of ordinary reasoning and in evaluating such reasoning.

**PRELIMINARY READING**

Gorovitz, S. & Williams, R. G. *Philosophical Analysis: An Introduction to its Language and Techniques*. Random House, N.Y., 1969.

**TEXTBOOK**

Jeffrey, R.C. *Formal Logic: its Scope and Limits*. McGraw-Hill, New York, 1967.

**PHIL232 POLITICAL PHILOSOPHY A**

*Second session; 8 credit points (3 lecture/discussions per week)*

*Assessment: Tutorial assessment - 10%; one 2,500 word essay - 30%; one 3 hour examination - 60%.*

A critical introduction to the writings of some of the main classical political philosophers. Particular emphasis will be given to Plato, Aristotle, Hobbes, Locke, Marx and Engels. The subject covers conservative, liberal and radical views of the nature of the state and is especially suitable for students with a limited philosophy background.

**TEXTBOOKS**

Aristotle. *Politics*. Penguin, Harmondsworth, 1972.

Hobbes, T. *Leviathan*. ed. M. Oakeshott, Collier Books, New York, 1967.

Locke, J. *Two Treatises on Civil Government*. Dent, London, 1924.

Marx, K. & Engels, F. *The Marx-Engels Reader*. ed. R.C. Tucker, Norton, New York, 1972.

Plato. *The Republic*. 2nd ed. Penguin, Harmondsworth, 1975.

**PHIL243 POLITICAL THEORY A**

*Double session; 16 credit points (2 lectures, 1 tutorial per week)*

*Assessment: Tutorial assessment - 10%; 2 essays (2,500 words each) - 40%; one 3 hour examination - 50%.*

A study of elementary principles of political science, democratic theory; and democracy in Australia. Topics include a selection of central political concepts, classical and pluralist theories of democracy and their conservative and radical critiques and Australia's political institutions.

**TEXTBOOKS**

Dahl, R.A. *Modern Political Analysis*. 3rd ed., Prentice-Hall, Englewood Cliffs, 1976.

Emy, H.V. *The Politics of Australian Democracy*. 2nd ed., Macmillan, Melbourne, 1978.

## 450 DESCRIPTION OF SUBJECTS - PHILOSOPHY

Mayer, H. & Nelson, H. eds. *Australian Politics - A Fifth Reader*. Cheshire, Melbourne, 1980.

Plamentaz, J. *Democracy and Illusion*. Longman, London, 1973.

### PHIL251 ETHICS A

*First session; 8 credit points (3 lecture/discussions per week)*

*Assessment:* Tutorial assessment - 10%; one 2,500 word essay - 30%; one 3 hour examination - 60%.

By what moral principles, if any, ought we to live? Are there objective moral values or is morality subjective? How, if at all, can one rationally support moral judgements? How is morality to be defined? Is morality culturally relative? What do we mean by 'good', 'right', 'ought', 'obligation', 'duty'? Is the moral rightness of an action determined by moral rules or by its consequences? Does morality have to do with the welfare of oneself, that of others or that of everyone?

#### TEXTBOOKS

Brandt, R. *Ethical Theory*. Prentice-Hall, Englewood Cliffs, 1959.

Mackie, J.L. *Ethics*. Penguin, London, 1977.

Warnock, G.J. *The Objective of Morality*. Methuen, London, 1971.

### PHIL252 AESTHETICS A

*Second session; 8 credit points (3 lecture/discussions per week)*

*Assessment:* One 3 hour examination (70%); One 2,500 word essay (20%); teacher's assessment (10%)

An examination in second session of concepts of natural and artistic beauty, the nature and value of a work of art, the relation between artistic creation and artistic intentions, artistic communication and aesthetic evaluation. No special artistic knowledge or practical artistic ability is presupposed. The views of the German philosopher Immanuel Kant, and of the recent Italian idealist philosopher Benedetto Croce, and in particular his version of expressionism, will be given special attention.

#### TEXTBOOKS

Charlton, W. *Aesthetics: An Introduction*. Hutchinson, London, 1970.

Tillman, F.A. & Cahn, S.M. eds. *Philosophy of Art and Aesthetics from Plato to Wittgenstein*. Harper and Row, New York, 1969.

### PHIL253 INTRODUCTION TO LOGIC

*Double session; 16 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* Written assignments during the year - 50%; and one 3 hour examination at the end of session two - 50%

A full-year subject investigating the nature of argument and reasoning in ordinary and scientific discourse. Consideration is given to different types of definition, precision and vagueness, ambiguity and open texture. Special attention is paid to the notions of truth and validity and to the distinction between deductive and non-deductive reasoning. Students will become skilled in detecting bad inferences and in recognizing common techniques of persuasion. Students will be given a working knowledge of the propositional calculus and predicate calculus and will be invited to consider the relationship between formal logic systems and ordinary language, thought and reasoning. No previous knowledge of mathematics or science is presupposed.

#### TEXTBOOK

Lehmon, E.J., *Beginning Logic*. Nelson, London, 1965.

**PHIL254 PHILOSOPHY OF VALUE A**

*Double session; 16 credit points (3 lecture/discussions per week)*

*Assessment:* Tutorial assessment - 10%; two 2,500 word essays (20%); one three hour examination at the end of the year (70%)

A critical appraisal of the status of moral and aesthetic judgements. The first part of the year will be devoted to moral values; and such issues as alleged moral relativity, the possibility of moral knowledge, moral subjectivism, morality and reasons, and principles and consequences. In the second part of the year consideration will be given to aesthetic values; and such issues as beauty in nature and art, artistic value, creative and artistic intention, beauty and concepts, intuition and expression.

**TEXTBOOKS**

Brandt, R. *Ethical Theory*. Prentice-Hall, Englewood Cliffs, 1959.

Mackie, J.L. *Ethics*. Penguin, London, 1977.

Tillman, F.A. and Cahn, S.M. eds. *Philosophy of Art and Aesthetics from Plato to Wittgenstein*. Harper and Row, N.Y., 1969.

Warnock, G.J. *The Object of Morality*. Methuen, London, 1971.

**PHIL257 MORAL AND SOCIAL PHILOSOPHY A**

*Double session; 16 credit points (3 lecture/discussions per week)*

*Assessment:* Tutorial assessment (10%); two 2,500 word essays (40%); one three hour examination at the end of the year (50%)

A full year critical appraisal of both the nature of morality, and of particular moral statements and judgements. The first half of the course is designed to provide an awareness of the theoretical issues basic to discussion of contemporary ethical questions. In the second half of the course, some important controversies over claimed rights (e.g. those arising from the right to life, and the right to freedom and autonomy) will be discussed against this background.

**TEXTBOOKS**

Abelson, R., and Friquegnon, M. *Ethics for Modern Life*. St. Martin's Press, New York, 1975.

Brandt, R. *Ethical Theory*. Prentice-Hall, Englewood Cliffs, 1959.

Feinberg, J. *Social Philosophy*. Prentice-Hall, Englewood Cliffs, 1973.

McCloskey, H.J. *Meta-Ethics and Normative Ethics*. Martinus Nijhoff, The Hague, 1969.

Mackie, J.L. *Ethics*. Penguin, London, 1977.

Warnock, G.J. *The Object of Morality*. Methuen, London, 1971.

**PHIL259 MORAL AND POLITICAL PHILOSOPHY A**

*Double session; 16 credit points (3 lecture/discussions per week)*

*Assessment:* Tutorial assessment - 10%; two 2,500 word essays - 30%; one 3 hour examination at the end of the year - 60%

A full year study of basic issues in moral and political philosophy, including the relationship between the two. The questions considered include: What distinguishes morality from other guides to action: Are moral judgements absolute or relative, objective or subjective? What are the basic assumptions which distinguish conservative, liberal and radical political philosophies? Which of these assumptions are the most plausible?

**TEXTBOOKS**

Aristotle. *Politics*. Penguin, Harmondsworth, 1972.

Brandt, R. *Ethical Theory*. Prentice-Hall, Englewood Cliffs, 1959.

## 452 DESCRIPTION OF SUBJECTS - PHILOSOPHY

- Hobbes, T. *Leviathan*. ed. M. Oakeshott, Collier Books, New York, 1967.  
Locke, J. *Two Treatises on Civil Government*. Dent, London, 1924.  
Mackie, J.L. *Ethics*. Penguin, London, 1977.  
Marx, K. & Engels, F. *The Marx-Engels Reader*. ed. R.C. Tucker, Norton, New York, 1972.  
Plato. *The Republic*. 2nd ed. Penguin, Harmondsworth, 1975.  
Warnock, G.J. *The Object of Morality*. Methuen, London, 1971.

### PHIL262 EMPIRICISM A

*Second session; 8 credit points (3 lecture/discussions per week)*

*Assessment:* One 3 hour examination paper (80%); one essay of 2,500 words (10%); teacher's assessment (10%)

An examination in the second session of the metaphysical, epistemological and linguistic doctrines of the British Empiricists of the seventeenth and eighteenth centuries; particular attention will be given to the views of the English philosopher John Lock, the Irish philosopher George Berkeley, and the Scottish philosopher David Hume. Questions considered include (i) How do words relate to things and to ideas? (ii) Might the so-called material world exist entirely in our minds (the debate between Idealists, Representationalists, and Realists)? (iii) What is a cause? (iv) Must the world have a Creator? (v) What gives a thing or a person its identity through a period of change?

#### TEXTBOOKS

- Armstrong, D.M. ed. *Berkeley's Philosophical Writings*. Collier-Macmillan, New York, 1965.  
Hume, D. *Enquiries concerning Human Understanding*. L.A. Selby-Bigge, ed. 3rd ed. revised by P.H. Nidditch, Clarendon Press, Oxford, 1975.  
Hume, D. *A Treatise of Human Nature*. L.A. Selby-Bigge, ed. 2nd ed. revised by P.H. Nidditch, Oxford U.P., Oxford, 1978.  
Locke, J. *Essay Concerning Human Understanding*. 2 vols. Dover, New York, 1959.

### PHIL271 SPECIAL PHILOSOPHICAL QUESTIONS IA

*First session; 8 credit points (3 lecture/discussions per week)*

*Assessment:* Either two 1,500 word essays or a 3 hour examination at the end of session or combination of essays and examination

A detailed, supervised investigation of an approved philosophical topic, author, period, or school of thought.

### PHIL272 SPECIAL PHILOSOPHICAL QUESTIONS IIA

*Second session; 8 credit points (3 lectures/discussions per week)*

*Assessment:* As for PHIL271

*Description:* As for PHIL271

### PHIL273 PHILOSOPHY 273

*Double session; 16 credit points (2 lectures, 1 tutorial per week)*

*Assessment:* One 2,500-word essay (20%), four logic assignments (20%), a 3-hour examination at the end of second session (60%)

This full year subject provides a basic study in philosophy and logic. In the first session, students undertake a critical examination of some Platonic dialogues and Descartes' Meditations. Philosophical problems dealt with include the problem of the relationship of the individual citizen to the state, the problem of knowledge, the question of the nature of the self and its relationship to the body, and an examination of some theistic proofs. In the second session, an introduction to elementary formal logic is undertaken. Topics include: the nature of reasoning, the propositional and predicate calculi and methods of proof in these logical



systems. No previous technical or mathematical knowledge is required.

### TEXTBOOKS

Anscombe, E. and Geach, P.T. eds. *Descartes, Philosophical Writings*. Nelson, London, 1954.

Dworkin, G. ed. *Determinism, Free Will and Moral Responsibility*. Prentice-Hall, 1970.

Lemmon, E. J. *Beginning Logic*. Nelson, London, 1965.

Tredennick, H. ed. *Plato: The Last Days of Socrates*. Penguin, 1959.

*Note:* The timetable for lectures will be changed at the beginning of second session.

## PHIL281 HISTORY OF TRADITIONAL LOGIC A

*Second session; 8 credit points (three 1 hour lecture/discussions per week)*

*Assessment:* One 2,000 word essay - 20%; classwork - 20%; end of session examination - 60%

This one-session subject examines the history of logic from its beginnings in the dialogues of Plato through the *Organon* of Aristotle and Stoic logic to the logic of the medieval universities.

### TEXTBOOKS

Hamblin, C.L. *Fallacies*. Methuen, London, 1970.

Kneale, W. & Kneale, M. *The Development of Logic*. Clarendon, Oxford, 1962.

## PHIL282 HISTORY OF MODERN LOGIC A

*Second session; 8 credit points (3 lecture/discussions per week)*

*Assessment:* One 2,000 word essay - 20%; classwork - 20%; final examination - 60%

This one-session subject examines the history of logic from the seventeenth century to the mid-twentieth century. Special attention is paid to Leibniz, J.S. Mill, de Morgan, Boole, Pierce, Frege and Russell.

### TEXTBOOK

Kneale, W. & Kneale, M. *The Development of Logic*. Clarendon, Oxford, 1962.

## PHIL292 SOCIAL PHILOSOPHY A

*Second session; 8 credit points (3 lecture/discussions per week)*

*Assessment:* Tutorial assessment (10%); two 2,500 word essays (40%); one 2 hour examination (50%)

A critical examination of the status of rights and the nature of rights-talk, together with a detailed examination of two claimed basic rights - the right of life, and the right to autonomy. Discussions of the morality of terminating life, and of issues arising from claims to particular freedoms, will include topics from the following range: abortion, euthanasia and suicide; warfare; punishment; animal rights; civil disobediences and conscientious objection; reverse discrimination; group self-determination; privacy.

*NOTE:* HPS214 Methodology of the Natural and Social Sciences is to be taught jointly by the Departments of History and Philosophy of Science and Philosophy.

### 300-LEVEL

*NOTE:* A substantial and coherent study in Philosophy at 300-level is obtained by successfully completing any 24 credit point 300-level subject, or any combin-



## 454 DESCRIPTION OF SUBJECTS - PHILOSOPHY

ation of 300-level PHIL subjects with a total value of at least 24 credit points.

### PHIL301 ETHICS B

*First session; 12 credit points (3 lecture/discussions and one two-hour seminar per week)*

*Assessment:* Tutorial assessment - 10%; one 3,000 word essay - 30%; one 3 hour examination - 60%

A critical study for senior students of the fundamental issues in moral philosophy. How ought a person to live? Is morality objective or subjective? Is morality culturally relative? Does morality have to do with the welfare of oneself, of others or of everyone? What is the meaning of such key concepts of moral discourse as *good, right, ought, obligation* and *duty*. What distinguishes morality as a guide to action from, say, law and cookbooks?

#### TEXTBOOKS

As for PHIL251.

### PHIL302 AESTHETICS B

*Second session; 12 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment:* One 3 hour examination paper (70%); one 3,000 word essay (20%); teacher's assessment (10%)

A second session subject for senior students concerning beauty in nature and art, artistic value, creativity and artistic intention, beauty and concepts (Kant), intuition and expression (Croce).

#### TEXTBOOKS

As for PHIL252.

### PHIL303 IMMANUEL KANT'S CRITIQUE OF PURE REASON

*Double session; 16 credit points (2 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment:* One 3 hour examination at end of session 2 - 50%; two 2-3,000 word essays - 40%; teacher's assessment - 10%

An examination of Immanuel Kant's seminal work on the theory of knowledge and the nature of metaphysics.

#### TEXTBOOKS

Kant, I. *Critique of Pure Reason*. trans. N. Kemp-Smith, Macmillan, London, 1929.

Wilkerson, T.E. *Kant's Critique of Pure Reason*. Clarendon Press, Oxford, 1976.

### PHIL305 SPECIAL PHILOSOPHICAL QUESTIONS IB

*First session; 12 credit points (3 hrs lecture/discussions per week; one 2 hour seminar)*

*Assessment:* Either two 3,000 word essays or a 3 hour end of session examination or an equivalent approved combination of essay(s) and examination(s)

A detailed, supervised investigation at an advanced level of an approved philosophical topic, author, period, or school of thought.

### PHIL306 SPECIAL PHILOSOPHICAL QUESTIONS IIB

*Second session; 12 credit points (3 hrs lecture/discussions per week; one 2 hour*

*seminar)*

*Assessment: Either two 3,000 word essays or a 3 hour end of session examination or an equivalent approved combination of essay(s) and examination(s)*

A detailed, supervised investigation at an advanced level of an approved philosophical topic, author, period, or school of thought.

### PHIL315 HISTORY OF TRADITIONAL LOGIC B

*Second session; 12 credit points (3 lecture/discussions and 1 seminar per week)*  
*Assessment: Two 2,000 word essays (20% each); classwork (10%); end of session exam (50%)*

This one-session subject examines the history of logic from its beginnings in the dialogues of Plato through the *Organon* of Aristotle and Stoic logic to the logic of the medieval universities.

#### TEXTBOOKS

Hamblin, C.L. *Fallacies*. Methuen, London, 1970.  
 Kneale, W. & Kneal, M. *The Development of Logic*. Clarendon, Oxford, 1962.

### PHIL316 HISTORY OF MODERN LOGIC B

*Second session; 12 credit points (3 lecture/discussions and 1 seminar per week)*  
*Assessment: Two 2,000 word essays (20% each); classwork (10%); end of session examination (50%)*

This one-session subject examines the history of logic from the seventeenth century to the mid-twentieth century. Special attention is paid to Leibniz, J.S. Mill, de Morgan, Boole, Pierce, Frege and Russell.

#### TEXTBOOK

Kneale, W. & Kneale, M. *The Development of Logic*. Clarendon, Oxford, 1962.

### PHIL321 LOGICAL ANALYSIS

*First session; 12 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment: Either one 2,500 word essay (30%) plus a 3-hour examination at the end of first session (70%), or two 3,000 word essays.*

This first session subject deals with the modern Empiricist development of the philosophy of language. Topics considered include: G.E. Moore's "commonsense" philosophy, Bertrand Russell's Logical Atomism and Theory of Descriptions, Verificationism and the contemporary ideas of W.V. Quine.

#### PRELIMINARY READING

Ayer, A.J. *Language, Truth and Logic*. Penguin, Harmondsworth, 1967.  
 B.B.C. Lectures. *The Revolution in Philosophy*. Macmillan, London, 1967.  
 Magee, B. *Modern British Philosophy*. Secker, London, 1971.

#### TEXTBOOKS

Ammerman, R.R. ed. *Classics of Analytic Philosophy*. McGraw-Hill, New York, 1965.  
 Marsh, R.C. ed. *Logic and Knowledge*. Allen and Unwin, London, 1956.

### PHIL322 EMPIRICISM B

*Second session; 12 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

## 456 DESCRIPTION OF SUBJECTS - PHILOSOPHY

*Assessment:* Two 2,000 word essay (40%); one 3-hour examination (60%)

A second session study of the metaphysical and epistemological principles and doctrines of the British empiricists (John Locke, George Berkeley, and David Hume) and their relationship to contemporary philosophical issues.

### TEXTBOOKS

As for PHIL262.

## PHIL323 CONTEMPORARY ANALYTIC PHILOSOPHY

*Double session; 24 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment:* Either two 2,500 word essays (30%) and a 3-hour examination paper (70%), or four 3,000 word essays.

This full year subject examines the development of the most important parts of contemporary philosophy. In the first session, the programme of analysis is introduced by way of the "commonsense" philosophy of G.E. Moore and the logical atomism of Bertrand Russell, both of whom may be seen as reacting to the Idealism of F.H. Bradley and others. In the remainder of the session the Empiricist tradition, championed by Russell, is traced through the later works of the Logical Positivists and, in our own day, W.V. Quine. In the second session, attention is focused on those philosophers who, by and large, opposed that tradition - the later Wittgenstein, J.L. Austin, Gilbert Ryle and again in our own day, P.F. Strawson. The last part of the subject will be devoted to a brief study of the late nineteenth century philosopher, Gottlob Frege, who in recent times, has been hailed as one of the Fathers of modern philosophy.

### PRELIMINARY READING

Ayer, A.J. *Language, Truth and Logic*. Victor Gollancz, London, 1967.  
B.B.C. Lectures. *The Revolution in Philosophy*. Macmillan, London, 1967.  
Magee, B. *Modern British Philosophy*. Secker, London, 1971.

### TEXTBOOKS

Ammerman, R.R. ed. *Classics of Analytic Philosophy*. McGraw-Hill, New York, 1965.  
Geach, P. & Black, M. eds. *Translations from the Philosophical Writings of Gottlob Frege*. Blackwell, Oxford, 1960.  
Marsh, R.C. ed. *Logic and Knowledge*. Allen and Unwin, London, 1956.

## PHIL332 POLITICAL PHILOSOPHY B

*Second session; 12 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment:* Tutorial assessment - 10%; one 3,000 - word essay - 30%; one 3-hour examination - 60%

The subject has three basic aims. (1) To find the essential differences between conservative, liberal, and radical political philosophies. (2) To find the claims and assumptions which explain these differences. (3) To critically examine these claims and assumptions. The relevant writings of Plato, Aristotle, Hobbes, Locke, Marx and Engels, among others, will be discussed.

### TEXTBOOKS

Aristotle. *Politics*. Penguin, Harmondsworth, 1972.  
Hobbes, T. *Leviathan*. ed. Oakeshott, M. Collier Books, New York, 1967.  
Locke, J. *Two Treatises on Civil Government*. Dent, London, 1924.  
Marx, K. & Engels, F. *The Marx-Engels Reader*. Norton, New York, 1972.  
Plato. *The Republic*. 2nd ed. Penguin, Harmondsworth, 1975.

**PHIL342 PROBABILITY AND INDUCTION**

*First session; 12 credit points (three 1 hour lecture/discussions; one 2 hour seminar per week)*

*Assessment: Either one 3 hour examination paper at the end of session 1 or three essays of 3,000 words each*

Some central questions in philosophy of science will be discussed in detail. In particular, distinctions will be drawn between different concepts of probability and proposed accounts of each of these concepts will be critically analysed. Considerable attention will be given to the concept of probability involved in inductive arguments. Classical and recent accounts will be presented and their ramifications regarding the characterisation of inductive arguments, inductive logic and the problem of induction will be discussed.

**TEXTBOOKS**

Salmon, W.C. *The Foundations of Scientific Inference*. University of Pittsburgh Press, Pittsburgh, 1966.

Skyrms, B. *Choice and Chance*. 2nd ed. Dickenson Publishing Co., Encino, 1975.

**PHIL354 PHILOSOPHY OF VALUE B**

*Double session; 24 credit points (3 lecture/discussions per week; one 3 hour seminar per week)*

*Assessment: Tutorial assessment (10%); two 3,000 word essays (20%); one 3 hour examination at the end of the year (70%)*

A full year study for senior students of fundamental issues in moral and aesthetic philosophy, with special reference to such questions as whether goodness, rightness, duty, and beauty in nature and art are absolute or relative, objective or subjective; whether reasons may be given for judgements in these fields and how they support their conclusions; and the respective roles of principles and intuition in moral and aesthetic evaluation.

**TEXTBOOKS**

As for PHIL254.

**PHIL357 MORAL AND SOCIAL PHILOSOPHY B**

*Double session; 24 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment: Tutorial assessment (10%); two 3,000 word essays (40%); one three hour examination at the end of the year (50%)*

A full year subject for senior students involving discussion of the fundamental issues of moral philosophy, and a critical appraisal of important contemporary moral issues which arise in the context of two claimed basic rights - the right to life and the right to autonomy.

**TEXTBOOKS**

As for PHIL257

**PHIL359 MORAL AND POLITICAL PHILOSOPHY B**

*Double session; 24 credit points (3 lecture/discussions and one 2-hour seminar per week)*

*Assessment: Tutorial assessment - 10%; two 3,000 word essays - 30%; one 3 hour examination at the end of the year - 60%;*

A full year study for senior students of basic issues in moral and political philosophy, including the relationship between the two. The questions considered



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include: What distinguishes morality from other guides to action: Are moral judgements absolute or relative, objective or subjective? What are the basic assumptions which distinguish conservative, liberal and radical political philosophies? Which of these assumptions are the most plausible?

### TEXTBOOKS

As for PHIL259.

## PHIL361 FORMAL LOGIC B

*First session; 12 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment:* One 3 hour examination at end of session 1 (50%) and written work submitted during the year (50%)

An introduction to the nature and use of the techniques of formal logic for evaluating philosophical argument. The course is a study of fundamental concepts of logic leading to the development of various systems of propositional and predicate logic; and a discussion of related issues.

### PRELIMINARY READING AND TEXTBOOK

As for PHIL231 Formal Logic A.

## PHIL362 MODAL LOGIC

*Second session; 12 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment:* One 3 hour examination paper at end of session 2 (50%); exercises submitted during the session (50%)

The subject consists of a study of the development of modal logic and how recent developments in this area bear on some fundamental philosophical problems. The lectures will consist of a discussion of various systems of modal logic, uses of these systems and decision procedures for them. Particular emphasis will be placed on the development of possible world semantics for modal logic and philosophical interpretations of these semantics. Alternative semantics will also be considered. Extending these systems to systems of predicate modal logic raises questions about *de re* and *de dicto* modalities and the relationship between them; and the doctrine of essentialism. These questions will be discussed along with considerations relating to choosing between systems and semantical interpretations of quantified modal operators. A brief introduction to the logic of counter-factuals will be included.

### TEXTBOOK

Hughes, G.E. & Cresswell, M.J. *An Introduction to Modal Logic*. Methuen, London, 1968.

## PHIL371 FORMAL LOGIC C

*First session; 12 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment:* One 3 hour examination paper (40%); four written assignments (40%); teacher's assessment (20%)

A rigorous and critical treatment of the fundamentals of logic and meta-logic. A working knowledge of the propositional calculus and predicate calculus is assumed, together with a modest acquaintance with set theory.



**TEXTBOOK**

Mendelson, E. *Introduction to Mathematical Logic*. Van Nostrand, Princeton, 1964.

**PHIL381 FORMAL LOGIC D**

*First session; 8 credit points (3 lecture/discussions per week)*

Details as for PHIL371 FORMAL LOGIC C minus the weekly 2 hour seminar.

**PHIL392 SOCIAL PHILOSOPHY B**

*Second session; 12 credit points (3 lecture/discussions per week; one 2 hour seminar per week)*

*Assessment:* Tutorial assessment - 10%; two 2,500 word essays - 40%; one 2 hour examination at the end of session - 50%.

A critical examination at senior level of the status of rights and the nature of rights-talk, together with a detailed examination of two claimed basic rights - the right to life, and the right to autonomy. Discussions of the morality of terminating life, and of issues arising from claims to particular freedoms, will include topics from the following range: abortion, euthanasia and suicide; warfare; punishment; animal rights; civil disobedience and conscientious objection; reverse discrimination; group self-determination; privacy.

**400-LEVEL**

**PHIL403 PHILOSOPHY HONOURS**

*Double session; 48 credit points (five 2 hour seminars and one hour of personal supervision per week)*

*Assessment:* Dissertation - 25%; four electives -75%. At least one of the examiners of the dissertation shall be external to the University. The method of assessment in each of the electives shall be by essay(s) and/or written examination(s) as determined by the students to be assessed in the elective in conjunction with the academic staff responsible for the elective, such determination to be made during the first four weeks of session, subject to endorsement by the Philosophy Departmental Committee. All candidates may be required, in addition, to attend for a *viva voce* examination.

**REQUIREMENTS**

All candidates are expected to show in their work a high level of analytical, critical, and scholarly development, and evidence of significant independence of thought.

**1. DISSERTATION**

Candidates shall present a dissertation, recommended to be no longer than 8,000 to 10,000 words, embodying a sustained and semi-independent study of the work of a major philosopher, period of philosophical thought, or philosophical problem. The choice of area or topic is subject to the availability of a member of the department willing and able to supervise and assess the candidate's progress, and the accessibility to the candidate of a substantial proportion of the relevant literature.

The candidate shall submit to the Department two copies of the dissertation, suitably presented for assessment, no later than on August 31st of the year in which the final Honours examination is to be taken.

**2. PHILOSOPHICAL INQUIRY SEMINAR**

Candidates shall attend regularly, and present at least two prepared papers to

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the weekly PHILOSOPHICAL INQUIRY SEMINAR.

### 3. ELECTIVES

Candidates shall regularly attend and participate in *at least four* of the following weekly two-hour seminars, and must be assessed in *each of four* as part of their overall Honours assessment. (Not every seminar will be offered in every year).

#### PHILOSOPHY OF VALUE

An examination of contemporary discussions of selected problems in ethics, aesthetics, and moral psychology, against the background of a detailed examination of two of Aristotle's major contributions.

##### PRELIMINARY READING

Aldrich, V.T. *Philosophy of Art*. Prentice-Hall, Englewood Cliffs.  
Frankena, W. *Ethics*. Prentice-Hall, Englewood Cliffs.

##### TEXTBOOKS

Aristotle. *Nicomachean Ethics*. Trans. and intro. by Ross, W. D. Oxford, U.P. (or any other edition.)  
Aristotle. *Poetics*. Trans. and intro. by Warrington, J., Dent (or any other edition).  
Osborne, H. ed. *Aesthetics*. Oxford U.P.  
Wertheimer, R. *Significance of Sense: Meaning, Modality, and Morality*. Methuen.

#### SOCIAL, LEGAL AND POLITICAL PHILOSOPHY

An examination in the light of three classical texts, of a selection of current controversies relating to such issues as the proper form and extent of government, political ideals (e.g. equality, justice), and the function, nature and legitimacy of law.

##### PRELIMINARY READING

Lloyd, D. *The Idea of Law*. Penguin.  
Mabbott, J.D. *The State and the Citizen*. Hutchinson.

##### TEXTBOOKS

Aristotle. *Politics*. Trans. by Warrington, J., Dent (or any other edition).  
Dworkin, R. *Political Jurisprudence*. Duckworth.  
Nozick, R. *Anarchy, State and Utopia*. Blackwell.  
Plato. *Laws*. Trans. by Jowett, B. Sphere Books (or any other edition).  
Singer, P. *Animal Liberation*. Cape.

#### MENTAL PHILOSOPHY

A study of a selection of philosophical problems relating to the nature of the human person, the characteristics of mind and perception, and issues to do with action and agency.

##### PRELIMINARY READING

Shaffer, J. *Philosophy of Mind*. Prentice-Hall.

##### TEXTBOOKS

Feinberg, J. ed. *Doing and Deserving: Essays in Theory of Responsibility*. Princeton University Press.  
Harman, G. *Thought*. Princeton University Press.  
Vendler, Z. *Res Cogitans, an Essay in Rational Psychology*. Cornell U.P.

## EPISTEMOLOGY AND METHODOLOGY

An examination of a selection of problems to do with the justification of belief, the conditions for knowledge, and erecting, testing, confirming and falsifying hypotheses. Satisfactory participation in the General Studies interdisciplinary subject Epistemology and Comparative Methodology, may be taken in partial satisfaction of the requirements for this elective, subject in each case to the prior approval of the Departmental Chairman on the advice of the Departmental Assessment Committee.

## PRELIMINARY READING

Chisholm, R. *Theory of Knowledge*. Prentice-Hall.  
Hempel, C. *Philosophy of Natural Science*. Prentice-Hall.  
Salmon, W. *Logic*. Prentice-Hall.

## TEXTBOOKS

Ayer, A.J. *Probability and Evidence*. Macmillan.  
Swinburne, R. *Introduction to Confirmation Theory*. Methuen.  
Unger, P. *Ignorance*. Oxford U.P.  
Wittgenstein, L. *On Certainty*. Blackwell.

## FREE WILL, RESPONSIBILITY AND LIBERTY

An investigation of the nature of free will and socio-political liberty and the relation between them; and a detailed examination of one of the fundamental presuppositions of a system of morality, that persons are responsible for their actions.

## ADVANCED FORMAL LOGIC

A selection of advanced topics in formal logic, including a study of the development of modal logic; an introduction to some systems of modal logic, uses of these systems and proofs of some metatheoretic results. A detailed discussion of semantics for modal logic and the philosophical interpretation of such semantics; and of philosophical problems arising from a study of predicate modal logic.

**NOTE:** This elective is not available to candidates who have passed PHIL351 or PHIL352 or PHIL362 or PHIL371 or PHIL381.

## PRELIMINARY READING

Jeffrey, R. *Formal Logic: Its Scope and Limits*. McGraw-Hill, New York, 1967.

## TEXTBOOKS

Hughes, G. E. & Cresswell, M.J. *An Introduction to Modal Logic*. Methuen, London, 1968.  
Mendelson, E. *Introduction to Mathematical Logic*. Van Nostrand, Princeton, 1964.

## CONTEMPORARY PHILOSOPHY OF LANGUAGE

An enquiry into recent work in the philosophy of language, with emphasis on theories of truth and meaning.

**NOTE:** Candidates taking this elective should have attained at least a pass in PHIL321 or PHIL323.

## PRELIMINARY READING

Hacking, I. *Why Does Language Matter to Philosophy?* Cambridge University Press, Cambridge, 1975.

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### TEXTBOOKS

There are no set texts; selected articles will be prescribed by the Lecturer.

### PHILOSOPHICAL LOGIC

An investigation of a selection of theories dealing with the concepts of existence, reference and prediction.

**NOTE:** Candidates taking this elective should have attained at least a pass in PHIL321 or PHIL323.

### TEXTBOOKS

Quine, W.V.O. *Word and Object*. M.I.T., Cambridge, 1960.  
Strawson, P.F. *Individuals*. Methuen, London, 1959.  
Strawson, P.F. *Subject and Predicate*. Methuen, London, 1974.  
Plus selected articles to be prescribed by the Lecturer.

### KANT

A detailed study of selected areas in Kant's Critical Philosophy.

**NOTE:** This elective is not available to candidates who have passed PHIL311 or PHIL303.

### TEXTBOOKS

Kant, I. *Critique of Pure Reason*. trans. by N. Kemp-Smith, Macmillan, London, 1929.  
Wilkerson, T.E. *Kant's Critique of Pure Reason*. Clarendon Press, Oxford, 1976.

### WITTGENSTEIN

A critical examination of Wittgenstein's contribution to philosophy, with special reference to his views on method, epistemology, philosophy of mind, judgement, logic, and mathematics.

### TEXTBOOKS

Wittgenstein, L. *Blue and Brown Books*. Blackwell, Oxford, 1969.  
Wittgenstein, L. *Lectures and Conversations on Aesthetics, Psychology, and Religious Belief*. (ed. Barrett, C.) Blackwell, Oxford, 1966.  
Wittgenstein, L. *Letters to C.K.Ogden*. Routledge and Kegan Paul, London, 1973.  
Wittgenstein, L. *Notebooks, 1914 - 16*. Blackwell, Oxford, 1961.  
Wittgenstein, L. *On Certainty*. Blackwell, Oxford, 1974.  
Wittgenstein, L. *Philosophical Grammar*. Blackwell, Oxford, 1974.  
Wittgenstein, L. *Philosophical Investigations*. Blackwell, Oxford, 1953.  
Wittgenstein, L. *Prototractatus*. Routledge and Kegan Paul, London, 1971.  
Wittgenstein, L. *Remarks on the Foundations of Mathematics*. Blackwell, Oxford, 1960.  
Wittgenstein, L. *Zettel*. Blackwell, Oxford, 1967.

## PHIL413 COMBINED PHILOSOPHY HONOURS

*Double session; 24 credit points (three 2 hour seminars per week and the equivalent of one hour of personal supervision per fortnight).*

**Assessment:** Dissertation - 25%; two Philosophy electives - 75%. At least one of the examiners of the dissertation shall be external to the University. The dissertation may also be credited in part towards the requirements of the other Department through which the combined honours degree is being undertaken. The method of assessment in each of the Philosophy electives shall be by essay(s) and/or written examination(s) as determined by the students to be assessed in the elective in conjunction with the academic staff responsible for the elective,

such determination to be made during the first four weeks of session, subject to endorsement by the Philosophy Departmental Committee. All candidates may be required, in addition to attend for a *viva voce* examination.

### REQUIREMENTS

All candidates are expected to show in their work a high level of analytical, critical, and scholarly development, and evidence of significant independence of thought. Candidates should endeavour to bring out in their work the relevant relationships between their study of Philosophy and of the discipline with which it is combined, as appropriate.

#### 1. DISSERTATION

Candidates shall present a dissertation, recommended to be no longer than 8,000 to 10,000 words embodying a sustained and semi-independent study of the work of, or relevance of, a major philosopher, period of philosophical thought, or philosophical problem, with special reference to a position, development, problem, or method arising from the discipline with which the study of Philosophy is combined. The dissertation may also be submitted as partial fulfilment of the requirements set by the other Department within which Honours studies are being undertaken. In all cases approval of the topic shall be obtained from the Chairmen of both departments.

#### 2. PHILOSOPHICAL INQUIRY SEMINAR

Candidates shall attend regularly and present at least one prepared paper to the weekly PHILOSOPHICAL INQUIRY SEMINAR.

#### 3. ELECTIVES

Candidates shall take two of the electives set out in the prescription for PHIL403 PHILOSOPHY HONOURS 403, subject to the approval of the Chairman of the two departments in which Honours studies are being undertaken.



*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section (with the exception of PHYS120 and PHYS121) are included in Schedule A and also, (with the exception of PHYS251), in Schedule E. Subjects which also appear in other schedules are:

<i>Subject</i>	<i>Schedules</i>
PHYS120	C
PHYS121	C
PHYS141	C & D
PHYS142	C & D
PHYS205	C
PHYS220	C

**100-LEVEL****PHYS141 FUNDAMENTALS OF PHYSICS A**

*First or Double session; 6 credit points (42 hrs lectures, 14 hrs tutorials and 28 hrs laboratory)*

*Assessment:* Will be carried out according to performance in homework assignments, practical work, tests and sessional examinations

Vectors; vector algebra; motion in one dimension; motion in a plane; particle dynamics; work and energy; conservation of energy; conservation of momentum; collisions; rotational kinematics; rotational dynamics; conservation of angular momentum; equilibrium of rigid bodies; gravitation; elasticity; temperature; heat and the first law of thermodynamics; kinetic theory of gases; entropy and the second law of thermodynamics; fluid statics; fluid dynamics.

**TEXTBOOK**

Resnick, R. & Halliday, D. *Physics*. 3rd ed. Vol. 1. Wiley (Paperback).

**PHYS142 FUNDAMENTALS OF PHYSICS B**

*Second or Double session; 6 credit points (42 hrs lectures, 14 hrs tutorials and 28 hrs laboratory)*

*Assessment:* The same as for PHYS141

Charge and matter; electric field; Gauss' Law; electric potential; capacitance; current and resistance; Emf and circuits; magnetic fields; Ampere's Law; Faraday's Law; inductance; simple harmonic motion; waves; reflection and refraction; interference; diffraction; polarization; optical instruments; quantum physics; waves and particles; atomic physics; the Bohr atom; special relativity; nuclear physics.

**TEXTBOOK**

Halliday, D. & Resnick, R. *Physics*. 3rd ed. Vol. 2. Wiley (Paperback)

**NOTE:** For students taking both PHYS141 and PHYS142:

Resnick, R. & Halliday, D. *Physics*. Combined Edition. Wiley.

**PHYS120 FUNDAMENTALS OF ELECTRICITY AND MAGNETISM**

*First or second session; (21 hrs lectures, 7 hrs tutorials and 14 hrs laboratory)*

*Assessment:* Will be carried out according to performance in homework assign-

ments, practical work, tests and sessional examinations

Charge and matter; electric field; Gauss' Law; electric potential; capacitance; current and resistance; Emf and circuits; magnetic fields; Ampere's Law; Faraday's Law; inductance.

#### TEXTBOOK

Halliday, D. & Resnick, R. *Physics, Part 2*. 3rd ed. Wiley (Paperback)

### PHYS121 THE PHYSICS OF WAVES AND PARTICLES

*Second session; (21 hrs lectures, 7 hrs tutorials and 14 hrs laboratory)*

*Assessment:* Will be carried out according to performance in homework assignments, practical work, tests and sessional examinations

Simple harmonic motion; waves; reflection and refraction; interference; diffraction; polarization; optical instruments; quantum physics; waves and particles; atomic physics; the Bohr atom; special relativity; nuclear physics.

#### TEXTBOOK

Halliday, D. & Resnick, R. *Physics, Part 2*. 3rd ed. Wiley (Paperback).

### PHYS151 THE ART OF PHYSICS

*Second session; 6 credit points (28 hrs lectures, 14 hrs tutorials and 14 hrs laboratory/demonstrations)*

*Assessment:* Continuous assessment through quizzes, laboratory participation and home project reports

This subject consists of five independent parts. The content of each topic is indicated below.

#### SOLAR SYSTEM ASTRONOMY

Planetary motion; moon phases; the Zodiac; the seasons; sun; moon; planets; comets; meteorites.

#### ORDER AND CHAOS IN MOTION AND MEASUREMENT

Force; pressure; Bernoulli Principle; energy and energy dissipation; thermodynamics and kinetic theory; time measurement and the direction of time; music and noise; extracting information from noise.

#### PHYSICS OF COMMUNICATION

Electric charges and currents; electric and magnetic fields with applications to modern devices; electromagnetic waves with consideration of radio and TV transmission.

#### MODERN PHYSICS

Relativity; atomic structure and spectra; nuclear forces and energy with modern applications.

#### ASTROPHYSICS

Stars; galaxies; unusual extra-terrestrial objects.

#### TEXTBOOK

Highsmith, P.E. *Physics, Energy and our world*. Saunders, 1975 or later edition.

## 200-LEVEL

## PHYS201 INTERMEDIATE PHYSICS A

*Double session; 12 credit points (98 hrs lectures, 14 hrs tutorials and 56 hrs practical)*

*Assessment:* Each section (see below) will be assessed separately and a final evaluation determined using a weighting factor based on contact hours. The individual assessments will be made using an appropriate combination of performance in homework assignments, tests, laboratory and sessional examinations

The subject consists of electricity and magnetism, modern physics, mechanics and practical classes. The topics, and their disposition, are as follows:

**ELECTRICITY AND MAGNETISM** (*First session topic; 28 hrs lectures and 7 hrs tutorials*)

Vector algebra and calculus; electrostatics; electric field and potential; electric dipole; charge cluster; integral and differential forms of Gauss' Law; Poisson's and Laplace's Equations; method of electrostatic images; dielectric theory; polarization fields; electrical susceptibility and dielectric constant; boundary conditions; cavities; Clausius-Mossotti Equation; electro-static energy; forces on charge distributions; magnetostatics; Ampere's Law;  $\vec{B}$ ; Lorentz force; magnetic vector potential; integral and differential form of Ampere's Law; magnetic dipole; magnetic properties of matter; magnetization;  $\vec{H}$ ; dia- and paramagnetism; boundary conditions; electromagnetic induction; differential form of Faraday's Law; self and mutual induction; electric current; equation of continuity; Maxwell's Equations; direct current circuits; transients; alternating current circuits.

**TEXTBOOK**

Lorrain, P. & Corson, D.R. *Electromagnetism: Principles and Applications*. W. H. Freeman and Co., 1978.

**MODERN PHYSICS** (*Double session topic; 42 hrs lectures*)

Special theory of relativity; the experimental basis of relativity; alternate theories; Lorentz transformations; consequences for the measurement of length, time, energy and mass; quantum effects; constituents and structure of the atom; wave particle duality; black body radiation; photo-electric effect; pair production; bremsstrahlung; Compton effect; production, scattering and absorption of X-rays; de Broglie hypothesis; diffraction of particles; quantum mechanics; wave packets; uncertainty principle; Schrödinger Equation; correspondence principle; particle in a box; qualitative description of the wave functions of the hydrogen atom; discovery and properties of  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $n$ ,  $p$ ,  $\nu$ ; decay laws; binding energies of nucleons; nuclear reactions; fission and fusion; cosmic rays; origin of the elements; statistical distribution functions; particle in a period potential; energy bands; impurity states; physics of the p-n junction and transistor.

**TEXTBOOK**

Weidner, R. T. & Sells, R. L. *Elementary Modern Physics*. Allyn and Bacon, 1973.

**MECHANICS** (*Second session topic; 28 hrs lectures and 7 hrs tutorials*)

Vector calculus; kinematics of a particle; dynamics of a particle; moving reference systems; central forces; dynamics of a system of particles; mechanics of rigid bodies; Lagrange's Equations.

**TEXTBOOK**

Fowles, G.R. *Analytical Mechanics*. 3rd ed. Holt, Rinehart and Winston, 1976.

**EXPERIMENTAL** (*First session topic; 56 hrs laboratory*)

14 Experiments selected from:

Errors; direct reading potentiometer; E.M.F. of thermo-couples by potentiometric method; sensitivity of the galvanometer; use of the ballistic galvanometer; measurement of the magnetisation of iron; absolute measurement of mutual inductance; A.C. circuits; series resonance; parallel resonance; photoelectric cell; determination of  $e/m$  for electrons; atomic spectra; Na and H; Stefan-Boltzman Law; constant of universal gravitation; X-rays; nuclear physics; velocity of light from Michelson interferometer; Frank Hertz experiment.

**PHYS205 MODERN PHYSICS**

*Double session; 6 credit points (42 hrs lectures and 42 hrs practical)*

*Assessment:* Same as for PHYS201

Consists of the modern physics section of PHYS201 and 10 experiments selected from the experimental section of PHYS201.

**PHYS211 INTERMEDIATE PHYSICS B**

*Double session; 12 credit points (112 hrs lectures and 56 hrs practical)*

*Assessment:* Same as for PHYS201

The subject consists of thermodynamics; kinetic theory; vibrations; waves and optics; electronics and practical classes. These topics and their disposition are as follows:

**THERMODYNAMICS AND KINETIC THEORY** (*Double session topic; 28 hrs lectures*)

Thermodynamic systems; equations of state; work; the first law of thermodynamics and its consequences; the second law of thermodynamics; entropy; combined first and second laws; thermodynamics potentials; applications of thermodynamics including black bodies, voltaic cells and thermo-electric effects; kinetic theory of the ideal gas; the distribution of molecular velocities.

**TEXTBOOK**

Sears, F.W. & Salinger, G.L. *Thermodynamics, Kinetic Theory and Statistical Thermodynamics*. 3rd ed. Addison-Wesley, 1975.

**VIBRATIONS, WAVES AND OPTICS** (*Double session topic; 42 hrs lectures*)

Simple harmonic motion; two body oscillations; damped harmonic oscillator; power dissipation; quality factor; driven harmonic oscillator; superposition principle; superposition of vibrations; Fourier analysis; waves; Huygen's principle; laws of reflection and refraction; analytical treatment of wave motion; sinusoidal waves; group velocity; dispersion; Young's experiment; interference; coherence; Stokes' treatment of reflection and refraction; interference involving multiple reflections; applications; standing waves; Fabry-Perot interferometer; Michelson interferometer; Fourier spectroscopy; Fresnel diffraction; Fraunhofer diffraction; resolving power of optical instruments; chromatic resolving power; diffraction grating; holography; polarization of waves; double defraction; interference of polarized light.

**TEXTBOOKS**

French, A.P. *Vibrations and Waves*. Nelson, 1971 (Paperback).

Jenkins, F.A. & White, H.E. *Fundamentals of Optics*. 4th ed. McGraw-Hill, 1975.



## 468 DESCRIPTION OF SUBJECTS - PHYSICS

### **ELECTRONICS** (*Double session topic; 42 hrs lectures*)

This topic is offered by the Department of Electrical Engineering as ELEC211 Electronics 1.

### **EXPERIMENTAL** (*Second session topic; 56 hrs laboratory*)

14 experiments selected from:

Velocity of sound in air by stationary waves; Newton's rings; Fresnel Bi-Prism; diffraction grating; resolving power of telescope; Michelson and Fabry-Perot interferometer; dispersive power of glass; thermal conductivity of a bad conductor and of glass tubing; polarised light; microwave optics; variation of boiling point with pressure; determination of  $C_p/C_v$  for air; heat engine; electronics.

## **PHYS215 VIBRATIONS, WAVES AND OPTICS**

*Double session; 6 credit points (42 hrs lectures and 42 hrs practical)*

*Assessment:* Same as for PHYS205

Consists of the vibrations, waves and optics section of PHYS211 and 10 experiments selected from the experimental sections of PHYS201 and PHYS211.

## **PHYS220 INTERMEDIATE PHYSICS FOR ENGINEERS**

*Double session; 12 credit points (112 hrs lectures and 56 hrs practical)*

*Assessment:* Same as for PHYS201

This subject consists of materials selected from PHYS201 and PHYS211 as follows:

Electricity and magnetism and modern physics from PHYS201;

Vibrations, waves and optics from PHYS211;

14 experiments selected from the experimental sections of PHYS201 and PHYS211.

## **PHYS225 INTERMEDIATE ELECTRICITY AND MAGNETISM**

*Double session; 6 credit points (28 hrs lectures; 7 hrs tutorial and 49 hrs practical)*

*Assessment:* Same as for PHYS205

Consists of the electromagnetism section of PHYS201 and 12 experiments selected from the experimental section of PHYS201.

## **PHYS235 MECHANICS AND THERMODYNAMICS**

*Double session; 6 credit points (56 hrs lectures; 7 hrs tutorials and 21 hrs practical)*

*Assessment:* Same as for PHYS205

Consists of the mechanics section of PHYS201 and thermodynamics and kinetic theory section of PHYS211. Also contains 5 experiments selected from the experimental sections of PHYS201 and PHYS211.

## **PHYS244 MODERN PHYSICS, VIBRATIONS, WAVES AND OPTICS**

*Double session; 8 credit points (84 hrs lectures and 28 hrs practical)*

*Assessment:* Same as for PHYS205

Consists of the modern physics section of PHYS201 and vibrations, waves and optics section of PHYS211. Also contains 7 experiments selected from the experimental sections of PHYS201 and PHYS211.



**PHYS248 ASTRONOMY**

*Double session; 6 credit points (42 hrs lectures; 14 hrs tutorials and 28 hrs practical)*  
*Assessment:* Performance in the course is assessed from laboratory work and sessional examinations

Deep-sea navigation; the celestial sphere; position lines; the computation of the deep-sea position; celestial mechanics; Newton's Laws; derivation of Kepler's Laws; position and motion in an orbit; the solar system; the sun; stellar positions, distances and masses; photometry and spectroscopy; stellar spectral classification; nuclear reactions in stars; formation of elements; Hertzsprung-Russell diagram; equations of stellar structure; stellar evolution; galactic and extra-galactic astronomy; structure of our galaxy; classification and evolution of galaxies; exploding galaxies; quasars and black holes; cosmology; outstanding problems.

**TEXTBOOK**

Smith, E.P. & Jacobs, K.C. *Introductory Astronomy and Astrophysics*. Saunders, 1973.

**PHYS251 CONCEPTS OF THE MODERN UNIVERSE**

*First session; 6 credit points (28 hrs lectures; 14 hrs tutorials; 14 hrs laboratory and one 3-hour field trip to the University Observatory)*  
*Assessment:* Will be based upon performance in tests, written assignments and one 2-hour examination

**NOTE:** No special ability in Mathematics or Physics is required for this subject.

Astronomy is the most ancient of all sciences. Present-day astronomers are on the verge of great discoveries and the relationship between man and the universe is gradually being revealed. This course will illustrate the techniques used by astronomers and will attempt to give an understanding of the universe as we presently understand it. A field trip to the University's Observatory will give the opportunity to observe the phenomena discussed.

The birth of astronomy; the development of astronomy as a science; the planets - a description; the formation of the solar system; the space programme - moon; to the planets; the search for life; future of the space programme; the sun as a star; the violent sun; aurorae; eclipses; starlight; the message of starlight; the visible stars; the variation in stars; the birth and death of stars; telescopes, big and small; the milky way; the universe of galaxies; the universe in perspective.

**TEXTBOOK**

Jastrow, R. *Astronomy: Fundamentals and Frontiers*. Wiley, 1977.

**300-LEVEL****PHYS301 CLASSICAL MECHANICS AND ELECTROMAGNETISM**

*First session; 6 credit points (56 hrs lectures and 28 hrs tutorials)*  
*Assessment:* Each section (see below) will be assessed separately and given equal weight. The assessments will depend upon performance in homework assignments, tests and sessional examinations

The subject consists of Classical Mechanics and Electromagnetism with the following syllabus:

**CLASSICAL MECHANICS (28 hrs lectures and 14 hrs tutorials)**

Vectors and matrices; the special theory of relativity; motion in a non-inertial frame; dynamics of rigid bodies; Euler's Angles; Euler's Equations and applications;

## 470 DESCRIPTION OF SUBJECTS - PHYSICS

small oscillations; normal modes; perturbation theory; wave equation; dispersion.

### TEXTBOOK

Marion, J.B. *Classical Dynamics of Particles and Systems*. Academic International ed. (Paperback).

### ELECTROMAGNETISM (28 hrs lectures and 14 hrs tutorials)

Review; Maxwell's Equations; boundary conditions; reflection and refraction; transmission lines; wave guides and cavity resonators; electrodynamics; radiation; advanced and retarded potentials; Lienard-Wiechert potentials; accelerated charges; dipole and half-wave antennae.

### TEXTBOOK

To be advised.

## PHYS302 CLASSICAL MECHANICS, ELECTROMAGNETISM AND PLASMA PHYSICS

*First session; 8 credit points (70 hrs lectures and 42 hrs tutorials)*

*Assessment:* Each section (see below) will be assessed separately and given weight proportionate to contact hours of lectures

The subject consists of the Classical Mechanics and Electromagnetism sections of PHYS301

### AND

### PLASMA PHYSICS (14 hrs lectures and 14 hrs tutorials)

Maxwell-Boltzmann distributions; Saha's Equation; Debye distance; plasma oscillations; Langmuir probe; charged particle trajectories in electromagnetic fields; guiding centre drift for several cases; adiabatic invariants; complete set of fluid equations; fluid drifts perpendicular and parallel to  $B$ ; waves in plasmas.

### TEXTBOOK

Chen, F. F. *Introduction to Plasma Physics*. Plenum, 1974.

## PHYS306 PROJECT IN PHYSICS A

*Double session or first session or second session; 6 credit points (84 hrs laboratory)*

*Assessment:* This will be based on the satisfactory progress of the project and the adequacy of the written description of the project

The student will be required to design and construct an experiment or experiments at the level of those encountered in the 200- and 300-level laboratories. The number and type shall be determined by two members of the academic staff of the Department of Physics.

### TEXTBOOK

None.

## PHYS307 ADVANCED EXPERIMENTAL PHYSICS A

*First session; 6 credit points (84 hrs laboratory)*

*Assessment:* Based on classroom performance and laboratory assignments

Transistor amplifiers; microwave diffraction; transmission lines; carrier lifetime measurements in semiconductors; atomic spectra; microwave waveguide measure-

ments; Frank-Hertz tube; positron annihilation;  $\nabla^2 V = 0$  analogues; interferometers; Zeeman effect; logic and computer circuits.

### PHYS308 ADVANCED EXPERIMENTAL PHYSICS B

*Second session; 6 credit points (84 hrs laboratory)*

*Assessment:* Based on classroom performance and laboratory assignments

Fourier Transform spectroscopy; magnetic resonance; interferometry measurements; cloud physics; resonant absorption and phase-sensitive detection; Raman spectra; magnetostriction; super-conductivity; stellar interferometer; noise factor of a radio receiver; nuclear experiments.

### PHYS309 ADVANCED EXPERIMENTAL PHYSICS

*Double session; 12 credit points (168 hrs laboratory)*

*Assessment:* Based on classroom performance and laboratory assignments

Selections are to be made from the combined topics of PHYS307 and PHYS308.

### PHYS311 QUANTUM AND STATISTICAL MECHANICS

*Double session; 8 credit points (112 hrs lectures)*

*Assessment:* Same as for PHYS301

This subject consists of two topics with the following content:

#### QUANTUM MECHANICS (56 hrs lectures)

Operators in co-ordinate and momentum space with applications; spherically symmetrical potentials; spherical harmonics; angular momentum operators; uncertainty relations for angular momentum operators; Stern-Gerlach experiments and their impact on the meaning of measurement; topics of significance to spectroscopy - 3-D symmetric harmonic oscillator; rigid rotator, molecular spectra, hydrogen atom, normal Zeeman effect, spin, spin-orbit interaction, vector model for addition of angular momentum, anomalous Zeeman effect. L-S coupling, j-j coupling, excited states of helium, selection rules, hyperfine structure; periodic table; time independent perturbation theory; Stark effect; matrix treatment of the harmonic oscillator.

#### TEXTBOOK

To be advised.

#### STATISTICAL MECHANICS (56 hrs lectures)

Review of thermodynamics; concepts of quantum statistical mechanics; sharply peaked distributions; ensembles; systems in thermal contact - entropy and temperature; systems in diffusive contact - the chemical potential; Gibbs and Boltzmann factors - partition functions; fluctuations; pressure and thermodynamic identity; Boltzmann definition of entropy; identical particles - fermion and boson distribution functions; applications to electronics in metals; blackbody radiation and Debye theory of vibrations in solids; Bose-Einstein condensation and properties of liquid helium; classical limit of the quantum distribution functions; monatomic ideal gas; Maxwell-Boltzmann velocity distribution; kinetic theory; transport processes.

#### TEXTBOOK

Kittel, C. *Thermal Physics*. Wiley, 1969.

### **PHYS312 ADVANCED EXPERIMENTAL PHYSICS WITH ELECTRONICS**

*Double session; 16 credit points (42 hrs lectures and 168 hrs laboratory)*

*Assessment:* Grade determined in the ratio 3:1 : Experimental Physics: Electronics. Assessment according to that for PHYS309 and ELEC311

Same as PHYS309 Advanced Experimental Physics, but includes ELEC311 Electronics II offered by the Department of Electrical Engineering in Session 1.

### **PHYS315 QUANTUM AND STATISTICAL MECHANICS WITH ELECTRONICS**

*Double session; 12 credit points (154 hrs lectures)*

*Assessment:* Grade determined in the ratio 2:1 : Quantum and Statistical Mechanics: Electronics. Assessment according to that for PHYS311 and ELEC311

Same as PHYS311 Quantum and Statistical Mechanics but includes ELEC311 Electronics II offered by the Department of Electrical Engineering in Session 1.

### **PHYS316 QUANTUM MECHANICS AND SOLID STATE PHYSICS**

*Double session; 6 credit points (84 hrs lectures)*

*Assessment:* Each section will be assessed separately and given weight proportionate to contact hours of lectures

This subject consists of the quantum mechanics section of PHYS311 and the solid state physics section of PHYS321.

### **PHYS317 QUANTUM MECHANICS AND NUCLEAR PHYSICS**

*Double session; 6 credit points (84 hrs lectures)*

*Assessment:* Each section will be assessed separately and given weight proportionate to contact hours of lectures

This subject consists of the quantum mechanics section of PHYS311 and the nuclear physics section of PHYS321.

### **PHYS318 QUANTUM MECHANICS AND HIGH ENERGY PHYSICS**

*Double session; 6 credit points (84 hrs lectures)*

*Assessment:* Each section will be assessed separately and given weight proportionate to contact hours of lectures

This subject consists of the quantum mechanics section of PHYS311 and the high energy physics section of PHYS322.

### **PHYS319 QUANTUM MECHANICS AND ASTROPHYSICS**

*Double session; 6 credit points (84 hrs lectures)*

*Assessment:* Each section will be assessed separately and given weight proportionate to contact hours of lectures

This subject consists of the quantum mechanics section of PHYS311 and the astrophysics section of PHYS321.



## PHYS321 ASTRO-, NUCLEAR AND SOLID STATE PHYSICS

*Second session; 6 credit points (84 hrs lectures)*

*Assessment: Same as for PHYS301*

The contents of this subject are as follows:

### ASTROPHYSICS (28 hrs lectures)

The course emphasis how various fields of physics are used and combined to interpret astronomical events.

#### TEXTBOOK

To be advised.

### NUCLEAR PHYSICS (28 hrs lectures)

Rutherford scattering; energy loss processes for heavy charged particles, electrons and photons; basic properties of nuclei - radius and charge distribution; angular momentum; magnetic moment; parity; quadrupole moment; binding energies; excited states; nuclear models - Fermi gas, shell, liquid rotator, liquid drop; semi-empirical mass formula - phenomenology, beta stability criteria; decay laws; partial half-lives; alpha decay theory; beta decay theory - neutrino hypothesis; weak interaction; Fermi's golden rule; Kurie plots; classification of transitions and selection rules; electron capture; inverse beta decay; conservation of parity; universal Fermi interaction; gamma decay - vector model for addition of angular momentum; electric and magnetic multipole radiation; internal conversion; nuclear forces - characteristics, Yukawa theory.

#### TEXTBOOK

Meyerhof, Walter, E. *Elements of Nuclear Physics*. McGraw, 1967.

### INTRODUCTORY SOLID STATE PHYSICS (28 hrs lectures)

Symmetry operations; the lattice; crystal systems; Bravais lattices; crystal structure; Miller indices; the reciprocal lattice; the Laue equations; bonding; molecular spectra; lattice vibrations; monatomic linear chain; Einstein's theory of specific heat; the free electron theory of metals; electrical conductivity and Ohm's law; Hall effect; electronic specific heat; Fermi-Dirac statistics; the band theory of solids; nearly free electron approximation; extended and reduced zones; metals, insulators and semi-conductors; tight binding approximation; effective mass; Bloch's theorem; the positive hole; semi-conductors; intrinsic conductivity; electron and hole concentrations; superconductivity.

#### TEXTBOOK

Special notes.

## PHYS322 ASTRO-, HIGH ENERGY, NUCLEAR AND SOLID STATE PHYSICS

*Second session; 8 credit points (98 hrs lectures and 14 hrs tutorials)*

*Assessment: Same as for PHYS302*

The contents of this subject are as follows:

Astrophysics, nuclear and solid state physics sections of PHYS321.

AND



## 474 DESCRIPTION OF SUBJECTS - PHYSICS

### HIGH ENERGY PHYSICS (14 hrs lectures and 14 hrs tutorials)

Particle accelerators and detectors; principles of focussing; characteristics of particles and resonances; conservation laws; strangeness; particle multiplets; the eightfold way; quarks; colour and charm; cosmic rays.

#### TEXTBOOK

Whiteside, H. *The Project Physics Course Supplementary Unit A - Elementary Particles*. Holt, 1971.

In addition to the prescribed text, an extensive reading list will be supplied.

### PHYS324 ROLE OF ENERGY IN MICROSCOPIC PHYSICS AND CHEMISTRY \*

*Double session; 12 credit points (112 hrs lectures and 28 hrs laboratory)*  
*Assessment:* Practical and tutorial assignments, plus written examinations

This subject consists of CHEM324 and the statistical mechanics section of PHYS311.

### PHYS326 STATISTICAL MECHANICS AND SOLID STATE PHYSICS

*Double session; 6 credit points (84 hrs lectures)*  
*Assessment:* Each section will be assessed separately and given weight proportionate to contact hours of lectures

This subject consists of the statistical mechanics section of PHYS311 and the solid state physics section of PHYS321.

### PHYS327 STATISTICAL MECHANICS AND NUCLEAR PHYSICS

*Double session; 6 credit points (84 hrs lectures)*  
*Assessment:* Same as for PHYS326

This subject consists of the statistical mechanics sections of PHYS311 and the nuclear physics section of PHYS321.

### PHYS328 STATISTICAL MECHANICS AND HIGH ENERGY PHYSICS

*Double session; 6 credit points (84 hrs lectures)*  
*Assessment:* Same as for PHYS326

This subject consists of the statistical mechanics section of PHYS311 and the high energy physics section of PHYS322.

### PHYS329 STATISTICAL MECHANICS AND ASTROPHYSICS

*Double session; 6 credit points (84 hrs lectures)*  
*Assessment:* Same as for PHYS326

This subject consists of the statistical mechanics section of PHYS311 and the astrophysics section of PHYS321.

\* This subject may not be offered every year.

**PHYS348 ASTRONOMY**

*Double session; 6 credit points (42 hrs lectures, 14 hrs tutorials and 28 hrs practical)*  
 (Approval for taking Astronomy at the 300-level is at the discretion of the Chairman of the Department of Physics.)

*Assessment:* Same as for PHYS248

**DESCRIPTION AND BOOKS:** See PHYS248

**400-LEVEL**

The honours degree in physics for a BSc is achieved by the successful completion of a full year of comprehensive study following qualification for a BSc pass degree. Assessment is based entirely on the honours year programme, a programme designed to provide a formal coverage of the core subjects of physics and also involve the student in one or more of the active areas of research in the department.

Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman (who will be advised by the Departmental Assessment Committee). Each student will be assessed individually for entry into each subject. This assessment will replace the pre- and co-requisite requirements. The minimum requirements for a student to enrol in the Honours programme is that he/she should have completed a substantial and coherent course at the 300-level in physics and that a significant number of examination results should be better than Pass Level in these 300-level subjects.

**PHYS401 THEORETICAL MECHANICS AND ELECTROMAGNETISM**

*First session; 8 credit points (56 hrs lectures)*

*Assessment:* Each topic (see below) is assessed separately and is of equal weight. The individual assessments are based on assigned problems, tests and sessional examinations.

The contents of the topics are as follows:

**THEORETICAL MECHANICS (28 hrs lectures)**

Lagrange Equations with applications including generalized potentials, dissipation, holonomic and integral constraints; gauge transformation of lagrangian; conservation theorems; Hamilton's principle; principle of least action; Hamilton's formulation of mechanics; canonical transformation; Hamilton-Jacobi theory; Poisson brackets; canonical invariants; Liouville's theorem.

**TEXTBOOK**

Goldstein, H. *Classical Mechanics*. 2nd ed. Addison-Wesley, 1979.

**ELECTROMAGNETISM (28 hrs lectures)**

Poisson's and Laplace's Equations; Green's theorem and functions; method of images; method of inversion; Green's function for sphere boundary value problems in common coordinate systems; eigenfunction expansions; multipoles; dielectrics; magnetostatics; time varying fields; plane electromagnetic waves in media with dielectric interfaces in conducting media including plasmas; wave guides and resonant cavities; radiating systems and diffraction.

**TEXTBOOK**

Jackson, J.D. *Classical Electrodynamics*. Wiley, 2nd ed

## PHYS410 HONOURS PROJECT

*Double session; 18 credit points (560 hrs)*

*Assessment:* Based on contribution to the project and written and oral presentations of report. (see below)

The student is required to participate actively in an existing research project under the supervision of staff member(s). It is expected that the student will contribute to the successful development, and/or productivity of the project. A report on the project is to be compiled by the student and presented to the staff. A preliminary presentation of the content of the report is to be delivered to the department at one of the formal departmental colloquia in the latter part of the academic year. The clarity and completeness of this presentation will form part of the assessment of the subject.

## PHYS441 ASTRO- AND NUCLEAR PHYSICS

*Double session; 8 credit points (56 hrs lectures)*

*Assessment:* Same as for PHYS401

The contents of the topics are as follows:

**ASTROPHYSICS (28 hrs lectures)**

Detailed study of one or more topics of modern astrophysics.

**TEXTBOOK**

To be advised.

**NUCLEAR PHYSICS (28 hrs lectures)**

Nuclear wave functions and potentials; the deuteron; exchange forces (Wigner, Bartlett, Majorana, Heisenberg); angular momentum coupling; analog states and the charge independence of nuclear forces; nuclear reactions - compound nucleus formation, resonances, optical model, direct reactions; theory of fission; fusion reactors - magnetic confinement, heating and instabilities of plasmas, implosion techniques; elementary particles.

**TEXTBOOK**

Freunfelder, H. & Henley, E.M. *Subatomic Physics*. Prentice-Hall Inc., 1974.

## PHYS443 QUANTUM MECHANICS AND STATISTICAL MECHANICS

*Double session; 12 credit points (84 hrs lectures)*

*Assessment:* Each topic is assessed separately and weighted in proportion to the number of contact hours (see below). The individual assessments are based on assigned problems, tests and sessional examinations

The contents of the topics are as follows:

**QUANTUM MECHANICS (Double session topic; 56 hrs lectures)**

Relationship between operators, basis sets and matrices; change of basis sets; commutator algebra, raising and lowering operators, exponentiated operators; commutation rules for angular momentum operators; orbital angular momentum; application of various spherically symmetric potentials; scattering theory, Born approximation, partial waves and phase shifts; time independent degenerate and non-degenerate perturbation theory; time dependent perturbation theory, Fermi's golden rule, photo-emission, multipole transitions, spontaneous emission,

Einstein transition probabilities; Schrödinger, Heisenberg and interaction pictures; variational methods, identical particles, Hartree and Hartree-Fock theory, Koopman's theorem; addition of angular momentum, Clebsch-Gordon coefficient, spin-orbit interaction.

#### TEXTBOOKS

Powell, J. & Craseman, B. *Quantum Mechanics*. Addison-Wesley.  
Bethe, H. *Intermediate Quantum Mechanics*. Benjamin.

#### STATISTICAL MECHANICS (*Second session topic; 28 hrs lectures*)

Boltzmann transport equation with applications to transport properties; Boltzmann's H theorem; Liouville's theorem and its application to classical statistical mechanics; conservation laws; the classical ensembles with applications; the generalised equipartition theorem; density fluctuations and phase transitions; imperfect gases; the density matrix; quantum ensembles; classical limit of the partition function; further applications of quantum distribution functions to systems of interest in modern physics.

#### TEXTBOOK

Huang, K. *Statistical Mechanics*. Wiley.

### PHYS444 QUANTUM MECHANICS

*Double session; 8 credit points (56 hrs lectures)*

*Assessment:* Based on assignments, tests and sessional examinations

The subject content and textbooks are the same as for the Quantum Mechanics section of PHYS443.

### PHYS446 SOLID STATE PHYSICS

*Double session; 8 credit points (56 hrs lectures)*

*Assessment:* Based on homework assignments, tests and sessional examination

Crystallography; diffraction of waves by crystals; crystal binding; elasticity; normal modes; lattice vibrations; lattice specific heat; free electron theory of solids; electronic specific heat; electrical conductivity; Hall effect. Cyclotron resonance; band theory of solids; Bloch's theorem; nearly free electron approximation; tight binding approximation; properties of Bloch functions; metals; effective mass; the hole; semiconductors, intrinsic and extrinsic; superconductivity.

#### TEXTBOOK

Kittel, C. *Introduction to Solid State Physics*. 5th ed. Wiley, 1976.

### PHYS455 NUCLEAR AND SOLID STATE PHYSICS

*Double session; 12 credit points (84 hrs lectures)*

*Assessment:* Same as for PHYS443

The contents of the two topics are:

Nuclear Physics section of PHYS441;  
Solid State Physics, PHYS446.

### PHYS465 ASTRO- AND SOLID STATE PHYSICS

*Double session; 12 credit points (84 hrs lectures)*

*Assessment:* Same as for PHYS443

## 478 DESCRIPTION OF SUBJECTS - PHYSICS

The contents of the two topics are:

Astrophysics section of PHYS441;  
Solid State Physics, PHYS446.



**PSYCHOLOGY***Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A. Subjects which also appear in other schedules are:

<i>Subject</i>	<i>Schedule</i>
PSYC141	E
PSYC142	E
PSYC234	E
PSYC246	E
PSYC336	E
PSYC338	E

**100-LEVEL****PSYC111 PSYCHOLOGY IA**

*First session; 6 credit points (5 contact hrs; 3 lectures, 2 laboratory/tutorials)*  
*Chairperson for the subject:* Dr. N. L. Adams.

*Assessment:* Within session assignments consisting of reports on laboratory work and statistics, one essay, and two end-of-session exams

The subject will introduce students to the science of studying people and human behaviour. The basic research methods and content areas of psychology will be introduced, with focus on the way the individual's biological and psychological systems function. In particular the subject will examine the way we sense and perceive the world, the way we develop as human beings and the ways we learn and think.

**TEXTBOOKS**

To be announced.

**PSYC112 PSYCHOLOGY IB**

*Second session; 6 credit points (5 contact hrs; 3 lectures, 2 laboratory/tutorials)*

*Chairperson for the subject:* Dr. N. L. Adams

*Assessment:* Within session assignments consisting of reports on laboratory work and statistics, one essay, and two end-of-session exams

This subject continues the overview of psychology commenced in PSYC111. Greater emphasis is placed on the individual's adaptive behaviours: the ways we cope with our own needs and with social demands, the maladaptive and deviant behaviours people might use, the growing popularity and use of "personal growth" programmes, and the ways in which psychologists may intervene in the life of the individual or of the community will be explored.

**TEXTBOOKS**

To be announced.

**PSYC141 PSYCHOLOGY IA (SCIENCE)**

*First session; 6 credit points (6 contact hrs; 3 lectures, 3 laboratory/tutorials)*

*Chairperson for the subject:* Dr. N. L. Adams

*Assessment:* Within session assignments consisting of reports on laboratory work and statistics, one essay and two end-of-session exams

*Other details:* As for PSYC111 Psychology IA.

## PSYC142 PSYCHOLOGY IB (SCIENCE)

*Second session; 6 credit points (6 contact hrs; 3 lectures, 3 laboratory/tutorials)*  
*Chairperson for the subject:* Dr. N. L. Adams  
*Assessment:* Within session assignments consisting of reports on laboratory work and statistics, one essay and two end-of-session exams  
*Other details:* As for PSYC112 Psychology IB.

200-LEVEL

## PSYC231 PERSONALITY

*First session; 6 credit points (4 contact hrs; 2 lectures, 2 seminar/lab)*  
*Chairperson for the subject:* Dr. B. Walker  
*Assessment:* Examination, essay, laboratory reports, seminar papers

This subject comprises two closely related strands. The lecture course introduces the major theories of personality. Detailed critical analysis and comparison will be made of the principal paradigms - the psychoanalytic, behaviourist, and existential - as well as theories that have evolved from them such as ego-psychology, social learning theory and self theory. Consideration will also be given to more empirically based theorists. The laboratory work will include class exercises and research projects based on work covered in the theoretical strand. This subject is strongly recommended for entry to PSYC 400-level (Honours).

### TEXTBOOK

To be announced.

## PSYC232 RESEARCH METHODS AND STATISTICS

*First session; 6 credit points (4 contact hrs; 2 lectures, 2 tutorials)*  
*Chairperson for the subject:* Dr. S. Ginsberg  
*Assessment:* Assignments, midterm exam, and final examination

A general introduction to research methodology and related statistical techniques and their application to selected problems in psychology. The research-methods lectures progress from general ideas about research, scientific method, and experimental inference to special problems of psychology as a science, formulation of a research problem, choice of a method or design, interpretation and explanation of data, significance and generality of the findings, and communication to the public.

The main aspects of statistical analysis covered are: probability theory; regression and prediction; normal and binomial distributions; statistical inference with two independent samples; statistical inference with correlated samples; one-way analysis of variance; power of a test and types of errors; nonparametric tests with categorical and ordinal scaled variables (binomial test, chi-squared, Mann-Whitney U-test, Wilcoxon test).

### TEXTBOOK

To be announced.

## PSYC246 RESEARCH METHODS AND STATISTICS IN PSYCHOLOGY (SCIENCE)

*First session; 6 credit points (4 contact hrs; 2 lectures, 2 tutorials)*  
*Chairperson for the subject:* Dr. S. Ginsberg  
*Assessment:* Assignments, midterm examination, final examination

A general introduction to research methodology and related statistical techniques and their application to selected problems in psychology. The research methods

lectures progress from general ideas about research, scientific method and experimental inference to special problems of psychology as a science, formulation of a research problem, choice of a method or design, interpretation and explanation of data, significance and generality of the findings, and communication to the public.

The main aspects of statistical analysis covered are: probability theory; regression and prediction; normal and binomial distributions; statistical inference with two independent samples, statistical inference with correlated samples; one-way analysis of variance; power of a test and types of errors; nonparametric tests with categorical and ordinal scaled variables (binomial test, chi-squared, Mann-Whitney U-tsts, Wilcoxon test).

#### TEXTBOOKS

To be announced.

### PSYC233 DEVELOPMENT

*First session; 6 credit points (4 contact hrs; 2 lectures, 2 seminar/pracs)*

*Chairperson for the subject:* To be notified

*Assessment:* Seminar papers, reports and examination

This subject considers development throughout the life span and includes appropriate theories and empirical work. Emphasis will be placed on both the social and societal contexts in which development occurs and on the extent to which the theories discussed are culturally bound.

Topics will include: Maternal deprivation; the relevance of the nuclear family to development; cognitive theories and research; personality development; influences of and changes in social interaction. Students may specialise in child development or in aging, and should purchase the texts appropriate to their choice. Students are cautioned that much of the material dealt with in this course relies on a knowledge of material presented in PSYC231.

#### TEXTBOOKS

Bromley, D.B. *The Psychology of Aging*. Penguin, Harmondsworth, Middx.

Clarke, A. M. & Clarke, A.D.B. *Early Experience: Myth and Evidence*. Open books, London, 1976.

Flavell, J.M. *Cognitive Development*. Prentice-Hall, N.J., 1977.

### PSYC234 PSYCHOLOGY OF LEARNING

*Second session; 6 credit points (4 contact hrs; 2 lectures, 2 lab)*

*Chairperson for the subject:* Dr. S. Ginsberg

*Assessment:* Laboratory reports and examinations

Lecture topics will include: fundamental principles of Pavlovian and instrumental conditioning; basic reinforcement principles, learning theories, extinction, patterns of reinforcement, emotion and motivation, generalization, discrimination, concept identification, verbal learning, memory, and language learning. The laboratories will be devoted to exercises and projects based on the work covered in the lectures.

#### TEXTBOOK

To be announced.

### PSYC235 PSYCHOLOGICAL ASSESSMENT

*Second session; 6 credit points (4 contact hrs; 2 lectures, 2 hrs seminars)*

*Chairperson for the subject:* J. M. deWet

*Assessment:* Assignments, including test administration, and a final examination

## 482 DESCRIPTION OF SUBJECTS - PSYCHOLOGY

Topics will include the nature and use of psychological tests; test theory which includes reliability, validity, item analysis, and factor analysis; Psychological tests and their various applications, including personality tests, tests of general intellectual level; education, vocational and clinical testing. Systematic observation, interviewing, content analysis and behavioural analysis.

### TEXTBOOK

Anastasi, A. *Psychological Testing*. 4th ed. Macmillan, New York, 1976.

## PSYC236 APPLIED PSYCHOLOGY

*First session; 6 credit points (3 contact hrs; 2 lectures, 1 seminar/tutorial)*

*Chairperson for the subject: Dr. N. L. Adams*

*Assessment: Seminar papers; essay and/or examination*

This subject introduces the student to applied aspects of several of the areas of psychology which are dealt with at a more advanced standard in individual 300-level subjects. The subject will explore: ways in which psychologists suggest that behaviour may be modified; and the various uses made of psychology in counselling; in vocational guidance and selection; in humanistic endeavours; in job design and industrial relations; and in social psychology.

### TEXTBOOK

To be announced.

## PSYC237 SOCIAL PSYCHOLOGY

As for PSYC322.

300-LEVEL

## PSYC312 COUNSELLING PSYCHOLOGY

*First session; 6 credit points (4 contact hrs; 2 lectures, 1 tutorial, 1 lab)*

*Chairperson for the subject: Dr. J. L. Morris*

*Assessment: Examination, assessment assignment*

Topics will include the social context of counselling; counselling and psychotherapy; application of personality theory to practice; establishment of an effective relationship; interview techniques; assessment and testing; diagnosis; special areas of interest including transactional analysis and behaviour modification.

### TEXTBOOK

Carkhuff, R. R. & Berenson, B.G. *Beyond Counselling and Therapy*. 2nd ed. Holt, Rinehart & Winston, New York, 1978.

## PSYC315 PSYCHOLOGY OF ABNORMALITY

*First session; 6 credit points (3 contact hrs; 2 hrs lectures, 1 hr seminar)*

*Chairperson for the subject: J. M. deWet*

*Assessment: To be notified.*

Topics that will be examined in this course include models of mental illness/health, classification schemes neuroses, personality disorders, psychophysiological disorders, affective disorders, sociopathy and crime, sexual disorders and variance, addiction, the psychoses, organic brain disorders, mental retardation, childhood disorders, clinical assessment and methods of intervention.



**TEXTBOOK**

Calhoun, J.F. *Abnormal psychology: Current perspectives*. 2nd ed. N.Y., Random House, 1977.

**PSYC316 INDIVIDUAL DIFFERENCES**

*Second session; 6 credit points (4 contact hrs; 2 lectures, 2 seminars)*

*Chairperson for the subject:* Dr. B. M. Walker

*Assessment:* Seminar papers and examinations

Psychology will be considered not from the standpoint of general laws, but from the view of individual variation.

It is intended to consider the nature, assessment, structure, growth and decline of individual differences in:

- (i) ability;
- (ii) personality (including motivation).

In addition it is intended to explore current trends in some more specialized aspects of the above, e.g. cognitive styles, creativity, racial differences, sex differences, cross-cultural differences.

**TEXTBOOK**

Buss, A.R. & Poley, W. *Individual Differences: Traits and Factors*. Gardner, N.Y., 1976.

**PSYC322 SOCIAL PSYCHOLOGY**

*Second session; 6 credit points (4 contact hrs; 3 hrs lecture/tutorials, 2 hrs seminar bi-weekly)*

*Chairperson for the subject:* To be announced

*Assessment:* Seminar papers and examination or research paper

Topics will include research methods in social psychology, laboratory and natural settings studies; questionnaire design and attitude measurement; the phenomenological approach in social psychology; interaction in small groups; roles; interpersonal attraction; processes of social influence; the learning of attitudes and values; group conflict; and violence.

Further topics will be selected from among the following: Obedience; authoritarianism and ethnocentrism; political socialization; co-operation and competition; non-verbal communication, proxemics and kinesics; knowing and evaluating persons; and helping behaviour.

**TEXTBOOKS**

To be announced.

**PSYC323 INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY**

*Second session; 6 credit points (4 contact hrs; 3 hrs lecture/tutorials, 2 hrs seminar bi-weekly, 3 half-day industrial visits)*

*Chairperson for the subject:* Dr. N. L. Adams

*Assessment:* Seminar papers and examination or research paper

Through the use of experiential group sessions, visits to industrial organisations and lectures by visiting management and union representatives as well as seminars, this subject aims to explore the relationships between psychological theory and human behaviour in the work place. Particular topics of study will be selected from: job design; job satisfaction; worker participation and autonomous work



groups; communication within organisations; group dynamics in the organization; competition and co-operation; problems in industrial relations; leadership at shop floor and board room levels.

**PRELIMINARY READING**

Sutermeister, R.A. *People and Productivity*. 3rd ed. McGraw-Hill, N.Y., 1976.

**TEXTBOOK**

Katz, D. & Kahn, R.L. *The Social Psychology of Organizations*. 2nd ed. John Wiley, N.Y., 1978.

**PSYC331 PSYCHOLOGICAL THEORY**

*Second session; 6 credit points 3 contact hrs; 1 lecture, 2 seminars)*

*Chairperson for the subject:* To be notified

*Assessment:* To be notified

This subject will provide the historical and philosophical context in which to place contemporary theories and psychological systems. Topics will include: psychology and science; associationism; structuralism; functionalism; phenomenology; psychoanalysis; behaviourism; Gestalt psychology; field theory; varieties of S-R theory; personality theories; engineering and mathematical influences and psychology.

**TEXTBOOKS**

To be notified.

**PSYC335 HUMANISTIC PSYCHOLOGY**

*First session; 6 credit points (5 contact hrs; 1 lecture, 2 seminars, 2 practical)*

*Chairperson for the subject:* Dr. D. D. Diespecker

*Assessment:* One oral examination (end-of-session), one essay, two seminar papers

The subject is designed to study the emerging field of humanistic psychology. Lectures and seminars will examine such topics as the development of human potentials (acceptance of responsibility, feelings, change and growth), the holistic doctrine, group dynamics and interactions, evaluation of personality change, humanistic and existential approaches to psychotherapy, and theoretical contributions from humanistic psychology. A two-hours workshop, "The Educational Community", will allow students to participate in experiential sessions. Practical work will include exercises in body awareness, guided fantasy, movement, Gestalt techniques, and the microlab approach to learning. Attendance at the practical sessions is not compulsory and no assessment will be made of these.

**PRELIMINARY READING**

Bühler, Charlotte, & Allen, Melanie. *Introduction to Humanistic Psychology*. Brooks/Cole, Monterey, Calif., 1972.

Shaffer, J.B.P. *Humanistic Psychology*. Prentice-Hall, Englewood Cliffs, N.J., 1978.

**TEXTBOOKS**

Fry, P. & Long, M. *Beyond the Mechanical Mind*. The Australian Broadcasting Commission, Sydney, 1977.

May, R. ed. *Existential Psychology*. 2nd ed. Random House, New York, 1969.

Perls, F.S. *Gestalt Therapy Verbatim*. Bantam, New York, 1971.

Perls, F.S. *The Gestalt Approach and Eyewitness to Therapy*. Bantam, New York, 1973.

Polster, E. & Polster, Miriam. *Gestalt Therapy Integrated. Contours of Theory and Practice*. Vintage, New York, 1974.

Rogers, C.R. *On Becoming a Person*. Constable, London, 1961.

Schutz, W. *Here Comes Everybody*. Narrow Books, N.Y., 1971.

or

Schutz, W. *Joy: Expanding Human Awareness*. Grove Press Inc., N.Y., 1967.

or

Schutz, W. *Elements of Encounter: a Bodymind Approach*. Joy Press, Big Sur, Calif., 1973.

### PSYC336 EXPERIMENTAL PSYCHOLOGY

*First session; 6 credit points (4 contact hrs; 2 lectures, 2 seminars/lab)*

*Chairperson for the Subject:* Dr. S. Ginsberg

*Assessment:* Seminar and/or laboratory reports; final examination

A detailed study of specific methods of investigation employed in selected content areas of psychology, e.g., sensation, perception, learning.

#### TEXTBOOKS

To be notified.

### PSYC338 BEHAVIOUR MODIFICATION

*Second session; 6 credit points (4 contact hrs; 2 lectures, 2 laboratory)*

*Chairperson for the subject:* To be notified

*Assessment:* Within session assignments and end-of-session examination

Concepts, criteria and strategies of behavioural self-control. Methodological issues in self-control and self-observation. Self-reward, self-punishment and aversive self-regulation.

Self-control of physiological responding by means of instrumental learning and/or biofeedback. Psycho-physiological concomitants of central states and their relation to learning, motivation and attention.

#### TEXTBOOKS

To be notified.

### PSYC340 CONSCIOUSNESS

*First session; 6 credit points (4 contact hrs; 2 hrs lectures, 2 hrs tutorials)*

*Chairperson for the subject:* Dr. D. D. Diespecker

*Assessment:* Essay and examination

Definitions and the nature of consciousness will be examined. There will be a focus on brain function; on the psychological processes which shape awareness; on altered states; and on the "politics" of consciousness, i.e., issues in psychology and contemporary notions such as Eastern psychologies, meditation, mysticism and psychotherapy.

#### PRELIMINARY READING

Lee, P.R., Ornstein, R.E., Galin, D., Deikman, A. & Tart, C.T. *Symposium on Consciousness*. New York, Penguin, 1977.

Ornstein, R.E. *The Psychology of Consciousness*. New York, Penguin, 1975.

Pelletier, K.R. *Toward a Science of Consciousness*. New York, Delta, 1978.

### PSYC341 PSYCHOPHYSIOLOGY

*Second session; 6 credit points (4 contact hours; 2 hrs lectures, 2 hrs laboratory/seminars)*

*Chairperson for the subject:* Dr. S. Ginsberg

*Assessment:* Examination, seminar paper, laboratory report.

Psychophysiology refers to the recording of physiological responses from the surface of a (typically human) subject and the observation of changes in these responses as a consequence of environmental stimulation. Lecture topics will include: the physiological basis of psychophysiology, general methodology and response measures, theories of emotion, activation and arousal theory, attention and orienting reactions, stimulus response specificity and individual response stereotypy, Pavlovian conditioning of psychophysiological responses, and instrumental conditioning and bio-feedback of psychophysiological responses. The laboratory component will be concerned with techniques of recording, electrodes, response measures and methodological, procedural, measurement, and statistical problems. The seminar component will be devoted to consideration of the application of psychophysiology to more traditional content areas of psychology, such as clinical, developmental and social psychology.

### TEXTBOOK

Grings, W.W. & Dawson, M.E. *Emotions and bodily responses*. New York, Academic Press, 1978.

## MATH334 DESIGN AND ANALYSIS

*Double session; 6 credit points*

Refer to "Description of Subjects - Mathematics".

### 400-LEVEL

See pre-requisite column and note in Schedule A concerning entry into the Honours year.

## PSYC499 PSYCHOLOGY IV HONOURS

*Double session; 48 credit points (4 contact hrs)*

*Chairperson for the subject:* Dr. D. Diespecker

*Assessment:* Coursework and two theses

There are three components. Each candidate will be required to complete a supervised thesis (Theoretical Essay) of between 6,000 and 8,000 words describing a theoretical issue in psychology. A second requirement (Empirical Thesis) will consist of a supervised research project to be summarized and presented as a 12,000 to 15,000 word thesis.

Each candidate will also be required to contribute to seminars which will be assessed by either contributions or short essays.

Candidates intending to complete this programme as part-time students will generally do the coursework and theoretical essay in their first year and complete the empirical thesis in their second year.

## JOINT HONOURS IN PSYCHOLOGY AND SOCIOLOGY

The four year programme for students intending to do Joint Honours in Psychology and Sociology should include the following:

	<i>Psychology</i> Credit Points	<i>Sociology</i> Credit Points
<i>100-level</i>	12	12
<i>200-level</i>	24	16 (pass level) 12 (advanced level)

	<i>Psychology</i> Credit Points	<i>Sociology</i> Credit Points
<i>300-level</i>	24	12 (pass level) 12 (advanced level)

In addition, students who intend to complete Joint Psychology/Sociology Honours, must select one of the subjects for which accreditation by both Departments has been accepted, to complete an additional 6 credit points above a normal 48 credit point load. These subjects are as follows:

Psychology subjects accredited (by the Department of Sociology) as equivalent to a Sociology requirement:

PSYC335 Humanistic Psychology (6 credit points)

PSYC323 Industrial and Organisational Psychology (6 credit points)

PSYC322 Social Psychology (6 credit points)

Sociology subjects accredited (by the Department of Psychology) as equivalent to a Psychology requirement:

SOC317 Interaction and Small Group Behaviour (6 credit points)

SOC313 The Individual in the Organisation (6 credit points)

SOC303 The Individual in Society (6 credit points)

MATH334 Design and Analysis (6 credit points)

### **PSYC450 JOINT HONOURS IN PSYCHOLOGY AND SOCIOLOGY**

*Double session; 48 credit points*

Students enrolled in this subject are required to:

1. Complete a joint Psychology/Sociology thesis (theoretical and empirical) of about 15,000 words.
2. Attend Psychology Seminars.
3. Audit the Psychology coursework programme.
4. Attend SOC401 and SOC411 Key Issues in Contemporary Sociology I and II seminars.
5. Audit SOC431 Research Works in Progress seminar.
6. Complete a theoretical essay in Psychology of about 6,000 words.

### **PSYC460 JOINT HONOURS IN PSYCHOLOGY AND GEOGRAPHY**

*Double session; 48 credit points*

Students enrolled in this subject are required to:

1. Complete a thesis incorporating the results of a theoretically based empirical investigation in a field acceptable to and jointly supervised by both Departments. The word limit of this thesis: 15,000 - 25,000 words.
2. Attend for credit the Seminar Issues in the Philosophy and Methodology of Geography.

3. Attend Psychology seminars and complete coursework requirements as for PSYC499.



**SOCIOLOGY***Introductory Notes*

1. All seminars in Sociology 100-, 200-, 300- and 400-levels are 2 hours long.
2. Students should consult with the Department of Sociology before purchasing textbooks for any of the courses offered in 1981.

*Schedule Entries*

Refer to the schedule entries for further details of subjects, including pre-requisites and exclusions. All subjects described in this section are included in Schedule A.

*100-LEVEL***SOC100 SOCIOLOGY I**

*Double session; 12 credit points (4 contact hrs; 2 lectures, 1 seminar per week)*  
*Assessment: 4 essays, 2 seminar papers*

Sociology I has three main components: theory, research methods, and descriptive Australian society. The lectures on theory and research methods will introduce the student to the basic language principles and concepts of social theorising and social research. The series of lectures on Australian society will be designed to acquaint students with an overall picture of Australian society at a descriptive level. It will be the purpose of the weekly seminar to draw together the theoretical and descriptive sections of the subject such that the student gains an understanding of Australian society which is informed by a theoretical perspective and supplemented by such empirical evidence as is available.

*TEXTBOOKS*

- Broom, L. & Selznick, P. *Sociology: a Text with Adapted Readings*. 6th ed. Harper and Row, New York, 1977.  
 Glazer, M. *The Research Adventure*. Random House, New York, 1972.

*200-LEVEL**MAJOR PROGRAMME***SOC203 CENTRAL THEMES IN SOCIOLOGICAL THEORY**

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment: 1 essay, 2 seminar papers*

This subject explores the development of sociological theory as both a response to societal change and as a dynamic theoretical debate. Theories will be examined as they relate to urban industrial society, and key periods of social change and conflict. In particular, the subject will explore the work of Marx, Engels, Weber, Durkheim, urban theorists of the late 19th century, American social theorists of the Chicago school, the pre-war middle European tradition, the development of post-war critical theory, and will introduce contemporary debates in sociological theory.

*TEXTBOOKS*

- McQuarrie, D. (ed.) *Marx. Sociology, Social Change, Capitalism*. Quartet, London, 1978.  
 Connerton, P. (ed.) *Critical Sociology*. Penguin, London, 1977.  
 Sennett, R. (ed.) *Classic Essays on the Culture of Cities*. A.C.C., New York, 1969.

### SOC231 A PRACTICAL INTRODUCTION TO SOCIAL RESEARCH

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 "practical" seminar)*  
*Assessment:* 1 research report; continuous assessment of work set in "practical" seminars

The subject aims to give students the ability to be critical of the methodology of others' research work, and the facility to carry out basic social research themselves. Topics covered in the subject include sampling, questionnaire design, interviewing techniques, data analysis, as well as a briefer introduction to other social-investigative techniques.

#### TEXTBOOK

Stacey, M. *Methods of Social Research*. Pergamon Press, 1969.

### SOC218 CLASS, POWER AND SOCIAL ISSUES

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* 1 essay, 2 seminar papers

This subject evaluates both Marx's class model and social stratificationist analyses of inequality against contemporary social issues such as poverty, media, women, cities, trade unions, aboriginals and professionalism.

#### TEXTBOOKS

Illich, I. *Energy and Equity*. Calder and Boyars, London, 1974.  
McQueen, H. *Australia's Media Monopolies*. Widescope, Melbourne, 1977.  
Wild, R. *Social Stratification in Australia*. Allen and Unwin, Sydney, 1978.

### SOC219 TIME, WORK AND LEISURE

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* 1 essay, 2 seminar papers

This subject will examine the productive activity of people with special emphasis on tracing its evolution from pre-industrial through to advanced capitalist societies and its relationship to changing conceptions of time and leisure.

#### TEXTBOOKS\*

No prescribed texts.

### SOC232 SOCIAL RESEARCH STATISTICS

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* 1 exam, continuous assessment of seminar assignments

This subject is designed to introduce students to the statistical techniques commonly used in the analysis of material collected in social research. The emphasis of the subject is on practical application. Theoretical discussion is confined to a consideration of the assumptions underlying certain statistical formulas and the consequent limitations in their application. The subject will be divided into four main sections: Probability theory; Sampling techniques; Correlation; and Chi square.

\* A detailed list of sources to be consulted by students will be supplied at the beginning of the subject.

**TEXTBOOKS\***

No prescribed texts.

**MINOR PROGRAMME****SOC241 THE NATURE OF CULTURE**

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment: 1 essay, 2 seminar papers*

The emphasis in this subject is centred around an investigation of communication in contemporary Australian Culture, its historic and sociological explanation, and its manifestation in everyday-life objects and activities (e.g., literature, music, the media and lifestyle).

**TEXTBOOKS\***

No prescribed texts.

**SOC242 CONTEMPORARY ISSUES IN SOCIETY**

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment: 1 essay, 2 seminar papers*

The focus of this subject will vary from year to year, depending on issues of greatest contemporary pertinence and availability of staff. For example, course-work may focus on education, unemployment, the family and legislation, and so on. The subject will capitalise on theory and evidence concerning Australian society presented in SOC100, will extend the data and theory base specifically with respect to the phenomenon being analysed. In 1980, the topic for the subject will be education.

**TEXTBOOKS\***

No prescribed texts.

**ADVANCED PROGRAMME****SOC222 SOCIOLOGY II ADVANCED:  
FOUNDATIONS OF SOCIOLOGICAL THOUGHT**

*First session; 6 credit points (2 contact hrs; 1 seminar per week)*

*Assessment: 1 essay, 2 seminar papers*

This subject will explore the central sociological concerns of Karl Marx and relate these to the writings of Max Weber and Emile Durkheim. The contribution of Marx to mainstream sociological theory and to forms of contemporary society will be examined from this base.

**TEXTBOOKS**

Bottomore, T.B. & Rubel, M. *Karl Marx: Selected Writings in Sociology and Social Philosophy*. Penguin, 1974.

Giddens, A. *Capitalism and Modern Social Theory - An Analysis of the Writings of Marx, Durkheim and Max Weber*. Cambridge University Press, London, 1971.

Marx, Karl. (Introduced by Lucio Colletti). *Early Writings*. Penguin, 1975.

\* A detailed list of sources to be consulted by students will be supplied at the beginning of the subject.

## **SOC223 SOCIOLOGY II ADVANCED: CONTEMPORARY EUROPEAN SOCIOLOGY**

*Second session; 6 credit points (2 contact hrs; 1 seminar per week)*

*Assessment: 1 essay, 2 seminar papers*

The subject reviews controversies in European Social Theory which draw on the Marxist, psychoanalytic, existential, and structuralist thought traditions. In particular it will deal with the substantive concerns and implicit methodologies of Marcuse, Habermas, Sartre, Levi-Strauss and Althusser.

### **TEXTBOOKS\***

No prescribed texts.

### **300-LEVEL**

### **PASS LEVEL PROGRAMME**

## **SOC302 RELIGION AND SOCIETY**

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment: 1 essay, 2 seminar papers*

Working within the theoretical framework of the sociology of religion, this subject is an historical and cross-cultural analysis of the relationship between religion and social stratification in Indian society. Particular emphasis will be placed on the conflicting roles of religion as an integrative (conservative) and divisive (revolutionary) force in a society which assumes inequality as the basis for order in society.

### **TEXTBOOKS**

Dumont, L. *Homo Hierarchicus*. Paladin, London, 1972.

Robertson, R. *The Sociological Interpretation of Religion*. Blackwell, Oxford, 1970.

Zaehner, R.C. *Hinduism*. 2nd ed. Opus Books, Oxford University Press, 1977.

## **SOC303 THE INDIVIDUAL IN SOCIETY**

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment: 1 essay, 2 seminar papers*

A comparison of different theories of society and their assumptions with regard to the nature of the individual implicit in such theories (and perhaps vice versa). Sociologically established positions such as those of Marx, Weber, Durkheim, Comte, Parsons and Schutz (for example) will be contrasted with esoteric, "Occult", and non-western systems. The systems (/universes) to be compared will depend to a large extent on a compromise between the tastes of students and tutors.

### **TEXTBOOK**

Giddens, A. *Capitalism and Modern Social Theory*. Cambridge University Press, 1971.

## **SOC304 MILITARY SOCIOLOGY**

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment: 1 essay, 2 seminar papers, compulsory excursion to Royal Military college Duntroon*

\* A detailed list of sources to be consulted by students will be supplied at the beginning of the subject.



Warfare continues to absorb a considerable portion of all government spending. Yet the military machine, its aims, functions, and interactions with the rest of society is only hazily understood. The focus is twofold: i) the development of modern military systems, and their real and projected employment, ii) the social reality of individuals within the military structure.

#### TEXTBOOKS

Gammage, W. *The Broken Years: Australian Soldiers in the Great War*. Penguin, Australia, 1976.  
Howard, M. *Studies in War and Peace*. Temple Smith, London, 1970.

### SOC305 SOCIOLOGY OF MIGRATION

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* 1 essay, 2 seminar papers

This subject will examine the movement of people both within and across national boundaries, focussing on the period of industrial capitalism using Australia as a case study.

#### PRELIMINARY READING

Berger, J. & Mohr, J. *A Seventh Man*. Penguin.

#### TEXTBOOKS\*

No prescribed texts.

### SOC306 SOCIOLOGICAL MEASUREMENT

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* 1 essay, 2 seminar papers

This subject is designed to introduce students to some of the basic methods of quantitative measurement in sociology. Emphasis in the subject will be on survey measurement utilising a computerised statistical package.

#### TEXTBOOKS\*

No prescribed texts.

### SOC308 SOCIAL POLICY

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* 1 essay, 2 seminar papers

The aim of the subject is to explore the relationship between social policy and sociological theory. The subject will review major debates in contemporary sociology in these areas and move towards developing a paradigm for the evaluation of policy in Australia.

The discussion of social policy in Australia will focus on understanding the role of the State, the development and impact of policy, and the historical and materialist base in which the State and its policies are located.

#### TEXTBOOKS

Graycar, A. ed. *Perspectives in Australian Social Policy*. Macmillan, 1978.

\* A detailed list of sources to be consulted by students will be supplied at the beginning of the subject.



Lindberg, L., Alford, R., Crouch, C. & Offe, C. eds. *Stress and Contradiction in Modern Capitalism*. Lexington Books, D.C. Heath & Coy., Lexington, Mass., 1975.

### SOC307 URBAN SOCIOLOGY

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* Original project work; 2 seminar papers

This subject will concentrate on an evaluation of the three levels of crisis in the sphere of collective consumption/reproduction: the crisis of capitalism, the crisis of State intervention, and the crisis of State legitimacy.

The subject will focus on the emergence and histories of urban social movements, and their importance in developing an effective urban political economy. Case studies of Leeds, Paris, Sydney, San Francisco and Wollongong will be used to provide a comparative base.

#### TEXTBOOKS

Harloe, M. ed. *Captive Cities*. John Wiley, Chichester, 1977.

Kilmartin, L. & Thorns, D. *Cities Unlimited*. Allen and Unwin, Sydney, 1978.

### SOC312 SCIENCE, TECHNOLOGY AND SOCIETY

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* 1 essay, 2 seminar papers

This subject will locate present thinking in the sociology of science into a context of changing ideas about the nature and role of science and technology. It will explore the institutionalisation of science - treated both as knowledge system and social process; its forms of relationship to technology, and the social/economic/political context in which this relationship is set. It will explore the effects of science on the relationships between individual and society, consciousness and culture. Finally, the subject will explore the substance of contemporary social "movements" that are refashioning the relationship between science and society (e.g. expressions of anti-science, "radical" science and technology, and "marginal" contributions to scientific thought).

#### TEXTBOOK

Barnes, B. ed. *Sociology of Science: Selected Readings*. Penguin Books, 1972.

### SOC313 THE INDIVIDUAL IN THE ORGANISATION

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*  
*Assessment:* 1 essay, 2 seminar papers

This subject uses work in the fields of psychology and sociology to study the relationship between the individual and the organisation at various organisational levels and in different situations. Emphasis is on the extent to which the individual has autonomy within the organisation.

#### TEXTBOOKS

Argyris, C. *The Applicability of Organisational Sociology*. Cambridge University Press, 1972.

Argyris, C. *Integrating the Individual and the Organisation*. Wiley, New York, 1964.

Argyris, C. *Personality and Organisation*. Harper and Row, New York, 1965.

### SOC316 RESEARCH TECHNIQUES OF SOCIAL ENQUIRY

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment:* 1 research project, 1 seminar paper

This subject will explore the comparative validity of alternate techniques of research enquiry (with particular emphasis on the contrast of empirical vs. subjective forms of analysis). Students will gain experience in using traditional sociological tools of analysis - questionnaire, interviewing and formal observation, as well as in less conventional - film, video, participant and unobtrusive techniques of observation and measurement.

#### TEXTBOOKS\*

No prescribed texts.

### SOC317 INTERACTION AND SMALL GROUP THEORY

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment:* 1 essay, 2 seminar papers

This unit focuses on the social emergence and maintenance of self identity, levels of meaning in communication, elements of interaction in dyads and larger groups, the phases of group development. A major aim of the subject will be to sensitise students to the every-day processes whereby institutional practices and values of the wider society are legitimated and reinforced. Students are expected to participate in group projects and exercises as well as written work.

#### TEXTBOOKS\*

No prescribed texts.

### SOC318 SOCIOLOGY OF DEVELOPMENT AND UNDERDEVELOPMENT

*Second session; 6 credit points (3 contact hrs; 1 lecture and 1 seminar per week)*

*Assessment:* 1 research project, 1 essay

The subject aims to acquaint students with the major theoretical writings on the "third-world" and its relations to the "first-world", including theories of imperialism and neo-colonialism, development and under-development. The subject focuses particularly on key economic and political concepts, and involves a discussion of technology and the varieties of recipient cultures in the "third-world". The major empirical focus will be on Papua New Guinea, Thailand and India.

#### TEXTBOOKS

A. B. C. *Political Economy of Development*. Australian Broadcasting Commission, Sydney, 1977.

Donaldson, M. & Turner, D. *The Foreign Control of Papua New Guinea's Economy and the Reaction of the Independent State*. I.D.A., Melbourne, 1979.

Good, K. et. al. *Developing Dependency in Papua New Guinea*. Oxford University Press, 1979.

Wilber, C.K. *The Political Economy of Development and Underdevelopment*. Random House, N.Y., 1973.

### SOC319 BELIEF SYSTEMS, IDEOLOGIES

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment:* 1 essay, 2 seminar papers

\* A detailed list of sources to be consulted by students will be supplied at the beginning of the subject.

This subject examines the notion that in certain ideologies, the belief system and the experiential concomitants of the belief system are inseparable, even in principle. Studying such ideologies therefore necessitates the individual student participating at an intellectual and behavioural level in order to move towards a theoretical perspective which includes these two components.

**TEXTBOOK**

Feuer, L.S. *Ideology and the Ideologists*. Basil Blackwell, U.K., 1974.

**SOC331 A PRACTICAL INTRODUCTION TO  
SOCIAL RESEARCH**

*First session; 6 credit points (3 contact hrs; 1 lecture, 1 practical seminar per week)*

*Assessment:* 1 research report, continuous assessment of work in "practical" seminars

*Other details:* See entry under SOC231

**SOC332 SOCIAL RESEARCH STATISTICS**

*Second session; 6 credit points (3 contact hrs; 1 lecture, 1 seminar per week)*

*Assessment:* 1 exam, continuous assessment of seminar assignments

*Other details:* See entry under SOC232

**ADVANCED PROGRAMME**

**SOC322 SOCIOLOGY III ADVANCED:  
SOCIOLOGY OF KNOWLEDGE I**

*First session; 6 credit points (2 contact hrs; 1 seminar per week)*

*Assessment:* 1 essay, 2 seminar papers)

This subject is designed as an introduction to the sociology of knowledge. The broad theme is the relationship between consciousness, knowledge and society. Sub-themes such as the differences between scientific knowledge and other types of knowledge, the institutionalisation of knowledge, and the dialectic between knowledge and society, will be developed with a philosophical, historical and cross-cultural perspective.

**TEXTBOOK**

Berger, P. & Luckmann, T. *Social Construction of Reality*. Penguin, G.B., 1971.

**SOC323 SOCIOLOGY III ADVANCED:  
SOCIOLOGY OF KNOWLEDGE II**

*Second session; 6 credit points (2 contact hrs; 1 seminar per week)*

*Assessment:* 1 essay, 2 seminar papers

This subject is designed to follow on from SOC322. The general theme remains the same, i.e., the relationship between consciousness, knowledge and society. The emphasis in this session shifts from a philosophical and historical context to examine the implications for social research of the relationship between theory and method in the sociology of knowledge. The central question asked is: Are there limitations of the kinds of knowledge which can be used in the construction of social theories and the carrying out of social research?

**TEXTBOOKS**

Kockelmans, J. J. *Phenomenology - the Philosophy of Edmund Husserl; its interpretation*. Doubleday Co. Inc., New York, 1967.

Mannheim, K. *Essays on the Sociology of Knowledge*. Routledge & Kegan Paul, London, 1952.

#### 400-LEVEL

See pre-requisite column and note in Schedule A concerning entry into the 400-level Honours programme.

### SOC400 SOCIOLOGY IV HONOURS \*\*

*Double session; 48 credit points (4 contact hrs; 2 seminars)*  
*Assessment:* Coursework, and 12,000 to 15,000 word thesis

There are three components in this subject. The first is a double session programme on "Key Issues in Contemporary Sociology" assessed by seminar presentations and two essays (approximately 2,000 words each). This subject, focusing on relations between the individual and social structure, will encompass theoretical concerns relevant to student theses, and the analysis of an issue of contemporary social importance. The second component is a double session seminar programme on "Research Works in Progress", assessed by seminar contributions. This subject involves all students in the design and critique of thesis research projects conducted by all students of that year. The third component comprises a supervised research project to be presented in a thesis of approximately 12,000 - 15,000 words.

### SOC410 SOCIOLOGY IV HONOURS: PART-TIME I \*\*

*Double session; 24 credit points (2 contact hrs plus individual supervision; 1 seminar)*  
*Assessment:* Coursework, and an 8,000 word mini-thesis

This programme has two components: the first is the double session seminar programme on "Key Issues in Contemporary Society" (see Description under Calendar entry SOC400). The second is the supervised preparation of a mini-thesis on the student's research topic.

### SOC420 SOCIOLOGY IV HONOURS: PART-TIME II \*\*

*Double session; 24 credit points (2 contact hrs plus individual supervision; 1 seminar)*  
*Assessment:* Coursework and a 12,000 to 15,000 word thesis

This programme has two components: the first is the double session seminar, "Research Works in Progress" (see Description under Calendar entry for SOC400). The second component comprises a supervised research project to be presented in a thesis of approximately 12,000 to 15,000 words.

### SOC450 JOINT HONOURS IN PSYCHOLOGY AND SOCIOLOGY \*\*

*Double session; 48 credit points (8 contact hrs per week plus individual supervision; 4 seminars)*

For details of the four year programme for students intending to enrol in this subject, refer to entry under Department of Psychology.

\*\* Students should consult the Departmental Chairman prior to the commencement of 400-level subjects for lists of readings required in coursework.

## 498 DESCRIPTION OF SUBJECTS - SOCIOLOGY

Students enrolled in this subjecte are required to:

1. Complete a joint Psychology/Sociology thesis (theoretical and empirical) of about 15,000 words.
2. Attend Psychology Seminars.
3. Audit the Psychology coursework programme.
4. Attend SOC400 Key Issues in Contemporary Sociology Seminars.
5. Audit SOC400 Research Works in Progress Seminars.
6. Complete a theoretical essay in Psychology of about 6,000 words.



## POSTGRADUATE STUDY

In 1981 students at The University of Wollongong may undertake studies leading to the graduate Diplomas in Accountancy, Applied Multicultural Studies, Coal Geology, Computing Science, Education, European Studies, History & Philosophy of Science, Management Studies, Mathematics, Metallurgy, Philosophy, Public Works Engineering and Sociology and to Masters and Doctoral degrees. The conditions governing the award of the doctorates contain not only the usual provision for the Doctor of Philosophy (PhD) by thesis but also a special provision for a PhD awarded on the basis of published work. The higher doctorates, the Doctor of Letters (DLitt) and the Doctor of Science (DSc), are awarded for published work which makes "an original contribution of distinguished merit... to the knowledge and understanding of any branch of learning with which the University is concerned."

Students who enrol for postgraduate degrees and diplomas of the University of Wollongong will have to meet the Requirements of the University. The Departments' current research interests, the postgraduate degree and diploma Requirements, the Schedule of Graduate Subjects and the post-graduate subject description may be found in the following pages. Diploma and degree courses are described under Departmental headings, e.g. The Diploma in Accountancy and Masters degrees in Accountancy are described under "ACCOUNTANCY."

Students requiring further information are advised to contact the Department concerned or the Student Enquiries Office, Administration Building.

NOTE: Details of the enrolment procedures, charges and scholarships which apply at the time of printing are set out in earlier sections of this Calendar. Conditions of University Postgraduate Awards are set out after Current Research Interests in this Section.

### SOME CURRENT RESEARCH INTERESTS

Persons interested in pursuing postgraduate studies should contact the appropriate Departmental Chairman. The research interests of the staff cover a wide range of topics, and some current fields of interest are listed.

#### ACCOUNTANCY

- Accounting theory construction and verification.
- Administrative law.
- Analysis of Australian company financial reporting practices.
- Behavioural aspects of management information systems.
- Business finance.
- Business objectives.
- Capital and profit concepts, including cost and value concepts, and their measurement.
- Capital expenditure decision-making.
- Computer aided instruction in accounting.
- Constitutional law.
- External reporting in the extractive industries.
- Funds statements.
- History and development of accounting thought.
- Industrial law.
- Interfirm comparisons.
- International accounting.
- Learning curve.
- Small business management.
- Statements on accounting standards by professional bodies, and other means of improving accounting practice.
- Taxation.
- The use of computers in accounting, auditing and business decision-making.
- Trade practices and consumer protection.

## **BIOLOGY**

### **Ecology**

The physiological ecology of the platypus.

### **Entomology**

Behaviour of field crickets.

### **Environmental Animal Physiology**

Temperature regulation.  
Thyroid function in vertebrates.  
Hormones and metabolism.

### **Microbial Water Relations.**

The physiology and biochemistry of microbial osmoregulation under extreme conditions.  
Microbial salinity tolerance.

### **Neurobiology**

Mechanisms of nerve transmission and of drug action.

### **Plant biochemistry and physiology**

Chloroplast function and energy transfer within the plant cell.  
The phylogenetic distribution of leguminous seed proteins.  
Storage and mobilization of nitrogenous mixtures in legume seeds.

## **CHEMISTRY**

Information retrieval from computer-based libraries of mass spectral and other data.  
Applications of computer controlled mass spectrometers to analytical problems.  
Investigation of the role of ozone and its metastable cyclic conformer in atmospheric phenomena.  
Quantum theoretical search for potential high energy chemical lasers.  
Prediction of the electronic structure and properties of transition metal complexes in crystalline and biological environments.  
Spectroscopic investigation of simple transition metal complexes in crystals at cryogenic temperatures.  
Development of sensitive new analytical methods for organic nitrogen compounds and nitrogen oxides.  
Use of peroxides for wastewater treatment.  
Development of computerised feed forward control systems for cyanide, sulphide, phenols and other contaminants.  
Surface chemistry of iron oxides.  
Isolation and structure elucidation of alkaloids from a New Guinean plant.  
Synthetic modification of tylocrebrine, an antileukæmia agent.  
Synthetic approaches to brain-active drugs.  
Trace analysis especially related to electrochemical techniques.  
Solvent effects in acid-base studies.  
Thermodynamics of non-reacting systems involving high temperature calorimetry.  
The application of chemical ionization mass spectrometry to the analysis of biological fluids.  
The determination of absolute configuration of asymmetric molecules by gas chromatography and mass spectrometry.  
The sequencing of tryptic peptides by Cathepsin "C" and mass spectrometry.  
Absorption studies on supported metal catalyst systems.  
Exchange reactions on heterogeneous catalysts.  
Detector systems based on specificity of heterogeneous catalysed reactions.

Variable temperature (4-300°K) magnetochemistry of first row transition metal polynuclear complexes.

Structure and properties of iron (III) complexes of substituted benzimidazoles and carboxylic acids.

Structure and properties of oxygen carrying transition metal complexes.

Structure and properties of transition metal complexes of polydentate schiff base ligands.

A study of the infrared spectra of transition metal complexes using the metal isotope substitution method.

Variable temperature (4-300°K) magnetochemistry of polynuclear transition metal complexes.

Structure and properties of lanthanide schiff base complexes.

## **CIVIL ENGINEERING**

Design of structures for bulk storage.

Dynamic behaviour of elastic plate systems, including cross correlation analysis.

Experimental analysis of structures.

Boundary value problems in continuum mechanics.

Cracking and the rigidities of concrete multicellular bridge decks.

Non-linear finite strip analysis.

Development of earthquake energy absorbers for large structures.

Stability of natural slopes.

Progressive action studies in geomechanics.

Reliability approach to geomechanical engineering.

Flood hydrograph modelling.

Flood frequency and design flood estimation.

Sediment transport in streams.

Urban drainage.

The use of industrial by-products in engineering construction.

Workability of concrete mixes.

Incorporation of pulverised fuel ash in mortars and concretes.

Road materials research including dynamic testing of pavements.

Environmental and safety problems associated with the operation of heavy commercial vehicles.

## **COMPUTING SCIENCE**

Portable Operating Systems.

Performance Evaluation of Software Systems.

Interactive Languages.

Text Processing Techniques.

Software Tools.

## **ECONOMICS**

Industrial economics.

Urban and regional studies.

Economic development.

Economics of migration.

Labour economics.

Monetary economics.

Natural resource economics.

International economics.

International commodity problems.

Comparative economic systems.

History of economic thought.

Applied microeconomics.

Public Finance.

Industrial relations.

## EDUCATION

Classificatory ability in Australian children.  
Cognitive development of minority groups.  
Convergent, divergent and operational thinking among white and Aboriginal children.  
Curriculum studies and development.  
Effects of mass media on children.  
Enrichment programmes for disadvantaged preschoolers.  
Schooling and social class.  
Socialization of children, migrants and minority groups.  
Educational administration.  
Organizational behaviour.  
Open Education.  
Work preparation of the mildly mentally retarded.  
Migrant education through the media.  
Curriculum theory and development.  
Instructional design.  
Politics in education.  
Learning: how and why it occurs.

## ELECTRICAL ENGINEERING

Automatic control.  
Plant identification.  
Electrostatic precipitation.  
Static converters.  
Electrical machines.  
Computer systems.  
Reliability techniques.  
Large-scale systems.  
Communications.  
Computer-aided analysis and design.  
Transportation.

## ENGLISH

Old English language and literature.  
Middle English language and literature.  
Early-Tudor literature.  
Elizabethan literature.  
Early seventeenth century literature.  
Eighteenth century literature.  
Nineteenth century literature.  
The works of James Joyce.  
Modern drama.  
Media studies.  
Australian Literature.  
Commonwealth literature.  
Wordsworth.

## EUROPEAN LANGUAGES

19th and 20th Century French novel.  
Myth in literature.  
Linguistics applied to the teaching of French as a second language.  
Intonation analysis.  
Audio-visual methods in the teaching of French.  
18th Century history of ideas.  
Indianism in France.  
20th Century novel and civilization.  
Surrealism, cinema, eroticism.  
Federico De Roberto.  
The "Secondo Ottocento."  
Italian-American Theatre.

Methods and materials for teaching Italian at the secondary and tertiary level.  
 French regionalism.  
 20th Century Italian literature (Buzzati, Gadda).  
 Renaissance humanism in Italian.  
 Historiography.

### **GEOGRAPHY**

Agricultural geography.  
 Coastal geomorphology.  
 Fluvial geomorphology.  
 Urban studies.  
 Biogeography.  
 Population studies.  
 Regional development and planning.  
 South-east Asian studies.  
 Socio-spatial variations in welfare.  
 Health and welfare service planning.  
 Evolution of the Australian eastern highlands.

### **GEOLOGY**

The geology of coal measures.  
 Rock magnetism and related geophysical phenomena.  
 Textures and petrochemistry of igneous and metamorphic rocks.  
 Biostratigraphy of the Early and Middle Palaeozoic of Australasia.  
 Terrestrial and shallow marine sedimentology.  
 Igneous petrology of the Illawarra district.  
 Organic geochemistry.  
 Economic and environmental geology.  
 Geothermal properties of rocks.  
 The geology of oil shales.

### **HISTORY**

19th and 20th Century English social and political History.  
 French History from 1650.  
 Russian History from 1825.  
 Religious History in Australia and Modern Britain.  
 Industrial, Trade Union and soci-political history of Australia.  
 Modern South East Asian History.

### **HISTORY AND PHILOSOPHY OF SCIENCE**

Science, technology and public policy.  
 Political sociology of scientific knowledge.  
 The social and economic context of technological change.  
 Political and scientific basis of hazard evaluation.  
 Contemporary analytical philosophy of science.  
 The politics of medicine and health.  
 Women and science.  
 Evolutionary theory in the nineteenth century.  
 Scientific controversy and the sociology of knowledge.  
 Early 19th Century British philosophy of science.  
 History of 19th Century and 20th Century genetics.  
 The impact of genetics in agriculture and medicine.  
 Mutagens and risk assessment.  
 Politics of nuclear power.  
 Political and technical constraints on energy policy.  
 Social impact of energy intensive technology.  
 Philosophy of theory change and discipline formation.  
 Development of physical science - 17th and 18th centuries.  
 Mechanism, Cartesianism and Origin of European Science, 1600 - 1660.



## **MATHEMATICS**

Numerical analysis.  
Matrix analysis.  
Fluid mechanics.  
Biological fluid mechanics.  
Oceanography.  
Nuclear reactor theory.  
Statistical decision theory.  
Probability.  
Operations research.  
Industrial applications of mathematics.  
Functional analysis.  
Measure theory.  
Abstract algebra.  
Logic.  
Set theory.  
Topology.  
Continuum mechanics.  
Non-linear partial differential equations.

## **MECHANICAL ENGINEERING**

Determination of flow properties of bulk solids.  
Dynamic analysis and optimization of bulk handling systems.  
Flow of granular materials.  
Design of bins for bulk solids.  
Computer simulation.  
Process modelling and control.  
Random signal analysis and stochastic processes.  
System identification studies.  
Computer aided control system design.  
Multivariable control system theory and design.  
Some applications of solar energy.  
Boiling heat transfer.  
Exhaust emissions from internal combustion engines.  
Propagation of waves in small bore tubes.  
Treatment and disposal of industrial effluents.  
Numerical Hydrodynamics.

## **METALLURGY**

Deformation and fracture at elevated temperatures, with particular reference to multiphase materials.  
Solidification of metals.  
High temperature calorimetry.  
Development of precision testing equipment for studies of metal deformation in uniaxial and biaxial tension.  
Analysis and structural interpretation of plastic behaviour in metals.  
Studies of transformations in various alloys having the property that shape deformation by loading at some appropriate temperature is recovered by heating at some higher temperature (shape memory alloys).  
Metallographic studies of alloys of commercial importance.  
Studies of the structures developed in metals by recrystallisation, with particular reference to rapid recrystallisation.  
Studies of flow phenomena in packed beds.

## **MINING ENGINEERING**

Transportation of personnel and equipment.  
Transportation of coal from workings to stockpile.  
Simulation of underground mining operations.  
Inventories.  
Design of rock structures.

Subsidence measurement and prediction.

## **PHILOSOPHY**

### **Aesthetics**

Imagination and aesthetic appreciation.  
The Aesthetics of Benedetto Croce.

### **Epistemology and Philosophy of Science**

Probability and its theoretical interpretation.  
Induction.  
The Logic of explanation in the natural and social sciences.  
The philosophy of biology.

### **History of Philosophy**

Kant's critical philosophy.  
Cartesian studies.

### **Logic**

History of logic.  
Dialogue.  
Modal Logic.

### **Metaphysics**

Personal Identity.  
Essentialism.

### **Moral Philosophy**

Ethical relativism.  
Responsibility, with reference to action, motive and intention, praise and blame.  
Issues arising from the Catholic doctrine of double effect.

### **Philosophical Logic**

Identity and criteria.  
Philosophy of language.  
Theories of reference and existence.

### **Philosophy of Law and Jurisprudence.**

The basis of legal and political obligation.  
The characterization and evaluation of support in judicial decision making.

### **Philosophy of Mind**

The Analogy Theory of Thinking.  
Language and rationality.  
The character of intentional action and its casual element.

### **Philosophy of Religion**

### **Political Philosophy**

Marxism.  
Anarchism.  
The liberal theory of the state.  
The ethics of self-determination and secession.  
Morality and international conflict.

## 506 POSTGRADUATE STUDY

The philosophy of private enterprise.  
The concept of privacy and the right to privacy.

### **Social Philosophy**

Issues arising from claims to particular rights, especially rights to life, freedom and autonomy.

### **PHYSICS**

Astronomy - Visible and Infrared.  
Experimental Nuclear Physics.  
Infra-red Detectors.  
Musical Acoustics.  
Scattering of Light by Solids.  
Solid State Spectroscopy of Impurities in Semi-conductors.  
Studies of Electronic Wave Functions in Solids.

### **PSYCHOLOGY**

Accidents in industry - psychological and physical factors.  
Achievement motivation.  
Action research & organisational development in industry and other organizations.  
Applications of phenomenology in psychology.  
Attitudes.  
Autonomic components of the orienting reaction.  
Biofeedback.  
Classical and instrumental autonomic conditioning.  
Decision and risk taking.  
Disadvantaged children.  
Gestalt therapy.  
Human Learning.  
Intensive groups.  
Memory and cognition.  
Mother-infant relationships.  
Personnel - selection and placement.  
Prediction of academic success.  
Psychology of health and illness.  
Psychophysiology of the autonomic nervous system.  
Sex roles.  
Social psychology of industry.  
Student guidance and counselling services.  
Time perception.

### **SOCIOLOGY**

The Political Economy of Migration.  
Urban Political Economy.  
Impact of Science and Technology in Developing Countries.  
Application of Kondratiev long-wave theory to the Impact of Science and Technology Development.  
Goals in Scientific Enquiry.  
Indian Religion and Society: the institutionalisation of charisma and religious movements.  
Hegemonic control of Esoteric Knowledge.  
The Use of Dialectics in Social Theory.  
The Role of the State in Contemporary Australian Society.

## CONDITIONS OF UNIVERSITY POSTGRADUATE AWARDS

University Postgraduate Awards are tenable at the University for full-time study normally leading to a Master's degree or a Ph.D.

### DURATION OF AWARD

The maximum period for which an award may be held is four years subject to the following provisions:-

- a) A candidate for a Master's degree may hold an award for a period not in excess of two years from the commencement of studies.
- b) A Ph.D. candidate may hold an award for three years from commencement of studies. An extension for a fourth year may be granted.

### RENEWAL

Awards are renewable annually. Applications for renewal for a fourth year (in the case of Ph. D. candidates) will be treated as special cases.

### PROGRESS REPORT

Scholars are required to submit a progress report before the end of each calendar year and on completion of studies. A form on which the report is to be made is provided about October each year.

### RECREATION LEAVE

Scholars may be granted recreation leave of up to four weeks annually at the discretion of the University.

### LEAVE OF ABSENCE

Scholars are required to pursue their studies on a full-time basis. Absence from studies should be reported by the scholar to his supervisor, as soon as possible.

### INTERRUPTION

When a scholar's progress is likely to be adversely affected due to absence from studies, his award may be interrupted. During the period of interruption the scholar will not be entitled to receive any benefits from his award. When he is fit to resume his studies he may apply for restoration of benefits and he may have the period of the interruption added to the normal time for which the award may be held. Interruptions will not in general exceed twelve months.

### RESTORATION

Before an award may be restored after a period of interruption the scholar will be required to show that he is in a position to resume full-time study. Where the interruption was due to illness a medical certificate must be produced. In all cases the student must satisfy the Registrar that he is able to resume full-time study. (Following the birth of a child, for example, a female scholar should provide evidence that arrangements made to care for the child are such that she is able to undertake full-time study).

## OVERSEAS STUDY

Where a scholar is required to pursue his studies abroad for a limited period in order to advance his research programme, he may apply for permission to hold his award while overseas. The following requirements must generally be met:-

- a) the period abroad will not exceed twelve months;
- b) adequate supervision of the scholar's research programme abroad has been arranged by the University before his departure;
- c) the scholar will remain enrolled at the University;
- d) the scholar will return to Australia to complete his research programme immediately following the completion of his study abroad; and
- e) the period of overseas study will be credited towards the scholar's degree or research programme at the University.

A scholar may apply for permission to hold his University Postgraduate Award concurrently with another award for overseas study.

## FIELD WORK

Where a scholar is required to undertake field work or research away from the University, but in Australia, he should enquire from his supervisor concerning expenses.

## EMPLOYMENT

Scholars may with the approval of their supervisors, engage in a limited amount of paid part-time teaching or demonstrating provided that such employment does not interfere with their study programme. Generally the employment should not exceed six hours in any one week, or a total of 180 hours in a year.

## TRANSFER

The scholarship is not transferrable to another University.

## BENEFITS

**Stipend:** From 1st January, 1981, scholars will receive a stipend at the rate of \$4620 per annum which will be paid fortnightly by cash or directly into a current account, whichever is preferred. Payment of stipend will be calculated from the date of commencement of study.

**Dependants' Allowance:** Married male scholars will receive a dependants' allowance (paid fortnightly) at the rate of \$2220 per annum for a dependant spouse, and a further \$520 per annum for each child.

**Travel Allowance:** A travel allowance (equivalent to a tourist air fare where appropriate) may be paid for a scholar who is obliged to move from one Australian city to another in order to take up his award. Travel allowance is payable also for dependants.

**Establishment Allowance:** An allowance of \$200 will be paid to married scholars, and \$150 to single scholars, who are entitled to a Travel Allowance. The establishment allowance is intended to assist scholars with removal expenses and with the expenses of setting up new quarters.

**Thesis Allowance:** A scholar may claim reimbursement for an amount of up to \$400 to assist with costs for a Ph. D. thesis and up to \$250 for a Master's thesis.



**Incidentals Allowance:** An incidentals allowance of \$100 will be paid to assist students in meeting the cost of fees such as student representative council, union and sports fees.

**RELINQUISHMENT**

Scholars are required to give the Registrar at least twenty-one days notice of their intention to relinquish their awards (e.g. on completion of studies, discontinuation of research, etc.).

**TERMINATION OF AWARDS**

Awards may be terminated at the discretion of the University.

## REGULATIONS FOR THE AWARD OF GRADUATE DIPLOMAS

Being regulations made by Council pursuant to clauses 23 and 24 of the University of Wollongong By-Law.

1. The Diploma may be awarded by the Council to a candidate who has completed an approved course of study.
2. An application to register as a candidate for a diploma shall be made on the prescribed form which shall be lodged with the Academic Registrar at least one full calendar month before the commencement of the course.
3. (i) An applicant for registration as a candidate for the diploma shall have been admitted to the degree of Bachelor in the University or other approved institution in an appropriate department.  
(ii) In special circumstances a person may be permitted to register as a candidate for a diploma if he submits evidence of such academic and professional attainments as may be approved by the Council.
4. Notwithstanding any other provisions of these conditions, the Council may require an applicant to demonstrate fitness for registration by carrying out such work and sitting for such examinations as the Council may determine.
5. The approval of the Chairman of the appropriate Department for the proposed programme must be obtained by the candidate prior to enrolment. For the purpose of this Regulation the Chairman of Department will normally be the Chairman of the Department providing supervision of the project, or if there is no project, the major field of study.
6. A candidate for a diploma shall complete subjects approved by the Chairman of the appropriate Department, which shall total not less than 48 credit points.
7. No candidate shall, without the approval of the Council be enrolled at the same time for any other degree or diploma in the University or elsewhere.
8. The results of examinations shall be submitted to the Council which shall determine whether or not the diploma be awarded.
9. A candidate shall be required to pay such charges as may be determined from time to time by the Council.
10. There shall be the following graduate Diplomas and such other Diplomas as the Council may, from time to time, determine:

Diploma in Accountancy (DipAccy)  
Diploma in Applied Multicultural Studies (DipAMS)  
Diploma in Geography (DipGeog)  
Diploma in Coal Geology (DipCoalGeol)  
Diploma in Computing Science (DipCompSci)  
Diploma in Education (DipEd)  
Diploma in European Studies (DipEur)  
Diploma in History and Philosophy of Science (DipHPS)  
Diploma in Industrial Relations (DipIndRel)  
Diploma in Management Studies (DipMS)  
Diploma in Mathematics (DipMath)  
Diploma in Metallurgy (DipMet)  
Diploma in Philosophy (DipPhil)  
Diploma in Public Works Engineering (DipPubWksEng)

Diploma in Sociology (DipSoc)

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## REGULATIONS FOR THE AWARD OF BACHELOR OF EDUCATION

Being Regulations made by Council pursuant to clauses 23 and 24 of the University of Wollongong By-Law.

1. The degree of Bachelor of Education may be conferred by the Council on a candidate who has with the approval of the Council completed courses of study to the value of 48 credit points and who has satisfied other requirements specified for the award of the degree.
2. An application to register as a candidate for the degree of Bachelor of Education shall be made on the prescribed form which shall be lodged with the Academic Registrar at least one full calendar month before the commencement of the session in which the candidate intends to register.
3. The candidate for registration for the degree of Bachelor of Education shall have qualified for
  - (a) a degree of bachelor in the University or a degree from another institution approved by the Council; and
  - (b) the Diploma in Education in the University or an equivalent qualification approved by the Council.
4. In appropriate circumstances, a person may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Council.
5. Notwithstanding any other provisions of these conditions the Council may require an applicant to demonstrate fitness for candidature by carrying out such work and sitting for such examinations as it may determine.
6. An approved candidate shall register with the University in one of the following categories:
  - (a) a student undertaking full-time study; or
  - (b) a student undertaking part-time study.
7. No candidate shall, without the approval of the Council, be enrolled at the same time in any other degree or diploma in the University or elsewhere.
8. A candidate who is undertaking full-time study will normally be examined after 2 academic sessions but shall not be allowed to proceed with the degree if the requirements have not been fulfilled after registration for 4 academic sessions. A candidate who is undertaking part-time study normally shall not be allowed to proceed if the requirements for the degree have not been fulfilled after registration for 8 academic sessions. In exceptional cases an extension of these times may be granted by the Council.
9. The maximum period for a candidate to re-apply after discontinuation shall be determined by the Council.
10. A candidate shall be required to pay such charges as may be determined from time to time by Council.
11. In satisfying the requirements for the degree the candidate shall complete subjects to the value of 48 credit points from the Schedule of Subjects for the Bachelor of Education degree (Department of Education) such subjects to be selected in consultation with an academic adviser appointed

by the departmental chairman.

12. A candidate may not include in this degree programme any subject which the candidate has previously taken and had credited towards a qualification accepted for admission under Section 3 of these Regulations.



## HONOURS MASTERS DEGREE REGULATIONS

Being Regulations made by Council pursuant to clauses 23 and 24 of the University of Wollongong By-Law.

### PRELIMINARY

1. These Regulations may be cited as the "Honours Masters Degree Regulations."
2. In these Regulations, unless a contrary intention appears
  - (1) the Chairman of a Department means the Chairman of the Department providing supervision of the project, or if there is no project, of the major field of study;
  - (2) the terms "thesis" and "minor thesis" shall include theses which have a value of not less than 24 credit points;
  - (3) the term "candidate" means an applicant accepted by the Council as a candidate for the degree of Master with Honours.
3. The degree of Master with Honours may be conferred by the Council on a candidate who has satisfactorily completed either:
  - (1) a thesis embodying the results of an investigation; or
  - (2) study comprising formal coursework; or
  - (3) study comprising formal coursework and a minor thesis;

approved by the Council and who has satisfied the other requirements specified for the award of the degree.

### APPLICATION FOR REGISTRATION

4. An application to register as a candidate for the degree shall be made on the prescribed form which shall be lodged with the Academic Registrar at least one full calendar month before the commencement of the session in which the candidate intends to register.

### PREVIOUS QUALIFICATIONS

5.
  - (1) An applicant for registration as a candidate for the degree shall have qualified for a degree of bachelor in the University or possess an equivalent qualification from another institution approved by the Council.
  - (2) In appropriate circumstances, a person may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Council.
  - (3) Notwithstanding any other provisions of these conditions the Council may require an applicant to demonstrate fitness for candidature by carrying out such work and successfully completing such examinations as it may determine.

### PATTERNS OF STUDY

6.
  - (1) A candidate for the degree who has qualified for the degree of

bachelor at a standard of Honours Class II, Division 2 or higher\* or who holds qualifications deemed equivalent by the Council, shall be required to complete successfully a programme of study with a total value of at least 48 credit points selected from the Schedule of Graduate Subjects approved by the Council.

- (2) A candidate for the degree who has qualified for a degree of bachelor at a standard below Honours Class II, Division 2 or who holds qualifications deemed equivalent by the Council, shall normally be required to complete successfully a programme of study with a total credit point value of at least 96 credit points; the programme of study shall contain an aggregate of at least 48 credit points in respect of subjects selected from the Schedule of Graduate Subjects approved by the Council.
- (3) A candidate for the degree who has qualified for the degree of bachelor of a standard below honours or who holds qualifications deemed equivalent by the Council, and who has subsequently obtained other academic qualifications may be granted up to 48 credit points towards the 96 credit points required in section 6(2) of these Regulations; a candidate granted such credit shall be required to complete a programme of study which, including such credit, shall aggregate a total of at least 96 credit points; further, the programme of study shall contain an aggregate of at least 48 credit points in respect of subjects selected from the Schedule of Graduate Subjects approved by the Council.

## REGISTRATION

7. An approved candidate shall register with the University in one of the following categories:

- (1) a student undertaking full-time study; or
- (2) a student undertaking part-time study.

8. A candidate engaged in full-time study may be permitted by the Council to undertake a limited amount of teaching in the University or outside work which in its judgment will not interfere with the continuous pursuit of the proposed programme of study.

## APPROVAL OF STUDY PROGRAMMES

9. Every candidate for the degree by formal coursework shall

- (1) undertake a programme of study approved by the Council on the recommendation of the Chairman of the Department;
- (2) take such examinations and perform such other work as may be prescribed by the Council.

10. Every candidate for the degree by thesis or a combination of formal coursework and minor thesis shall

- (1) undertake a programme of study appropriate to his research approved

\* For the purpose of section 6 (1) of these Regulations, the degree of Bachelor of Science in Engineering (with Merit) from the University of New South Wales, the University of Newcastle and the University of Wollongong is deemed by the Council to be equivalent to that of a bachelor degree with honours first enrolment in the degree of Bachelor of Science in Engineering took place in 1974 or earlier.

by the Council on the recommendation of the Chairman of the Department;

- (2) take such examinations and perform such other work as may be prescribed by the Council;
- (3) submit the title of the thesis or the minor thesis through the Chairman of the Department for approval by the Council. After the title has been approved it may not be changed except with the approval of the Council.

### **SUPERVISION**

11. (1) Every candidate for the degree by formal coursework shall have a Course Coordinator appointed by the Council.
  - (2) Every candidate required to submit a thesis or minor thesis shall carry out the thesis work under the direction of a supervisor or supervisors of whom at least one shall be a full-time member of the University staff appointed by the Council under such conditions as it may determine.
  - (3) If the supervisor appointed by the Council is to be absent from the University for any period exceeding six weeks, the supervisor shall make alternative supervision arrangements which shall be subject to the approval of the Chairman of the Department and subject to the endorsement of the Council.
  - (4) For candidates undertaking the degree by a combination of coursework and a minor thesis the supervisor shall be the Course Coordinator referred to in section 11(1) of these Regulations.
12. The work, other than field work, shall be carried out in a department of the University save that in special cases the Council may permit candidates to conduct their work at other places where suitable facilities are available.
13. The Council may on written application from a candidate approve a change of supervisors after consultation with the Chairman of the Department.
14. In every case, before permitting an applicant to register as a candidate, the Council shall be satisfied that adequate supervision and facilities are available.

### **TIME LIMITS**

15. (1) A candidate under section 6(1) of these Regulations:
  - (a) who is undertaking full-time study shall present himself for consideration for the award of the degree not earlier than two academic sessions and not later than six academic sessions from the date of registration;
  - (b) who is undertaking part-time study shall present himself for consideration for the award of the degree not earlier than four academic sessions and not later than twelve academic sessions from the date of registration.
- (2) A candidate admitted under section 6(2) of these Regulations:
  - (a) who is undertaking full-time study shall present himself for consideration for the award of the degree not earlier than four academic sessions and not later than eight academic sessions from the date of registration;

- (b) who is undertaking part-time study shall present himself for consideration for the award of the degree not earlier than six academic sessions and not later than twelve academic sessions from the date of registration.
- (3) A candidate admitted under section 6(3) of these Regulations shall have time limits determined by the Council.
- (4) Candidates changing registration from part-time to full-time, or from full-time to part-time, or who are readmitted under section 17 of these Regulations shall have time limits determined by the Council.
- (5) A member of the full-time staff of the University accepted as a part-time candidate for the degree shall have time limits determined by the Council.
- (6) Notwithstanding any other provisions of these Regulations the Council may, in exceptional circumstances, extend the time limits referred to in sections 15(1), (2), (3), (4) and (5) above.

### LEAVE OF ABSENCE

16. Leave of absence, normally for periods of not longer than four academic sessions, may be granted by the Council.

### READMISSION

17. Readmission after discontinuation of candidature may be granted under such terms and conditions as may be specified by the Council.

### CHANGE OF REGISTRATION

18. At any time prior to the submission of the thesis, a candidate may apply to the Council for change of registration from the degree of Master to the degree of Doctor of Philosophy.

### OTHER STUDIES

19. (1) No candidate shall without the approval of the Council, be enrolled at the same time in any other degree or diploma or course of study in the University.
- (2) If a candidate without the approval of the Council enrolls for a degree or diploma or course of study at another institution, the Council may discontinue his candidature for the degree.

### FEES

20. A candidate shall be required to pay such fees and/or charges as may be determined from time to time by Council.

### THESIS SUBMISSION

21. Every candidate for the degree by thesis or a combination of formal coursework and minor thesis:

- (1) shall give in writing two months notice of his intention to submit his thesis;
- (2) shall submit five copies of the thesis embodying the results of an investigation;
- (3) shall present the thesis in a form which complies with the requirements of the University for the preparation and submission of higher



degree theses;

- (4) may submit for consideration any work he has published;
- (5) shall include in the thesis a certificate indicating the extent to which the work is his own;
- (6) may not submit as the main content of his thesis any work or material which he has previously submitted for a University degree or other similar award except where the thesis has been submitted for the degree of Doctor of Philosophy and where the examiners of that thesis have recommended its submission for the degree of Master.

### THESIS EXAMINATION

22. When a candidate has submitted a thesis or minor thesis for examination the supervisor shall provide a certificate indicating:

- (1) whether he is in agreement with the statement submitted by the candidate in accordance with section 21(5) of these Regulations;
- (2) whether, in his opinion, the thesis is properly presented and is *prima facie* worthy of examination.

23. For each candidate required to submit a thesis or minor thesis there shall be at least two examiners appointed by the Council. At least one of the examiners shall be external to the University.

24. After examining the thesis or minor thesis the examiners may recommend:

- (1) that the thesis reaches a satisfactory standard; or
- (2) that the candidate be required to re-submit his thesis in revised form after a further period of study and/or research; or
- (3) that an oral examination be held to determine whether the candidate has reached a satisfactory standard; or
- (4) without further test that the candidate be not awarded the degree of Master.

### AWARD OF DEGREE

25. The results of examinations including where appropriate the examination of the thesis shall be submitted to the Council and the Council shall determine whether or not the candidate may be admitted to the degree.

### APPROVED DEGREES

26. There shall be the following Honours Masters' degrees and such others as the Council may, from time to time, determine:

- Master of Arts (Honours) (MA(Hons))
- Master of Commerce (Honours) (MCom(Hons))
- Master of Education (Honours) (MEd(Hons))
- Master of Engineering (Honours) (ME(Hons))
- Master of Metallurgy (Honours) (MMet(Hons))
- Master of Science (Honours) (MSc(Hons))



## REGULATIONS FOR THE AWARD OF DEGREE OF DOCTOR OF PHILOSOPHY

Being Regulations made by Council pursuant to clauses 23 and 24 of the University of Wollongong By-Law.

The Degree of Doctor of Philosophy may be conferred on a candidate who has met the requirements of the Regulations in either Part I or Part II.

### PART I

The Degree of Doctor of Philosophy may be awarded by the Council to a candidate who has made an original and significant contribution to knowledge and who has satisfied the following requirements -

1. A candidate for registration for the degree of Doctor of Philosophy shall -
  - (i) normally hold an honours degree from the University; or
  - (ii) hold an honours degree of equivalent standing from another institution approved by the Council;
  - (iii) if he holds a degree without honours from the University or other approved institution have achieved by subsequent work and study a standard recognised by the Council as equivalent to honours; or
  - (iv) in exceptional cases, submit such other evidence of general and professional qualifications as may be approved by the Council.
2. When the Council is not satisfied with the qualifications submitted by a candidate, the Council may require him, before he is permitted to register, to undergo such examination or carry out such work as it may prescribe.
3. A candidate for registration for a course of study leading to the degree of Doctor of Philosophy shall -
  - (i) apply to the Academic Registrar on the prescribed form at least one calendar month before the commencement of the session in which he desires to register;
  - (ii) submit with his application a certificate from the Chairman of the University Department in which he proposes to study, stating that the candidate is a fit person to undertake a course of study and research leading to the degree of Doctor of Philosophy, and that the Department is willing to undertake the responsibility of supervising the work of the candidate, and of reporting to the Council at the end of the course on the merits of the candidate's performance in the prescribed course.
4. Subsequent to registration the candidate shall pursue a programme of advanced study and research for at least six academic sessions, save that -
  - (i) a candidate fully engaged in advanced study and research for his degree, who before registration was engaged upon research to the satisfaction of the Council may be exempted from not more than two academic sessions;
  - (ii) in special circumstances the Council may grant permission for the candidate to spend not more than one calendar year of his programme in advanced study and research at another institution provided that his work can be supervised in a manner satisfactory to

the Council;

- (iii) in exceptional cases, the Council may grant permission for a candidate to be exempted from not more than two academic sessions.
5. A candidate who is fully engaged in research for the degree shall present himself for examination not later than eight academic sessions from the date of his registration. A candidate not fully engaged in research shall present himself for examination not later than fourteen academic sessions from the date of his registration. In exceptional cases an extension of these times may be granted by the Council.
  6. The candidate shall be required to devote his whole time to advanced study and research and to report annually to the Council, save that -
    - (i) the Council may permit a candidate on application to undertake a limited amount of University teaching or outside work which in its judgement will not interfere with the continuous pursuit of the proposed course of advanced study and research;
    - (ii) a member of the full-time staff of the University may be accepted as a part-time candidate for the degree, in which case the Council shall prescribe a minimum period for the duration of the programme;
    - (iii) in special circumstances, the Council may accept as a part-time candidate for the degree a person who is not a member of the full-time staff of the University, but who in the opinion of the Council has a substantial research record and is engaged in an occupation which leaves the candidate substantially free to pursue his programme in a department of the University. In such a case the Council shall prescribe for the duration of his programme a minimum period which, in its opinion, having regard to the proportion of his time which he is able to devote to the programme in the appropriate University department, is equivalent to the six sessions ordinarily required;
    - (iv) no candidate will be accepted under clause 6(iii) unless his employer agrees in writing that he will be free to attend the University on an average of one day per week, and the Council is satisfied that he can spend a minimum of 20 hours per week on his programme of research.
  7. Every candidate shall pursue his programme under the direction of a supervisor or supervisors appointed by the Council from the full-time members of the University staff. The work, other than field work, shall be carried out in a department of the University save that in special cases the Council may permit candidates to conduct their work at other places where special facilities not possessed by the University may be available. Such permission will be granted only if the direction of the work remains wholly under the control of the supervisor.

The Council may on written application from a candidate, approve a change of supervisor or supervisors after consultation with the Departmental Chairman.

If the supervisor appointed by the Council is to be absent from the University for any period exceeding six weeks, the Supervisor shall make alternative supervision arrangements which shall be subject to the approval of the Departmental Chairman and subject to the endorsement of the Council.

8. The Council shall approve the topic of the research. After the topic has been approved it may not be changed except with the permission of the Council.

9. Not later than four academic sessions after registration the candidate shall submit the title of his thesis for approval by the Council. After the title has been approved it may not be changed except with the permission of the Council.
10. A candidate may be required by the Council to attend a formal course of study appropriate to his work.
11. On completing his course of study every candidate must submit a thesis which complies with the following requirements -
  - (i) the greater proportion of the work described must have been completed subsequent to registration for the PhD degree;
  - (ii) it must be an original and significant contribution to the knowledge of the subject;
  - (iii) it must be written in English except that a candidate in the Faculty of Humanities may be required by the Council, on the recommendation of the supervisor, to write the thesis in an appropriate foreign language;
  - (iv) it must reach a satisfactory standard of expression and presentation.
12. The thesis must present the candidate's own account of his research. In special cases work done conjointly with other persons may be accepted, provided the Council is satisfied of the candidate's part in the joint research.
13. Every candidate shall be required to preface his thesis with a short abstract comprising not more than 600 words.
14. A candidate may not submit as the main content of his thesis any work or materials which he has previously submitted for a University degree or other similar award.
15. The candidate shall give in writing two months' notice of his intention to submit his thesis and such notice shall be accompanied by the appropriate charge.
16. Five copies of the thesis will be submitted to the Academic Registrar in a form which complies with the requirements of the University for the preparation and submission of higher degree theses.
17. The Council will request the supervisor to submit a certificate stating that the candidate has completed the prescribed course of study.
18. The University will retain the five copies of the thesis submitted for examination.
19. There shall normally be three examiners of the thesis, appointed by the Council, of whom one shall normally be an internal examiner and two shall be external examiners.
20. After examining the thesis the examiners may -
  - (i) decide that the thesis reaches a satisfactory standard; or
  - (ii) decide that the thesis reaches a satisfactory standard subject to minor revisions; or
  - (iii) recommend that the candidate be required to re-submit his thesis in revised form after a further period of study and/or research; or
  - (iv) recommend that the candidate be required to submit to a further

- examination; or
- (v) recommend that the candidate be allowed to submit the thesis for a Masters degree; or
  - (vi) recommend without further test that the candidate be not awarded the degree of Doctor of Philosophy.
21. If the thesis reaches the required standard, the examiners may recommend that the candidate be examined orally, and, at their discretion, by written papers and/or practical examinations on the subject of the thesis and/or subjects relevant thereto.
  22. If the thesis is of satisfactory standard but the candidate fails to satisfy the examiners at the oral or other examinations, the examiners may recommend that the University permit the candidate to re-present the same thesis and submit to a further oral, practical or written examination within a period specified by them but not exceeding the three academic sessions.
  23. At the conclusion of the examination, the examiners will submit to the Council a concise report on the merits of the thesis and on the examination results, and the Council shall determine whether or not the candidate may be admitted to the degree.
  24. No candidate shall, without the approval of the Council be enrolled at the same time for another degree or diploma in the University or elsewhere.
  25. A candidate shall be required to pay such charges as may be determined from time to time by the Council.

## PART II

26. A candidate wishing to proceed to the PhD Degree under these Regulations shall be required to give proof of a significant contribution to scholarship.
  27. Except as provided in Regulation 27.1 any person may be a candidate for the PhD Degree who is a graduate of the University or of the University Of New South Wales, having completed the requirements for the Degree at Wollongong University College and who, either
    - (a) is of not less than eight years' standing from admission to his first degree of the University, or
    - (b) is of not less than two years' standing from admission to a Masters Degree of the University provided that he is of not less than eight years' standing from admission to his first degree of some other University.
- 27.1 A person who is not a graduate of the University but who is a member of the full-time academic staff of the University of at least five years' standing, provided that he is of not less than eight years' standing from admission to his first degree of some other University, may be a candidate for the PhD Degree.
28. A candidate for admission to the PhD Degree under these Regulations shall make his application in writing to the Academic Registrar, stating the Department with which he considers that the subject of his contribution to scholarship is most nearly connected, and specifying the published work or works on which his claim for the degree is based. He shall at the same time send to the Academic Registrar five copies of each of the published works specified in his application, and five copies of a list of these works.



29. A candidate shall also be required to declare whether or not any of the published works referred to in Regulation 28 have been submitted for a degree or diploma or other qualification at any other University. All the works submitted, apart from quotations, shall be written in or translated into English unless in a particular case, the Council shall have allowed the candidate to submit work in some other language.
30. If the Council shall be of the opinion that the published work or works submitted constitute prima facie a qualification for the degree, they shall appoint and refer the application to not less than three examiners, at least two of whom shall be external.
31. The examination for the PhD Degree under these Regulations shall consist of the submission of published work, and of an oral examination on the work submitted and on the general field of knowledge within which it falls.
32. Each examiner shall make an independent report on the published work or works before the oral examination and shall present questions to be asked at the oral examination.
33. If the examiners are not satisfied with the candidate's performance in the oral examination, the Council may allow the candidate to present himself for that examination on one more occasion at a time to be appointed by the examiners.
34. If the examiners do not agree in their recommendations or if for any other reason the Council needs a further opinion or opinions on the merit of the work submitted, the Council may appoint an additional examiner or additional examiners. Any additional examiner or examiners thus appointed shall make an independent report on the work submitted by the candidate, and may at the discretion of such examiner or examiners, conduct an oral or written examination on that work and on the general field of knowledge within which it falls.
35. At the conclusion of the examination, the examiners will submit to the Council a concise report on the merits of the published work and on the examination results, and the Council shall determine whether or not the candidate may be admitted to the degree.
36. If his application for the degree fails, the candidate may re-apply on one occasion only, after a period of not less than three years from the date of his original application.
37. No candidate for the degree shall be present at the deliberations of the Council in respect of his own candidature.



## REGULATIONS FOR THE DEGREES OF DOCTOR OF LETTERS AND DOCTOR OF SCIENCE

Being Regulations made by the Council pursuant to clauses 23 and 24 of the University of Wollongong By-law.

1. There shall be the degrees of
  - (a) Doctor of Letters (DLitt)
  - (b) Doctor of Science (DSc)
2. The degree of Doctor deemed appropriate may be awarded by the Council for an original contribution (or contributions) of distinguished merit adding to the knowledge and understanding of any branch of learning with which the University is concerned.
3. A candidate for the degree of Doctor shall hold a degree of the University of Wollongong, or shall have been a full-time member of the academic staff of the University for a period of at least three years, or shall have been admitted to the status of a degree of the University, save that on the recommendation of the Academic Senate, the Council may vary this requirement to include former staff or students of the Wollongong University College. No candidate shall make application for the degree of Doctor until eight years after the award of his first degree.
4.
  - (i) A candidate for the degree shall forward to the Academic Registrar an application accompanied by the prescribed charge. With such application the candidate shall forward five copies (wherever possible) of the published work which he wishes to have examined. The publications shall be a record of original research or critical inquiry undertaken by the candidate, who shall state the sources from which his information was derived, and the extent to which he has availed himself of the work of others.
  - (ii) If the publications submitted, whether published in the candidate's sole name or under conjoint authorship, record work carried out conjointly, the candidate shall state the extent to which he was responsible for the initiation, conduct or direction of such conjoint research or inquiry, however published.
  - (iii) Where the principle publications, as distinct from supporting papers, incorporate work previously submitted for a degree or award the candidate shall clearly indicate which proportion of the publications was so submitted.
  - (iv) A candidate may submit additional work, published or unpublished, in support of his application.
5. When the Council is satisfied that the published work is prima facie worthy of examination for the degree the Council may appoint at least three examiners of whom at least one shall normally be a member of the Department concerned and at least two shall be external examiners.
6. The candidate may be required to answer orally or in writing any questions concerning his work.

## MASTER OF STUDIES DEGREE REGULATIONS

Being Regulations made by Council pursuant to clauses 23 and 24 of the University of Wollongong By-Law.

### PRELIMINARY

1. These Requirements may be cited as the "Master of Studies Degree Regulations."
2. The degree of Master of Studies in the appropriate Department may be conferred by the Council on the recommendation of the Academic Senate on a candidate who has satisfactorily completed an approved programme of formal coursework and who has satisfied the other requirements specified for the award of the degree.

### APPLICATION FOR REGISTRATION

3. An application to register as a candidate for the Degree shall be made on the prescribed form which shall be lodged with the Academic Registrar at least one full calendar month before the commencement of the session in which the candidate intends to register.

### PREVIOUS QUALIFICATIONS

4. (1) An applicant for registration for the Degree shall have qualified for:
  - (a) a degree of bachelor in the University which includes subjects with a minimum value of at least 24 credit points at 300-level, or the equivalent, in the same Department as the proposed degree of Master of Studies; or
  - (b) a degree of bachelor in the University together with additional 300-level subjects with a minimum value of 24 credit points, or the equivalent, in the same Department as the proposed course of study; or
  - (c) an equivalent qualification from another tertiary institution approved by the Council.
- (2) In appropriate circumstances, a person may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Council.
- (3) Notwithstanding any other provisions of these conditions the Council may require an applicant to demonstrate fitness for candidature by carrying out such work and sitting for such examinations as it may determine.

### REGISTRATION

5. An approved candidate shall register with the University in one of the following categories:
  - (a) As a student undertaking full-time study; or
  - (b) as a student undertaking part-time study.
6. A candidate may apply to the Council at the end of a session to transfer from full-time study to part-time study, or from part-time study to full-time study.

**PROGRAMME OF STUDY**

7. A candidate may be considered for the award of the degree after the completion of two academic sessions of full-time study or its equivalent by obtaining an aggregate of not less than 48 credit points for subjects selected from the Schedule of Graduate Subjects.
8. Every candidate shall have approved by the Council a programme of study recommended by the Chairman of the appropriate Department.

**TIME LIMITS**

9. A candidate who is undertaking full-time study may not, without approval, continue to be registered for the degree for more than four (4) academic sessions from the date of initial registration. A candidate who is undertaking part-time study may not without approval continue to be registered for more than eight (8) academic sessions. A candidate changing registration as specified in Regulation 6 will have time limits determined by the Council.

**OTHER STUDIES**

10. No candidate shall, without the approval of the Council, be enrolled at the same time in any other degree or diploma in the University or elsewhere.

**FEEES**

11. A candidate shall be required to pay such charges as may be determined from time to time by Council.

**RE-ADMISSION**

12. The Council shall determine the minimum period after which a candidate, having discontinued the course of study, may apply for re-registration.

**AWARD OF DEGREE**

13. On completion of the approved subjects with a minimum value of 48 credit points, the results of examinations shall be submitted to the Council and the Council shall determine whether or not the candidate may be admitted to the degree.

**APPROVED DEGREES**

14. There shall be the following Master of Studies degrees and such other degrees as the Council may, from time to time, determine:

Master of Studies in Accountancy

Master of Studies in Education

## PREPARATION AND SUBMISSION OF THESES FOR HIGHER DEGREES

1. (a) Every candidate required to submit a thesis for the degree of Master shall submit to the Registrar four copies of the thesis and supporting work, together with a certificate from the supervisor to the effect that the thesis is in a form suitable for submission to the examiner. All copies of the thesis shall include a summary of approximately 200 words and a certificate signed by the candidate to the effect that the work has not been submitted for a degree to any other university or institution.
- (b) Every candidate for the degree of Doctor of Philosophy shall submit to the Registrar five copies of the thesis and supporting work, together with a certificate from the supervisor to the effect that the thesis is in a form suitable for submission to the examiner. All copies of the thesis shall contain an abstract of the thesis comprising not more than 600 words and a certificate signed by the candidate to the effect that the work has not been submitted for a degree to any university or such institution except where specifically indicated.
2. The specifications currently approved for higher degree theses are as follows and any variation must be approved by the Academic Senate in consultation with the supervisor.
  - (a) The text of the thesis, normally in English, shall be in double-spaced typescript.
  - (b) The size of the paper shall approximate International Standards Organization paper size A4 (297mm x 210mm) except for illustrative material such as drawings, maps and printouts, on which no restriction is placed. The paper used in all copies shall be white opaque paper of good quality.
  - (c) The margins on each sheet shall be not less than 40mm on the bound side, 20mm on the unbound side, 30mm at the top and 20mm at the bottom.
  - (d) There shall be a title sheet set out in accordance with the style sheet attached.
3. The required copies of the thesis shall be either assembled securely in a demountable form, or bound, for transmission to the examiners. The demountable form required is one where the sheets are held by posts, and the method of binding is described in paragraph 4.
4. One copy of the thesis is for deposit in the University Library and shall be presented in a permanent and legible form, either original typescript, stencil copy, offset printing or Xerographic copy, using dry plain paper copying technique.

If the thesis is submitted in demountable form, all copies are to be bound after the Examiners' Reports are received and any necessary alterations made, unless the Department does not wish its copy to be bound.

- (i) The thesis shall be bound in boards, covered with buckram.
- (ii) The lettering on the spine binding will be:
  - (a) 15mm from the bottom and across - UW;

- (b) 70mm from the bottom and across - the degree and, underneath, the year of submission of the thesis, for example:

PhD  
1975

(centred if possible); and

- (c) evenly spaced between the degree and the top, reading upwards, the name of the author, initials first and surname or family name.
- (iii) No further lettering or decoration is required on the spine or elsewhere on the binding.
- (iv) In the binding of a thesis which includes mounted photographs, graphs, etc., or contains a back-pocket, packing shall be inserted at the spine to ensure even thickness of the volume.

A completed and signed "Declaration Relating to Disposition of Thesis" form shall be pasted to the inside of the front cover of the Library deposit copy. The form may be obtained from the office of the Registrar.

5. The copies of the thesis and other relevant work may be submitted for examination to the Registrar at any time provided the candidate has completed the minimum period of registration.
6. The degree will not be awarded until the bound Library-deposit copy is lodged with the Registrar.
7. Presently, the University holds that no thesis submitted for a higher degree should be retained in the Library for record purposes only, but within copyright privileges of the author, should be public property and accessible for consultation at the discretion of the Librarian.
8. In order to ascertain the wishes of a candidate for a higher degree regarding the use of which his thesis may be put, he is required to complete a declaration (obtainable from the Registrar) which would -
- (a) grant the University Librarian permission to publish or to authorize the publication of the thesis or grant access to it (Form 1);
- (b) withhold the right of the University Librarian to publish the thesis (Form 2);
- (c) allow the University Librarian to publish the thesis under certain conditions (Form 3); or
- (d) withhold the right of the University Librarian to grant access, without written consent of the author, to the thesis for up to three years (Form 4).



**REQUIREMENTS FOR TITLE SHEET OF THESIS**

(TITLE OF THESIS)

A thesis submitted in (partial) fulfilment of the  
requirements for the award of the degree of

(NAME OF DEGREE)

from

**THE UNIVERSITY OF WOLLONGONG**

by

(AUTHOR'S NAME, DEGREE(S) HELD)

(NAME OF DEPARTMENT)  
(YEAR)

## SCHEDULE OF GRADUATE SUBJECTS

### DIPLOMAS

Number	Subject	Credit Points
<b>DIPLOMA IN APPLIED MULTICULTURAL STUDIES</b>		
EDUC992	Culture, Thought and Education	12
EURO992	Language	12
SOC992	The Migration Process	12
SOC993	Migration and Social Policy	12
SOC994	Community Work	12
SOC995	Special Topic	12
<b>DIPLOMA IN EDUCATION</b>		
EDUC901	Australian Education	4
EDUC902	Educational Practice	4
EDUC903	Educational Psychology	4
EDUC904	Sociology of Education	4
EDUC905	Philosophy in Education	4
EDUC910	Communications Skills	3
EDUC911	Health Education	3
EDUC912	Physical Education	2
EDUC914	Electives	4
EDUC915	Teaching Practice	6
EDUC916	An Introduction to Curriculum Planning and Instructional Design	4
EDUC921	Economics and Commerce Method	3
EDUC922	English I Method	3
EDUC923	Geography Method	3
EDUC924	History Method	3
EDUC925	Mathematics I Method	3
EDUC926	Science I Method	3
EDUC927	English II Method	3
EDUC928	German Method	3

Number	Subject	Credit Points
EDUC930	Social Science Method	3
EDUC931	French I Method	3
EDUC932	Italian I Method	3
EDUC933	French II Method	3
EDUC934	Italian II Method	3
EDUC935	Mathematics II Method	3
EDUC936	Science II Method	3
EDUC937	Primary I Method	3
EDUC938	Primary II Method	3

### DIPLOMA IN MANAGEMENT STUDIES

#### *Compulsory subjects*

ACCY901	Financial Management I	6
ACCY910	Organisational Structure and Design	6
ACCY911	Management Control Systems	6
ACCY960	Law for Managers	6

**(Students are required to substitute an optional subject or subjects for any compulsory subjects substantially covered in previous degree or diploma studies.)**

#### *Optional subjects*

(Subjects aggregating not less than 24 credit points required)

ACCY902	Financial Management II	6
ACCY912	History of Management Thought	6
ACCY920	Production and Operations Management	6
ACCY930	Personnel Management	6
ACCY940	Marketing Management	6
ACCY961	Topics in Administrative Law	6
ACCY990	Case Study	6
ECON952	Management Economics	6

### DIPLOMA IN METALLURGY

METL902	Materials Resources	8
METL903	Developments in Materials	8
METL904	Energy in the Materials Industry	8

## 532 POSTGRADUATE STUDY

<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
METL915	Corrosion of Materials	8
METL934	Manufacturing Properties of Materials	8
METL962	Modelling Techniques in Metallurgy	8
METL982	Developments in Extractive Metallurgy	8
METL992	Metallurgy Project 4	24
<b>DIPLOMA IN PUBLIC WORKS ENGINEERING</b>		
CIVL961	Acts, Regulations and Authorities Controlling Projects	8
CIVL962	Finance and Analysis of Capital Projects	8
CIVL963	Water Engineering	8
CIVL964	Inventory Control of Road Systems	8
CIVL965	Concrete Technology	8
CIVL966	Civil Engineering Design	8
CIVL967	Advances in Civil Engineering Technologies	8
CIVL968	Environmental Control	8
CIVL969	Bridge Engineering	8

## BACHELOR OF EDUCATION

Number	Subject	Credit Points	Session Offered	Pre-requisite	Remarks
EDUC939	Educational Research Methodology and Design	16	3		Not to count with EDUC946
EDUC940	Educational Psychology Topic A	8	1, 2 or 3		
EDUC941	Educational Psychology Topic B	8	1, 2 or 3	EDUC940	
EDUC942	Educational Sociology Topic A	8	1, 2 or 3		
EDUC943	Educational Sociology Topic B	8	1, 2 or 3	EDUC942	
EDUC944	Comparative Education and History of Education	8	1, 2 or 3		
EDUC945	Philosophy of Education & Theories of Education	8	1, 2 or 3	EDUC944	
EDUC946	Introduction to Educational Research Methodology	8	1 or 2 or 3		Not to count with EDUC939
EDUC947	Introduction to Curriculum Theory & Development	8	1, 2 or 3		
EDUC948	Advanced Curriculum Theory and Development	8	1, 2 or 3	EDUC947	
EDUC949	School Administration	8	1 or 2 or 3		
EDUC950	Dynamics of Classroom Interaction	8	1 or 2 or 3		
EDUC951	Development Theories & School Educational Practice	8	1 or 2 or 3		
EDUC952	Introduction to the History of Education	8	1 or 2 or 3		
EDUC953	Education and Modern Society	8	1 or 2 or 3		



<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>	<b>Session Offered</b>	<b>Pre-requisite</b>	<b>Remarks</b>
EDUC954	Special Topic in Education A	8	1 or 2 or 3	Demonstrated expertise in a special area of Educational practice	
EDUC955	Special Topic in Education B	8	1 or 2 or 3	Demonstrated expertise in a special area of Educational practice	
EDUC956	Special Topic in Education C	8	1 or 2 or 3	Demonstrated expertise in a special area of Educational practice	

## MASTER OF ARTS

Number	Subject	Credit Points
ACCOUNTANCY $\emptyset$		
<i>Compulsory subjects for students not holding an Honours degree in Accountancy (that is, undertaking a 96 credit point Masters degree)</i>		
ACCY903	Accounting Theory	6
ACCY904	Financial Accounting	6
ACCY913	Management Accounting	6
ACCY993	Research Essay	12
<i>Optional Subjects</i>		
ACCY905	International Accounting	6
ACCY906	Issues in Financial Accounting	6
ACCY914	Management Planning and Control	6
ACCY915	Capital Investment	6
ACCY916	Studies in Controllershship	6
ACCY923	Security Evaluation and Portfolio Management	6
ACCY924	Corporate Financial Information Analysis	6
ACCY933	Studies in Information Systems in Accounting	6
ACCY943	Auditing and Accounting Information Systems	6
ACCY953	Studies in Taxation	6
ACCY963	Jurisprudence	6
ACCY964	Studies in Business Law	6

 $\emptyset$  NOTES:

1) A combination of Economics and Accountancy subjects may be approved by the Chairmen of the two Departments. Subjects aggregating not more than 12 credit points may be selected from those offered by other Departments where approval is given by the Chairmen of the respective Departments (i.e., the Department offering the subject on one hand, and on the other, either Accountancy or Economics as appropriate in each case. The appropriate Department would be the Department in which the student had taken or planned to take more than 48 credit points in Honours subjects for the undergraduate degree and graduate subjects for this degree). A candidate may not include for this degree, subjects similar in content to subjects included in the Honours part of the undergraduate course.

2) For general conditions of registration, see Masters Degree Regulations and for additional specific conditions applying to Accountancy see Description of Post-graduate Courses - Accountancy.

3) For details of these subjects, refer to the subject description of the similar subjects at 400-level, Department of Accountancy, pp. 255 - 259.

## 536 POSTGRADUATE STUDY

<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
ACCY965	Studies in Administrative Law	6
ACCY966	Studies in Industrial Law	6
ACCY967	Studies in Trade Practices and Consumer Law	6
ACCY973	History of Accounting Thought	6
ACCY983	Studies in Government Accounting	6
ACCY985	Special Topic in Accounting - A	6
ACCY986	Special Topic in Accounting - B	6
ACCY987	Special Topic in Law - A	6
ACCY988	Special Topic in Law - B	6
ACCY994	Project	12
ACCY995	Research Project	24
ACCY996	Thesis	48
<b>ECONOMICS<sup>ø</sup></b>		
ECON901	Monetary Economics	8
ECON902	Advanced International Monetary Economics	8
ECON903	Public Finance	8
ECON904	Public Sector Economics	8
ECON905	Input-Output Analysis	8
ECON906	History of Economic Thought	8
ECON911	Advanced International Economics	8
ECON912	Labour Economics	8
ECON913	Industrial Economics	8
ECON914	Economics of Social Welfare I	8
ECON915	Economics of Social Welfare II	8
ECON916	Microeconomic Analysis	8
ECON921	Econometric Models	8
ECON930	Personnel Management	8
ECON941	Advanced Topics in Economics - A	8
ECON942	Advanced Topics in Economics - B	8

<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
ECON943	Advanced Topics in Economics - C	8
ECON952	Management Economics	8
ECON991	Project	16
ECON992	Research Report	24
ECON993	Thesis	48
<b>EDUCATION</b>		
EDUC965	Major Thesis	48
<b>ENGLISH</b>		
ENGL999	Major Thesis	48
<b>EUROPEAN LANGUAGES</b>		
EURO913	Advanced Topics in French	48
EURO903	Major Thesis	48
EURO923	Advanced Topics in French and Italian	48
EURO953	Advanced Topics in Italian	48
<b>GEOGRAPHY</b>		
GEOG901	Issues in the Philosophy and Methodology of Geography	12
GEOG902	Special Seminar in Geography	12
GEOG903	Special Project in Geography	24
GEOG904	Special Topics in Geography	24
GEOG907	Advanced Topics in Economic Geography	12
GEOG908	Advanced Topics in Social Geography	12
GEOG909	Advanced Topics in Urban Geography	12
GEOG911	Advanced Topics in Fluvial Geomorphology	12
GEOG912	Advanced Topics in Coastal Geomorphology	12
GEOG913	Advanced Topics in Environmental Management	12
GEOG921	Research Report in Geography A	12
GEOG922	Research Report in Geography B	12
GEOG923	Minor Thesis in Geography	24
GEOG999	Major Thesis	48
<b>HISTORY</b>		
HIST973	Major Thesis	48

## 538 POSTGRADUATE STUDY

<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
<b>HISTORY AND PHILOSOPHY OF SCIENCE</b>		
<i>Programme 1</i>		
HPS910	Topics in History and Philosophy of Science A	24
HPS911	Topics in History and Philosophy of Science B	24
HPS901	Theories and Methods of History and Philosophy of Science	12
HPS902	Advanced topics in History and Philosophy of Science	12
HPS903	Minor Thesis	24
HPS999	Major Thesis	48
<i>Programme 2</i>		
HPS921	A Historical Introduction to Technology	12
HPS922	The Impact and Social Relations of Technology A	12
HPS923	The Impact and Social Relations of Technology B	12
HPS903	Minor Thesis	24
HPS931	Risk Assessment, Health and Safety	12
HPS932	The Organisation of Technological Change	12
HPS933	Energy and Technological Development	12
HPS934	Genetics and Technological Innovation	12
HPS935	The Impact of Computers	12
HPS936	The Technology of Medicine and Health	12
<b>MULTICULTURAL STUDIES</b>		
EDUC992	Culture, Thought and Education	12
SOC992	The Migration Process	12
SOC993	Migration and Social Policy	12
SOC994	Community Work	12
SOC995	Special Topic	12
SOC998	Major Thesis	12
<b>PHILOSOPHY</b>		
PHIL913	Advanced Philosophical Topics 913	48
PHIL923	Minor Thesis	24
PHIL933	Advanced Logic	6



<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
PHIL943	Advanced Political Philosophy	6
PHIL953	Advanced Philosophy of Value	6
PHIL963	Advanced Epistemology and Philosophy of Science	6
PHIL973	Philosophical Problems	6
PHIL983	Contemporary Issues in Philosophy	6
PHIL999	Major Thesis	48
<b>PSYCHOLOGY</b>		
PSYC901	Psychology Report	6
PSYC911	Principles of Applied Psychology	8
PSYC912	Interpersonal Skills for Applied Psychologists	8
PSYC913	Assessment and Appraisal in Applied Psychology	8
PSYC921	Counselling Psychology	8
PSYC922	Psychology in the Schools	8
PSYC923	Clinical Psychology	8
PSYC924	Industrial and Organisational Psychology	8
PSYC931	Practicum: Counselling Specialisation	8
PSYC932	Practicum: School Specialisation	8
PSYC933	Practicum: Clinical Specialisation	8
PSYC934	Practicum: Industrial and Organisational Psychology	8
PSYC939	Other Practicum Work	6
PSYC989	Reserach Project	24
PSYC999	Major Thesis	48
<b>SOCIOLOGY</b>		
SOC999	Sociology: Major Thesis	48

Number	Subject	Credit Points
<b>ACCOUNTANCY</b>		
<i>Compulsory subjects for students not holding an Honours degree in Accountancy (that is, undertaking a 96 credit point Masters degree)</i>		
ACCY903	Accounting Theory	6
ACCY904	Financial Accounting	6
ACCY913	Management Accounting	6
ACCY993	Research Essay	6
<i>Optional subjects</i>		
ACCY905	International Accounting	6
ACCY906	Issues in Financial Accounting	6
ACCY914	Management Planning and Control	6
ACCY915	Capital Investment	6
ACCY916	Studies in Controllership	6
ACCY923	Security Evaluation and Portfolio Management	6
ACCY924	Corporate Financial Information Analysis	6
ACCY933	Studies in Information Systems in Accounting	6
ACCY943	Auditing and Accounting Information Systems	6
ACCY953	Studies in Taxation	6
ACCY963	Jurisprudence	6
ACCY964	Studies in Business Law	6
ACCY965	Studies in Administrative Law	6
ACCY966	Studies in Industrial Law	6
ACCY967	Studies in Trade Practices and Consumer Law	6
ACCY973	History of Accounting Thought	6
ACCY983	Studies in Government Accounting	6
ACCY985	Special Topic in Accounting - A	6
ACCY986	Special Topic in Accounting - B	6
ACCY987	Special Topic in Law - A	6
ACCY988	Special Topic in Law - B	6

Number	Subject	Credit Points
ACCY994	Project	12
ACCY995	Research Report	24
ACCY996	Thesis	48
	<b>ECONOMICS<sup>ø</sup></b>	
ECON901	Monetary Economics	8
ECON902	Advanced International Monetary Economics	8
ECON903	Public Finance	8
ECON904	Public Sector Economics	8
ECON905	Input-Output Analysis	8
ECON906	History of Economic Thought	8
ECON911	Advanced International Economics	8
ECON912	Labour Economics	8
ECON913	Industrial Economics	8
ECON914	Economics of Social Welfare I	8
ECON915	Economics of Social Welfare II	8
ECON916	Microeconomic Analysis	8
ECON921	Econometric Models	8
ECON930	Personnel Management	8
ECON941	Advanced Topics in Economics - A	8
ECON942	Advanced Topics in Economics - B	8
ECON943	Advanced Topics in Economics - C	8
ECON952	Management Economics	8
ECON991	Project	16
ECON992	Research Report	24
ECON993	Thesis	48

## MASTER OF EDUCATION

Number	Subject	Credit Points
EDUCATION		
EDUC970	Educational Psychology A	8
EDUC971	Educational Psychology B	8
EDUC972	Curriculum Studies A	8
EDUC973	Curriculum Studies B	8
EDUC974	Educational Administration and Organisation A	8
EDUC975	Educational Administration and Organisation B	8
EDUC976	Educational Research and Design of Experiments*	8
EDUC977	Education, Industrialization and Culture	8
EDUC978	The Politics of Education	8
EDUC979	Special Topic in Education A**	8
EDUC980	Special Topic in Education B**	8
EDUC981	Minor Project in Education†	8
EDUC982	Major Project in Education††	16
EDUC983	Minor Thesis	24
EDUC984	Thesis	48

\*Strongly recommended for each candidate unless otherwise recommended by Supervisor.

\*\*Demonstrated expertise in an area of educational practice or theory.

†Not to count with Major Project in Education or Minor Thesis.

††Not to count with Minor Project in Education or Minor Thesis.

## MASTER OF ENGINEERING

Number	Subject	Credit Points
<b>CIVIL ENGINEERING</b>		
CIVL901	Advanced mechanics of solids	5
CIVL902	Theory of Elasticity	5
CIVL903	Concrete Technology	5
CIVL904	Highway materials	5
CIVL905	Transportation Engineering	5
CIVL906	Traffic Engineering	5
CIVL907	Civil Engineering Computations	5
CIVL908	Advanced Soil Mechanics	5
CIVL909	Advanced Foundation Engineering	5
CIVL910	Vibration of Structures	5
CIVL911	Finite Element methods	5
CIVL912	Engineering Hydrology	5
CIVL913	Estuary and Coastal Engineering	5
CIVL914	Analysis and Design of Bridge Structures	5
CIVL915	Numerical Methods in Civil Engineering	5
CIVL916	Research Topics in Civil Engineering	5
CIVL917	Environmental Engineering	5
CIVL950	Thesis	8
CIVL951	Thesis	28
CIVL952	Major Thesis	48
CIVL999	Advanced Topics in Engineering	48
<b>MINING ENGINEERING</b>		
MINE901	Transportation of Minerals and Personnel	5
MINE902	Advanced Studies in Mining Engineering	5
MINE903	Simulation of Underground Mining Operations and Problems	5
MINE904	Rock Mechanics	5
MINE950	Thesis	8
MINE951	Thesis	28
MINE952	Major Thesis	48



## 544 POSTGRADUATE STUDY

<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
MINE999	Advanced Topics in Engineering	48
	<b>ELECTRICAL ENGINEERING</b>	
ELEC901	Computer Aided Analysis and Design	6
ELEC911	Reliability Engineering	6
ELEC921	Matrix Analysis of Electrical Machines	6
ELEC922	Machines in Control Systems	6
ELEC923	Static Converters	6
ELEC924	Advanced Power Systems	6
ELEC931	Control Computing	6
ELEC941	Control System Analysis and Design	6
ELEC942	Optimal Control Systems	6
ELEC943	Nonlinear Control Systems	6
ELEC944	Sampled-Data Control Systems	6
ELEC961	Noise and Information Theory	6
ELEC962	Electromagnetic Fields and Antennas	6
ELEC963	Microwave Devices and Electronics	6
ELEC971	High Voltage Properties of Materials	6
ELEC972	Air Pollution Control Techniques	6
ELEC981	Mathematical Methods in Electrical Engineering 1	6
ELEC982	Mathematical Methods in Electrical Engineering 2	6
ELEC999	Advanced Topics in Engineering	48
ELEC951	Thesis	48
ELEC952	Thesis	24
ELEC953	Report	12
	<b>MECHANICAL ENGINEERING</b>	
MECH901	Advanced Heat Transfer 1	5
MECH902	Advanced Heat Transfer 2	5
MECH903	Statistical Thermodynamics	5
MECH904	Gas Dynamics	5
MECH905	Advanced Dynamics	5
MECH906	Experimental and Analytical Modelling	5

Number	Subject	Credit Points
MECH907	Design of Control Systems I - Multivariable Systems	5
MECH908	Computer Aided Design	5
MECH909	Wastewater Treatment and Disposal	5
MECH910	Water Resource Management	5
MECH911	Bulk Solids Handling Systems I	5
MECH912	Bulk Solids Handling Systems 2	5
MECH913	Pneumatic and Hydraulic Transport of Bulk Solids	5
MECH914	Air Pollution	5
MECH915	Noise Pollution	5
MECH916	Design of Control Systems II - Optimal Control	5
MECH917	Refrigeration and Air Conditioning	5
MECH918	Design of Control Systems III - Inverse Nyquist Array Techniques	5
MECH919	Advanced Topics in Mechanical Engineering I	5
MECH920	Numerical Methods in Mechanical Engineering	5
MECH921	Hydrodynamics	5
MECH929	Advanced Topics in Mechanical Engineering II	5
MECH939	Advanced Topics in Mechanical Engineering III	5
MECH950	Dissertation	8
MECH951	Dissertation	28
MECH952	Dissertation	48
MECH999	Advanced Topics in Engineering	48

## MASTER OF METALLURGY

<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
<b>METALLURGY</b>		
METL901	Metallurgical Resources 2	8
METL921	Advanced Diffraction Techniques	8
METL931	Mechanical Behaviour of Materials	8
METL932	Thermomechanical Processes	8
METL933	Fracture of Materials	8
METL935	Sheet Metal Formability	8
METL951	Structure and Properties of Alloys	8
METL952	Advanced Metallographic Methods	8
METL961	Process Modelling 2	8
METL971	Solidification 3	8
METL981	Advanced Extractive Metallurgy	8
METL990	Major Thesis	48
METL993	Metallurgy Project 3	16

## MASTER OF SCIENCE

Number	Subject	Credit Points
BIOLOGY		
BIOL999	Major Thesis	48
CHEMISTRY		
CHEM910	Selected Topics in Chemistry	16
CHEM918	Chemistry Report	16
CHEM920	Chemistry Research Project	48
CHEM921	Advanced Topics in Organic Chemistry A	8
CHEM922	Advanced Topics in Organic Chemistry B	8
CHEM931	Advanced Topics in Physical Chemistry A	8
CHEM932	Advanced Topics in Physical Chemistry B	8
CHEM941	Advanced Topics in Analytical Chemistry A	8
CHEM942	Advanced Topics in Analytical Chemistry B	8
CHEM951	Advanced Topics in Quantum Chemistry A	8
CHEM952	Advanced Topics in Quantum Chemistry B	8
CHEM961	Advanced Topics in Spectroscopy A	8
CHEM962	Advanced Topics in Spectroscopy B	8
CHEM971	Advanced Topics in Inorganic Chemistry A	8
CHEM972	Advanced Topics in Inorganic Chemistry B	8
COMPUTING SCIENCE		
CSCI911	Computer Methods	6
CSCI921	Information Processing Systems	6
CSCI931	Compilers	6
CSCI941	Advanced Topics in Computing Science A	6
CSCI942	Advanced Topics in Computing Science B	6
CSCI991	Project	12
CSCI992	Minor Thesis	24
CSCI993	Thesis	48
GEOGRAPHY*		
GEOG999	Major Thesis	48

\* The Department now offers an MA by coursework - See Master of Arts Schedule.

Number	Subject	Credit Points
<b>GEOLOGY</b>		
GEOL901	History of Geological Thought	6
GEOL902	Recent Advances in Geology	6
GEOL903	Biostratigraphy	6
GEOL904	Aspects of Coal and Petroleum Geology	6
GEOL905	Mathematical Geology	6
GEOL906	Mineral Paragenesis	6
GEOL907	Rock Magnetism	6
GEOL908	Sedimentology	6
GEOL950	Thesis	18
GEOL990	Advanced Topics in Geology	48
GEOL999	Major Thesis	48
<b>MATHEMATICS</b>		
MATH911	Advanced Mathematics Methods A	6
MATH912	Continuum Mechanics	6
MATH913	Non-Linear Partial Differential Equations	6
MATH914	Quantum Mechanics in Hilbert Space	6
MATH915	Advanced Mathematics Methods B	6
MATH916	Eigenvalue Theory of Ordinary Differential Equations	6
MATH917	Integral Equations	6
MATH918	Mean Periodic Functions	6
MATH919	Viscous Fluids with Applications in the Biological and Medical Sciences	6
MATH931	Linear Programming	6
MATH932	Optimization Techniques	6
MATH933	Sparse Matrix Techniques	6
MATH934	Advanced Numerical Analysis	6
MATH935	Numerical Linear Algebra	6
MATH941	Simulation Techniques	6
MATH942	Replacement Theory and Populations	6
MATH943	Queueing	6



<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
MATH944	Inventory Control	6
MATH945	Principles of Operations Research	6
MATH951	Coastal Dynamics	6
MATH952	Data Analysis	6
MATH953	Waves and Currents	6
MATH961	Functional Analysis	6
MATH962	Harmonic Analysis	6
MATH963	Integration Theory and its Applications	6
MATH964	Distributions	6
MATH965	Independence Proofs in Set Theory	6
MATH966	Logic and Set Theory	6
MATH967	Combinatory Logic	6
MATH968	Topics in Algebra A	6
MATH969	Topics in Algebra B	6
MATH971	Decision Theory	6
MATH972	Regression Analysis	6
MATH973	Time Series	6
MATH974	Mathematical Statistics	6
MATH991	Project	12
MATH992	Minor Thesis	24
MATH993	Thesis	48
	<b>PHYSICS</b>	
PHYS905	Mathematical Methods for Physicists A	6
PHYS910	Advanced Project in Physics A	6
PHYS942	Elementary Particle Physics	6
PHYS944	Advanced Quantum Mechanics	6
PHYS946	Advanced Solid State Physics	6
PHYS947	Special Topics in Physics A	6
PHYS948	Astrophysics Seminars	6
PHYS955	Mathematical Methods for Physicists B	6
PHYS960	Advanced Project in Physics B	6

## 550 POSTGRADUATE STUDY

<b>Number</b>	<b>Subject</b>	<b>Credit Points</b>
PHYS970	The Physics of Measurements	6
PHYS990	Plasma Physics	6
PHYS997	Special Topic in Physics B	6
PHYS998	Cosmology	6
PHYS999	Major Thesis	48

## DESCRIPTIONS OF POSTGRADUATE COURSES

NOTE: The following Departments include only research thesis subjects in the Schedule of Graduate Subjects for a Masters degree:

BIOLOGY	BIOL999	MAJOR THESIS
ENGLISH	ENGL999	MAJOR THESIS
HISTORY	HIST973	MAJOR THESIS
SOCIOLOGY	SOC999	MAJOR THESIS

Requirements for Masters degree students in these Departments are as follows:

1. Students entering under section 6(1) of the Masters Degree Requirements (i.e. from a degree of Bachelor with Honours) are required to complete the Major Thesis (48 credit points).
2. Students entering under section 6(2) of the Masters Degree Requirements (i.e. from a degree of Bachelor of a standard below honours) are required to complete subjects which aggregate not less than 96 credit points. These will consist of subjects of not less than 48 credit points recommended by the Chairman of the Department together with the Major Thesis (48 credit points).

## ACCOUNTANCY

### DIPLOMA IN ACCOUNTANCY

In accordance with the general conditions governing graduate diplomas, candidates for the Diploma in Accountancy must have been admitted to the degree of Bachelor in the University or other approved institution, and, for the award of the Diploma, are required to complete subjects approved by the Chairman of the Department of Accountancy, and aggregating not less than 48 credit points in one year of full-time study or equivalent.

An important purpose of the Diploma is to provide in a recognized University course a means for accountancy students to study the additional subjects required for cross credit to professional examinations, and which were not included in their Bachelor degree. Further, students who had included in the BCom degree all subjects required for admission to the Australian Society of Accountants could study appropriate 400-level subjects leading to advancement to Senior Associate status. The Diploma may also appeal to graduates in other disciplines who wish to obtain a background in Accounting and Financial Management.

*Specific requirements for the Diploma are:*

1. Not less than 30 credit points (of the minimum required of 48) are to be obtained from 200- and/or 300-level subjects offered by the Department of Accountancy.
2. With the approval of the Chairman of the Department of Accountancy subjects may be selected from 400-level subjects offered by the Department of Accountancy. (Any subjects selected under this clause may be included in the 30 credit points required under 1.).
3. The whole course for the diploma is to be approved by the Chairman of the Department of Accountancy as providing a coherent course of study.

## DIPLOMA IN MANAGEMENT STUDIES

In accordance with the general conditions for graduate diplomas, candidates for the Diploma in Management studies must have been admitted to the degree of Bachelor in the University or other approved institution. In special circumstances a manager holding other academic or professional qualifications and with experience in a managerial position for not less than five years may be admitted as a candidate.

Candidates are required to complete the compulsory subjects together with optional subjects selected from the schedule of subjects for the Diploma, and aggregating 48 credit points. The overall course of study for the Diploma is to be approved by the Chairman, Department of Accountancy. No credit from previous study is permitted.

The purpose of the Diploma in Management Studies is to provide an education with an applied emphasis at post graduate level in the several functional areas of management suitable for "generalists" in management.

The Diploma may only be studied part-time. Classes are conducted on a seminar basis, students being encouraged to participate fully, drawing on their work experience. Because of this the number of candidates in each seminar group is restricted.

*Subjects for Diploma in Management Studies*

### ACCY901 FINANCIAL MANAGEMENT I

*First session; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

The interpretation and utilisation of the major types of reports and analyses prepared by accountants for management decision making.

No prescribed textbooks.

### ACCY902 FINANCIAL MANAGEMENT II

*Session to be determined; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

An examination of the sources of corporate finance and the identification of relevant costs for decision making.

No prescribed textbooks.

### ACCY910 ORGANISATIONAL STRUCTURE AND DESIGN

*First Session; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

An examination of different organisational structures. Performance and effectiveness of different structures. Implications of environmental factors for organisational design. Individuals and groups as a consideration in design. Change and adaptation of organisational structure.

No prescribed textbooks.

### ACCY911 MANAGEMENT CONTROL SYSTEMS

*Second Session; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

Analysis of the relationship between information and decision systems in organ-

isations. Cybernetic control systems for organisations. Nature of organisational control. Planning and uncertainty. Strategies for coping with variety.

No prescribed textbooks.

## ACCY912 HISTORY OF MANAGEMENT THOUGHT

*Session to be determined; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

An overview of the development of management thought with emphasis on the different approaches which have been employed in attempting to solve the perpetual problems faced by managers through the ages.

No prescribed textbooks.

## ACCY920 PRODUCTION AND OPERATIONS MANAGEMENT

*Session to be determined; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

The design and operation of goods and service producing activities with particular reference to the development of short term decision models.

No prescribed textbooks.

## ACCY930 PERSONNEL MANAGEMENT

*Session to be determined; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

Legal aspect: An examination of relevant aspects of the law of employment including the nature of the master/servant relationship, the duties of employers and employees under a contract of employment, termination of the contract, leave with pay, and workers compensation.

The Economics Department proposes to collaborate in developing an integrated inter-disciplinary study of the subject area. Its contribution will be based on the study of the supply of and demand for human resources both in the organisation of the individual management unit and in macroeconomic terms.

No prescribed textbooks.

## ACCY940 MARKETING MANAGEMENT

*Session to be determined; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

Marketing as an integrated strategy matching unfulfilled needs with corporate abilities; and the reappraisal of achievements and prospects of existing products and strategies, including an examination of the law relating to quality standards, the control of advertising and trade promotions, sales techniques; distribution arrangements and consumer credit.

No prescribed textbooks.

## ACCY960 LAW FOR MANAGERS

*Second Session; 6 credit points (2 lectures/seminars per week)*

*Assessment:* seminars, case studies, essays and examinations

Sources of law, the common law system, the doctrine of precedent; the hierarchy of the courts, how to understand case reports, statutory interpretation and how to understand an act of parliament; constitutional structure of the federal system



and separation of powers. Outlines of the law relating to contracts, agency, business organisations, the employment relationship, consumer protection; and taxation of income, including the concepts of income and deductibility.

No prescribed Texts.

### ACCY961 TOPICS IN ADMINISTRATIVE LAW

*Session to be determined; 6 credit points (2 lectures/seminars per week)*

*Assessment: seminars, case studies, essays and examinations*

### ACCY990 CASE STUDY

*6 credit points*

An analysis of a particular managerial problem encountered in practice.

*Details of other graduate subjects*

For details of other graduate subjects offered by the Department of Accountancy refer to the Schedule of Subjects for the MCom degree shown on page 540, and in particular the note indicating that the subject descriptions for all these 900-level subjects are the same as the subject descriptions for the 400-level subjects of the same name and shown on pages 255-259.

### THE MASTER OF COMMERCE DEGREE, ACCOUNTANCY OR ECONOMICS

- A.
1. Candidates who have completed the requirements for the award of the BCom(Hons) in Accountancy or Economics, or an equivalent degree, may qualify for the award of the MCom degree by completing at honours standard any one of the following courses of study.
    - (i) Thesis (48 credit points).
    - or (ii) Project (12 credit points, Accountancy; 16 credit points, Economics) plus course work to aggregate not less than 48 credit points.
    - or (iii) Research report (24 credit points) and course work aggregating not less than 24 credit points.
    - or (iv) Course work aggregating not less than 48 credit points.
  2. Subjects are to be selected from 900-level subjects offered by either the Department of Accountancy or the Department of Economics, and included in the Schedule of Graduate Subjects; provided that:
    - (a) A combination of Economics and Accountancy subjects may be approved by the Chairmen of the two Departments, and
    - (b) Subjects aggregating not more than 12 credit points may be selected from those offered by other Departments, where approval is given by the Chairmen of the respective Departments (i.e., the Department offering the subject on one hand, and on the other, either Accountancy or Economics as appropriate in each case. The appropriate Department would be the Department in which the student had taken or planned to take more than 48 credit points in Honours subjects for the undergraduate degree and graduate subjects for this degree.).
  3. A candidate may not include for this degree subjects similar in content to subjects included in the honours part of the undergraduate course.

- B. Candidates who have completed the requirements for the BCom degree, or equivalent degree, may, subject to the attainment of a satisfactory standard in that degree, be permitted to register as candidates for the MCom degree. Such candidates may qualify for the award of the degree by completing at honours standard subjects aggregating not less than 96 credit points of which subjects aggregating not less than 48 credit points shall be selected in accordance with the requirements (1) to (3) above.

### THE MASTER OF ARTS DEGREE, ACCOUNTANCY OR ECONOMICS

- A. 1. Candidates who have completed at an acceptable standard the requirements for the award of the BA (Hons) in Accountancy or Economics, or an equivalent degree, may qualify for the award of the MA degree by completing at honours standard any one of the following subjects, or combination of subjects:
- (i) Thesis (48 credit points).
  - or (ii) Project (12 credit points, Accountancy; 16 credit points, Economics) plus course work to aggregate not less than 48 credit points.
  - or (iii) Research report (24 credit points) and course work aggregating not less than 24 credit points.
  - or (iv) Course work aggregating not less than 48 credit points.
2. Subjects are to be selected from 900-level subjects offered by either the Department of Accountancy or the Department of Economics, and included in the Schedule of Graduate Subjects; provided that:
- (a) A combination of Economics and Accountancy subjects may be approved by the Chairmen of the two departments, and
  - (b) Subjects aggregating not more than 12 credit points may be selected from those offered by other Departments, where approval is given by the Chairmen of the respective Departments (i.e., the Department offering the subject on one hand, and on the other, either Accountancy or Economics as appropriate in each case. The appropriate Department would be the Department in which the student had taken or planned to take more than 48 credit points in Honours subjects for the undergraduate degree and graduate subjects for this degree).
3. A candidate may not include for this degree subjects similar in content to subjects included in the honours part of the undergraduate course.
- B. Candidates who have completed the requirements for the BA degree, or equivalent degree, may, subject to the attainment of a satisfactory standard in that degree, be permitted to register as candidates for the MA degree. Such candidates may qualify for the award of the degree by completing at honours standard subjects aggregating not less than 96 credit points of which subjects aggregating not less than 48 credit points shall be selected in accordance with the requirements (1) to (3) above.

**MASTER OF SCIENCE***Introduction and Objectives*

There have been many rapid advances in Chemistry, particularly in chemical instrumentation, over the past decade. Many techniques and applications are now in common use which did not even exist five years ago. There is therefore a need for Chemistry graduates, especially those of some standing, to become aware of, and proficient in, at least some of these new developments. The proposed courses are intended to provide for the specific needs and interests of applicants from both Industry and Education.

*Structure of the Course*

The course will be made up of subjects selected from those described below, in accordance with the Conditions for the Award of the Degree of Master.

The subject CHEM910 Selected Topics in Chemistry is intended to be a "broadening" subject and is compulsory for all students undertaking the degree by course work unless they have already passed CHEM411, which is similar in structure.

Students entering with a pass degree will take subjects to a value of 96 credit points.

Subjects to be offered each year will depend upon student and staff availability.

*Entry to the Course*

This is subject to the approval of the Academic Senate on the advice of the Chairman, Department of Chemistry.

*Selection of Subjects*

Students must consult the Chairman, Department of Chemistry, for approval of their proposed choice of subjects.

*Pre-requisites*

The minimum pre-requisite for all subjects is that the student must have graduated with at least 24 credit points of 300-level Chemistry subjects.

**CHEM910 SELECTED TOPICS IN CHEMISTRY**

*Double session; 16 credit points (56 hrs lectures, 56 hrs tutorials)*

*Compulsory for all students doing MSc in Chemistry by coursework, except for students who have passed CHEM411*

*Not to count with CHEM411*

*Assessment: Written examination + Seminar*

Theories concerning the creation of life on Earth; Organic and Inorganic Geochemistry and its effect on environment; Vitamins, hormones and important common drugs; Introduction to Digital Instrumentation; The Basic Nature and desirable properties of Materials (e.g. ceramics, glasses, polymeric and composite materials); Chemistry through the Ages; Chemical Literature; Chemistry and Society; Computer Simulation of Complex Systems; and others added as required.

**CHEM918 CHEMISTRY REPORT**

*Double session; 16 credit points (112 hrs tutorials)*

*Assessment: Substantial report*

Under the supervision of staff appointed by the Chairman, Department of Chemistry, students will survey the chemical literature and prepare a report on a topic chosen by the supervising staff.

### CHEM920 CHEMISTRY RESEARCH PROJECT

*48 credit points*

*Assessment:* Major thesis

Topic to be arranged in consultation with the Chairman, Department of Chemistry and approved by the Graduate Studies Committee.

### CHEM921 ADVANCED TOPICS IN ORGANIC CHEMISTRY A

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminar

Selected material from organic stereochemistry, photochemistry and methods of instrumental organic analysis.

### CHEM922 ADVANCED TOPICS IN ORGANIC CHEMISTRY B

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminar

Selected material from organic synthesis and analysis, natural products chemistry, and medicinal and pharmaceutical chemistry.

### CHEM931 ADVANCED TOPICS IN PHYSICAL CHEMISTRY A

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Project work + Continual assessment + Assignments + Seminars

Physical Chemistry in the environment (atmospheric chemistry, industrial emission control and energy technology). Surface and colloid chemistry.

### CHEM932 ADVANCED TOPICS IN PHYSICAL CHEMISTRY B

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Project work + Continual assessment + Assignments + Seminars

Physical aspects of mass spectroscopy structure-reactivity relationships; Molecular energetics; reactive and non-reactive collision processes in the gas phase. Application to the chemical constituents and processes of the stratosphere and interstellar gas clouds.

### CHEM941 ADVANCED TOPICS IN ANALYTICAL CHEMISTRY A

*Single or Double Session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminars

Electroanalytical chemistry, modern spectroscopic instrumentation, trace analysis.

### CHEM942 ADVANCED TOPICS IN ANALYTICAL CHEMISTRY B

*First or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminars

Acid-bases and the role of the solvent, thermochemical analysis, automation in analytical chemistry, organic reagents.



### CHEM951 ADVANCED TOPICS IN QUANTUM CHEMISTRY A

*Single or Double session; 8 credit points (28 lecture, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminars

Mathematical and computational techniques of quantum chemistry; Analysis of molecular properties and behaviour by computer experiments and simulation of chemical systems; possibility of predicting molecular behaviour in unusual situations.

### CHEM952 ADVANCED TOPICS IN QUANTUM CHEMISTRY B

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminars

Energy transfer and storage; processes in chemical systems; Study of molecular interactions and dynamics using modern chemical-physics instrumentation such as pulsed lasers; Study of molecular interactions using beam techniques; Bio-physical applications.

### CHEM961 ADVANCED TOPICS IN SPECTROSCOPY A

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminars

Selected material from UV-visible, I.R. and C-13 NMR spectroscopy.

### CHEM962 ADVANCED TOPICS IN SPECTROSCOPY B

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminars

Selected material from instrumentation and applications in electron-masslaser - and atomic absorption spectroscopy.

### CHEM971 ADVANCED TOPICS IN INORGANIC CHEMISTRY A

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminars

Mossbauer effect, advanced magnetochemistry. Inorganic chemistry, and problems in biological systems; and others added as required.

### CHEM972 ADVANCED TOPICS IN INORGANIC CHEMISTRY B

*Single or Double session; 8 credit points (28 lectures, 28 tutorials)*

*Assessment:* Written examination + Continual assessment + Assignments + Seminars

Molecular structure determination by X-ray diffraction techniques, metal clusters, boron cage compounds. Inorganic rings and chains, organometallic chemistry; and others added as required.



**CIVIL ENGINEERING****DIPLOMA IN PUBLIC WORKS ENGINEERING***Aims of the Course*

The Postgraduate Diploma in Public Works Engineering is intended to provide specialised work in the areas of importance to Public Works and Local Government engineers. The areas covered will include:

1. Acts, regulations and codes of practice.
2. Financial analysis.
3. Civil Engineering Practice.

The first two areas are mandatory, with some choice within the offerings of practice subjects. Selection of subjects will be made with the approval of the Chairman of the Department.

Each subject offered will be rated at 8 credit points, and a total of 6 subjects (48 credit points) are required to fulfil the requirements noting that the two subjects (\*) are mandatory.

*Entry Requirements*

The course is of 1 year's full-time or 2 years part-time study for those candidates who possess a Bachelor Degree.

*Outline of subjects*

**\*CIVL961 ACTS, REGULATIONS AND AUTHORITIES  
CONTROLLING PROJECTS**

To include nature and sources of law, interpretation of documents, technical options, Arbitration and contract law relevant to duties of a Civil Engineer; legal problems in administering contracts; Codes of practice; Industrial problems in major engineering projects.

**\*CIVL962 FINANCE AND ANALYSIS OF CAPITAL PROJECTS**

Financing of Civil Engineering Projects from the broad perspective of regional, state and national economic policy.

**CIVL963 WATER ENGINEERING**

Frequency analysis of rainfall and floods; design flood calculation; open channel hydraulics; design of hydraulic structures.

**CIVL964 INVENTORY CONTROL OF ROAD SYSTEMS**

The assessment and improvement of traffic flow; the determination of road maintenance requirements; the scheduling of maintenance works, including serviceability problems; establishment and maintenance of data bases of road systems.

**CIVL965 CONCRETE TECHNOLOGY**

The significance of tests and characteristics of constituent materials; target strength; mix design theories; creep and shrinkage problems.

**CIVL966 CIVIL ENGINEERING DESIGN**

The analysis and design of large scale projects using both steel and concrete

as basic materials.

### **CIVL967 ADVANCES IN CIVIL ENGINEERING TECHNOLOGIES**

To include advances in such areas as digital computers, instrumentation and testing and the fields of construction, analysis and design.

### **CIVL968 ENVIRONMENTAL CONTROL**

The examination of complex interaction of man made environments with natural environments; measurements and their interpretation; regulations; noise.

### **CIVL969 BRIDGE ENGINEERING**

To include types of bridges, design codes, design of superstructures, design of foundations, computer programme suites.

+oCIVL481 ENGINEERING MANAGEMENT 1

+oCIVL482 ENGINEERING MANAGEMENT 2

+CIVL487 TOWN PLANNING

+CIVL493 PUBLIC HEALTH ENGINEERING

+CIVL496 ROADS ENGINEERING

+Refer to calendar entry under Description of subjects - civil engineering.

o CIVL481 and CIVL482 together count as 8 credit points.

### **MASTER OF ENGINEERING**

The Department of Civil Engineering offers the following opportunities for graduates to conduct research or pursue an advanced course of study:

1. Master of Engineering Degree by coursework.
2. Master of Engineering Degree by research thesis.
3. Master of Engineering Degree by combinations of coursework and research thesis.

#### **1. The Master of Engineering Degree by Coursework**

The Master of Engineering Degree by coursework is intended for engineers who have had some professional experience after graduating. It consists of lecture courses together with a project. The lectures and projects will be closely related where possible to the professional interest of those taking part.

#### **2. The Master of Engineering Degree by Research Thesis**

The Master of Engineering Degree by research thesis is intended for those engineers qualified and interested in specific problems.

#### **3. The Master of Engineering Degree by Combinations of Coursework and Research Thesis.**

This is the more normal course for the younger Civil Engineer, and gives him training in research and also gives greater depth of understanding in specialist postgraduate areas.

*Master of Engineering Research Thesis Topics*

The following subject areas are available for graduates wishing to conduct research for the Master of Engineering Degree.

Transportation, highway materials; planning for recreation, planning for urban and regional purposes. Computer applications in traffic engineering. Economic analysis and highway inventories. Designs of highways, computer methods.

Estuary and coastal engineering, sediment transport. Hydraulic model studies.

Engineering hydrology. Flood frequency. Design flood estimations. Flood hydrograph models. Open channel hydraulics. Hydraulics of drainage structures. Urban drainage. Sediment transport.

Finite element methods, the application of finite element methods to the design of bridges and flat plate structures. Foundations, slopes. Failure of rock and soil masses.

Mathematical theories of elasticity and plasticity applied to engineering problems. Experimental methods. Vibrations.

Engineering and construction materials. Use of industrial by-products in cementitious products. Workability of concrete. Use of pulverised fuel ash in concrete. Stabilisation with p.f.a. Highway materials. Fabrication. Fracture mechanics. Testing under cyclic loads. Programmed testing.

*Aims of the Course*

The programmes of study allow the student to combine specialist postgraduate subjects according to his undergraduate background, with project work. It is intended to strengthen professional training in a context of problems and policies which reach beyond the conventionally recognised boundaries of single disciplines. Elective postgraduate subjects and introductions to disciplines in which the student has no experience, are available.

The programme for the Master of Engineering Degree offered by the Department of Civil Engineering has two explicit aims:

- (a) **Specialist Training.** Postgraduate training is provided for students with appropriate backgrounds, to enable professional development in their particular discipline. This is achieved by providing access to existing postgraduate courses already offered by Civil Engineering.
- (b) **Interdisciplinary Training.** An interdisciplinary framework is provided, within which postgraduate training in Civil Engineering may be integrated with other disciplines. This is achieved by the provision of limited access to concentrated study in other disciplines.

*Entry Requirements*

Normally the course is of 1 year full-time or 2 years part-time study for those candidates who possess a Bachelor Degree with Honours. Applicants possessing a Bachelor degree of a standard less than Honours will have their programme approved by the Academic Senate after consultation with the Chairman of the Department of Civil Engineering.

*Credit Points*

Each subject listed below, except where otherwise stated, has a credit point value of 5.

**CIVL901 ADVANCED MECHANICS OF SOLIDS**

Torsion of prismatic bars and thin-walled structures including box girders; stability of bars, rings and plates; selected topics on plates and shells. Theories of plasticity, applications; contact stresses; fluctuating stresses; theories of fatigue failure; mechanics of creep; fracture mechanics.

**CIVL902 THEORY OF ELASTICITY**

Basic concepts: Notation; components of stress and strain; plane stress and plane strain; equations of equilibrium and compatibility; Airy's stress function; applications to the solution of two-dimensional problems in rectangular co-ordinates; stress distributions symmetrical about an axis; application to the solution of various problems.

Torsion: Prismatical bars, St. Venant's theory; membrane and other analogies; torsion of rectangular bars, angles, channels, etc.; hollow shafts and thin tubes.

Stress concentration: Mathematical and experimental methods; stress concentration in tension and compression members; stress concentration in torsion; circular shafts of variable diameter; stress concentration in bending; investigation of stress concentration with models; photoelastic method of stress measurements.

Thermal Stresses: One-dimensional temperature distributions; rectangular plate, turbine blade; two-dimensional temperature distributions; circular disc, turbine disc; allowable stresses at elevated temperatures; creep, fatigue, thermal shock.

Stress waves: Longitudinal waves in prismatic bars; longitudinal impact of bars.

**CIVL903 CONCRETE TECHNOLOGY**

Mix design theories; design of high strength and lightweight concrete, elastic behaviour; strength, creep, shrinkage; significance of tests and properties of constituent materials; analysis of results; non-destructive tests; special concrete applications.

**CIVL904 HIGHWAY MATERIALS**

Soil and roadmaking aggregate surveys; compaction of soil; road construction with soil and low-grade aggregates; mechanical, cement, bituminous, and resinous stabilisation; constructional methods in soil stabilisation.

The origin, preparation, constitution and rheology of bituminous binders; Mechanical and physical properties of bituminous materials. Close and open textured materials. Surface dressing. Plant. Sampling and testing. Maintenance.

Concrete construction. Materials; mixing; laying; sampling and testing. Maintenance.

Pavement design and evaluation - a review of current Australian, European and North American Practice.

**CIVL905 TRANSPORTATION ENGINEERING**

Airport engineering - classification, design standards, layout and development, terminal facilities, city-airport transport systems; urban transportation and town planning; railroad engineering - urban rail transit, light rail rapid transit; pipeline transportation; belt conveyors - freight and passengers.

**CIVL906 TRAFFIC ENGINEERING**

Characteristics of vehicles, drivers and pedestrians; vehicle speeds, volumes, journey times; accident studies; traffic management; parking; traffic prediction; economic analysis.



**CIVL907 CIVIL ENGINEERING COMPUTATIONS**

(i) The use of problem oriented languages in solving Civil Engineering problems, including I.C.E.S. STRUDL, COGO, ROADS, TRANSET, PROJECT, BRIDGE, SEPOL, LEASE, TRAVOL. In general these subsystems can be applied to Structural systems, co-ordinate geometry, roadway analysis, transportation networks, project engineering bridge design, settlement problems, stability of slopes and traffic volume problems.

(ii) The development of general user programmes using ICES Command Definition Language, Command Interpreter System, ICETLAN.

This subject will concentrate on STRUDL which is designed for application to a wide range of Structural types, both two and three dimensional, including trusses, frames, and continuous finite elements. Any combination of these components may be used with a variety of analysis and design procedures including linear elastic static analysis, finite element analysis, nonlinear geometric analysis, dynamic analysis, frame optimization, steel frame member design, and design and checking of reinforced concrete building frames including beams, columns, slabs, steel quantity and location, material take-off etc. Input data includes member and structure boundary conditions, prismatic or variable section members, any number of loading conditions consisting of any number of uniform, linear, or concentrated member loads, uniform or concentrated member loads, uniform or concentrated member distortions and temperature loads, and joint loads and joint displacements.

**CIVL908 ADVANCED SOIL MECHANICS**

The principle of effective stress and its implications; stress paths in soil mechanics; problems of shear strength and failure; peak, residual and softened shear strengths for a soil; pore pressure parameters A and B; the use of pore pressure parameters in practice; selected problems of stability and settlement; the analysis and performance of slopes; the factor of safety concept; stress analysis approaches; introduction to soil dynamics.

**CIVL909 ADVANCED FOUNDATION ENGINEERING**

General principles concerning selection of foundation type on different types of soil; difficult ground conditions including collapsing and swelling soils; performance observations in geotechnical engineering; preventative and remedial measures against ground movement and slope failure; buoyancy rafts and basements; selected problems of foundation analysis and design; dam foundations; stress distribution and stress analysis; soil sampling and exploration; soil stabilisation including drainage.

**CIVL910 VIBRATION OF STRUCTURES**

Analysis of lumped mass systems with various degrees of freedom. Vibration of beams and other continuous structures. Vibration of buildings and bridges. Earthquake and blast loadings. Wind loadings.

**CIVL911 FINITE ELEMENTS METHODS**

Variational principles; element shape functions, "displacement" and "stress" formulations, curved and isoparametric elements; computer programming techniques; the finite strip procedure; analysis of plates, shells and axisymmetric structures; analysis of slab- and box-type bridge superstructures.

**CIVL912 ENGINEERING HYDROLOGY**

Storm models, storm maximisation, extreme precipitation estimates, intensity-frequency-duration analysis, design storms; rainfall losses, infiltration models, design losses; advanced unit - hydrograph theory, synthetic unit hydrographs;



hydrograph synthesis by runoff - routing; design floods for rural and urban catchments.

### **CIVL913 ESTUARY AND COASTAL ENGINEERING**

Theory of deep and shallow water waves, wave generation and decay, wave breaking, wave forces on structures; harbour resonance and seiche action, wave refraction and diffraction; breakwater design; shoreline processes, beach protection; tidal theory, propagation of tides into estuaries; sediment transport; fixed and loose bed hydraulic models; inspection of hydraulic model.

### **CIVL914 ANALYSIS AND DESIGN OF BRIDGE STRUCTURES**

Types of bridge; similarities between bridges and some plate- and shell-type building structures; loadings; analytical methods: load distribution technique, orthotropic plate theory, grillage and space frame methods, finite strip procedure, finite element method and finite difference approach; computer programme suites; design codes; design of super-structures; design of foundations.

### **CIVL915 NUMERICAL METHODS IN CIVIL ENGINEERING**

Application of digital and analogue computers to Civil Engineering problems, bounds of computation errors. Optimization techniques. Network techniques. Finite difference methods. Conveyance of numerical calculation processes.

### **CIVL916 RESEARCH TOPICS IN CIVIL ENGINEERING**

Topics will be selected from those areas of Civil Engineering in which staff members or visiting staff members to the department, are engaged in active research.

### **CIVL917 ENVIRONMENTAL ENGINEERING**

Collection and treatment of waste water; physical, chemical and biological treatment processes; measurement of pollutants; industrial and solid waste disposal; air pollution; noise pollution; environmental impact statements.

### **CIVL950 THESIS**

*Double session; 8 credit points*

### **CIVL951 THESIS**

*Double session; 28 credit points*

### **CIVL952 MAJOR THESIS**

*Double session; 48 credit points*

### **CIVL999 ADVANCED TOPICS IN ENGINEERING**

*Double session; 48 credit points*

Details of this subject are the same as for ELEC999 Advanced Topics in Engineering, as described in the postgraduate entry under the Department of Electrical Engineering\*, with the addition of the following two topics:

Advanced Metallographic Methods

Structure and Properties of Materials

The selection of the topics will be subject to the approval of the Chairman of the Department of Civil Engineering.

\* See page 597.

**MINING ENGINEERING****MASTER OF ENGINEERING**

The Department of Civil Engineering offers graduates the following opportunities to conduct research or pursue an advanced course of study in Mining Engineering:

1. Master of Engineering Degree by coursework.
2. Master of Engineering Degree by research thesis.
3. Master of Engineering Degree by combination of coursework and research thesis.

**1. The Master of Engineering Degree by Coursework.**

The Master of Engineering Degree by coursework is intended for engineers who have had some professional experience after graduating. It consists of lecture courses together with a project. The lectures and projects will be closely related where possible to the professional interest of those taking part.

**2. The Master of Engineering Degree by Research Thesis.**

The Master of Engineering Degree by research thesis is intended for those engineers qualified and interested in specific problems.

**3. The Master of Engineering Degree by Combinations of Coursework and Research Thesis.**

This is the more normal course for the younger mining Engineer, and gives him training in research and also gives greater depth of understanding in specialist postgraduate areas.

*Master of Engineering Research Thesis Topics.*

The following subject areas are available for graduates wishing to conduct research for the Master of Engineering Degree.

1. **Transportation:** Transport of minerals and personnel. Safety. Environmental considerations. Regulations.
2. **Rock Mechanics:** Mathematical theories. Subsidence. Gas Emission & Control. Design of roofs and roofing.
3. **Economic:** Economic policies as affected by demand and Governments. Industrial relations and social problems. Mechanisation.
4. **Materials:** Construction requirements of access and distribution. Industrial Wastes. Development.

*Aims of the Course*

The programmes of study allow the student to combine specialist postgraduate subjects according to his undergraduate background, with project work. It is intended to strengthen professional training in a context of problems and policies which reach beyond the conventionally recognised boundaries of single disciplines. Elective postgraduate subjects and introductions to disciplines in which the student has no experience, are available.

The programme for the Master of Engineering Degree has two explicit aims:

- (a) **Specialist Training.** Postgraduate training is provided for students with appropriate backgrounds, to enable professional development in their

particular discipline. This is achieved by providing access to existing post-graduate courses already offered.

- (b) **Interdisciplinary Training.** An interdisciplinary framework is provided, within which postgraduate training in Mining Engineering may be integrated with other disciplines. This is achieved by the provisions of limited access to concentrated study in other disciplines.

*Entry Requirements*

Normally the course is of 1 year full-time or 2 years part-time study for those candidates who possess a Bachelor Degree with Honours. Applicants possessing a Bachelor degree of a standard less than Honours will have their programme approved by the Academic Senate after consultation with the Chairman of the Department of Civil Engineering.

*Credit Points*

Each of the subjects listed below, except where otherwise stated, has a credit point value of 5.

**MINE901 TRANSPORTATION OF MINERALS AND PERSONNEL**

Transport of minerals from initial winning to stockpile and to distribution points. Safety problems, hygiene, the environment. Transport of personnel, equipment, safety, regulations. Cost involved. Current research.

**MINE902 ADVANCED STUDIES IN MINING ENGINEERING**

Topics will be selected from those areas of Mining Engineering in which staff members or visiting staff members to the Department are engaged in active research.

**MINE903 SIMULATION OF UNDERGROUND MINING OPERATIONS AND PROBLEMS**

Including coal reserves, mining dimensions, surface effects, cost benefit effects of operation and management and economic evaluation and feasibility of a mining enterprise.

**MINE904 ROCK MECHANICS**

Stress and failure in rock excavations. Design of rock structures, computer applications. Rock materials.

**MINE950 THESIS**

*Double session; 8 credit points*

**MINE951 THESIS**

*Double session; 28 credit points*

**MINE952 MAJOR THESIS**

*Double session; 48 credit points*

**MINE999 ADVANCED TOPICS IN ENGINEERING**

*Double session; 48 credit points*

Details of this subject are the same as for ELEC999 Advanced Topics in Engineer-

ing, as described in the Postgraduate entry under the Department of Electrical Engineering\*, with the addition of the following two topics:

Advanced Metallographic Methods

Structure and Properties of Materials

The selection of the topics will be subject to the approval of the Chairman of the Department of Civil Engineering.

\*See Page 597.

**DIPLOMA IN COMPUTING SCIENCE**

The Diploma course is designed to provide advanced studies in Computing Science at a professional level to graduates of this or another university who have some (not necessarily advanced) background in Computing Science.

The graduate Diploma in Computing Science shall be subject to the University requirements for the award of graduate Diplomas together with the following conditions:

1. Entry to the Diploma will normally be from a pass degree. The expected level of Computing Science background will be equivalent to Computing Science II (CSCI201).
2. The Diploma course is a coherent programme of study (48 credit points) normally occupying two sessions of full-time study or four sessions of part-time study and will involve the successful completion of
  - (i) the subject CSCI411 Computing Science Honours Seminar (12 credit points); and
  - (ii) subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science) to the value of 12 credit points; and
  - (iii) further subjects chosen from the Schedule of subjects for the Master of Science Degree (Computing Science), and/or the Schedule of Subjects for the Master of Science Degree (Mathematics), and/or Schedule F to the value of 24 credit points.
3. A candidate may not include in this diploma programme any subjects which the candidate has previously credited towards another degree or diploma of the University. Subject to staff and resources some graduate subjects may not be available in any given year.

**MASTER OF SCIENCE**

The degree of Master of Science (MSc) in the Department of Computing Science shall be subject to the University requirements for the award of the degree of Master together with the following conditions.

1. A candidate shall undertake research, or a course of graduate studies and research, specialising in one or more of the following fields:
 

Operating systems; Interactive languages; Pattern recognition, Text processing; Algorithm design; Data base design; Computer graphics; Computer aided learning; Software science.
2. Entry to the degree programme will normally be from an Honours degree in Computing Science or from a pass degree with an appropriate 3 year sequence in Computing Science. Entry to the degree programme may also be approved by the Academic Senate for candidates with the qualification of Diploma in Computing Science on the recommendation of the Chairman of the Department of Computing Science.
3. Where entry to the degree programme has been approved from an Honours degree or a Diploma in Computing Science, it will normally occupy two sessions of full-time or four sessions of part-time study, and shall involve one of the following:
  - (a) a thesis embodying the results of investigation to



the value of 48 credit points,

OR

- (b) a minor thesis embodying the results of an investigation whose credit point value is 24, together with the satisfactory completion of
- (i) subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science) to the value of 12 credit points; and
  - (ii) further subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science), and/or the Schedule of Subjects for the Master of Science Degree (Mathematics) to the value of 12 credit points;

OR

- (c) satisfactory completion of a substantial written project whose credit point value is 12 together with the satisfactory completion of
- (i) subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science) to the value of 12 credit points; and
  - (ii) further subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science), and/or the Schedule of Subjects for the Master of Science Degree (Mathematics) to the value of 24 credit points.

4. Where entry to the degree programme has been approved from a pass degree, it will normally occupy four sessions of full-time study or eight sessions of part-time study, and shall involve one of the following:

- (a) a thesis embodying the results of an investigation whose credit point value is 48 together with the satisfactory completion of the Computing Science Honours Seminar whose credit point value is 12 and the satisfactory completion of
- (i) subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science), to the value of 12 credit points; and
  - (ii) further subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science), and/or the Schedule of Subjects for the Master of Science Degree (Mathematics), and/or Schedule F to the value of 24 credit points.

OR

- (b) a minor thesis embodying the results of an invest-

igation whose credit point value is 24 together with the satisfactory completion of the Computing Science Honours Seminar whose credit point value is 12 and the satisfactory completion of

- (i) subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science) to the value of 12 credit points; and
- (ii) further subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science), and/or the Schedule of Subjects for the Master of Science Degree (Mathematics) to the value of 24 credit points; and
- (iii) further subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science), and/or the Schedule of Subjects for the Master of Science Degree (Mathematics), and/or Schedule F to the value of 24 credit points.

OR

- (c) satisfactory completion of a substantial written project whose credit point value is 12 together with the completion of the Computing Science Honours Seminar whose credit point value is 12 and the satisfactory completion of
  - (i) subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science) to the value of 12 credit points; and
  - (ii) further subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science), and/or the Schedule of Subjects for the Master of Science Degree (Mathematics) to the value of 24 credit points; and
  - (iii) further subjects chosen from the Schedule of Subjects for the Master of Science Degree (Computing Science), and/or the Schedule of Subjects for the Master of Science Degree (Mathematics), and/or Schedule F to the value of 36 credit points.

- 5. A candidate may not include in this degree programme any subject which the candidate has previously taken and had credited towards another degree or diploma of the University.
- 6. All subjects chosen from either the Schedule of Subjects for the Master of Science Degree or Schedule F of the Bachelor Degree Requirements for inclusion in the degree programme shall be subject to the approval of the Chairman of the Department of Computing Science.
- 7. Not all graduate subjects will necessarily be available during a given year.
- 8. Notwithstanding the conditions relating to the limitation of time for the

- degree of Master, the registration of a candidate will be subject to termination if that candidate fails subjects to the total value of 18 or more credit points.
9. Each candidate for the degree programme under 3(c) or 4(c) shall be assigned a supervisor by the Chairman of the Department of Computing Science. Where a candidate has enrolled in a degree programme that includes either a thesis or a minor thesis, the Academic Senate shall appoint a supervisor on the recommendation of the Chairman of the Department of Computing Science.
  10. The graduate project referred to in 3(c) and 4(c) shall be assessed by two examiners appointed by the Chairman of the Department of Computing Science.

### CSCI911 COMPUTER METHODS

#### *6 credit points*

Discusses formal aspects of correctness-proving of programs and methods of development of correct programs. Introduces predicate transformers as a means of defining the semantics of programming languages.

#### TEXTBOOK

Dijkstra, E.W. *A Discipline of Programming*. Prentice-Hall, N.J., 1976.

### CSCI921 INFORMATION PROCESSING SYSTEMS

#### *6 credit points*

Data structures including lists, strings, stacks, arrays, trees, and graphs. Storage systems and structures. Data representation and retrieval. Storage allocation and collection. Sorting, merging and searching. File systems and file accessing mechanisms. Document handling systems. Data base generation, data base systems architecture, text searching algorithms.

### CSCI931 COMPILERS

#### *6 credit points*

Introduction to languages, grammars, compilers and interpreters; lexical analysis; regular expressions; basic parsing techniques; syntax analysis, LL parsers and recursive descent; LR parsers; symbol tables; run-time storage management; code generation; error detection and recovery.

#### TEXTBOOK

Aho, A.V. & Ullman, J.D. *Principles of Compiler Design*. Addison-Wesley, 1977.

### CSCI941 ADVANCED TOPICS IN COMPUTING SCIENCE A

#### *6 credit points*

Topics will be selected from those areas of computing science in which staff members or visiting staff members of the department are engaged in active research.

### CSCI942 ADVANCED TOPICS IN COMPUTING SCIENCE B

#### *6 credit points*

Topics will be selected from those areas of computing science in which staff members or visiting staff members of the department are engaged in active research.

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**CSCI991 PROJECT**

*12 credit points*

**CSCI992 MINOR THESIS**

*24 credit points*

**CSCI993 THESIS**

*48 credit points*

**ECONOMICS****DIPLOMA IN INDUSTRIAL RELATIONS**

1. The Diploma in Industrial Relations shall be subject to the University regulations for the award of Graduate Diplomas together with the following conditions:
2. Candidates are required to complete subjects making up 48 credit points, normally including the following:
 

GENE102	Industrial Relations A: Wage Determination in Australia - 6
GENE240	Trade Unions, Employer Organisations & their Environment - 8
GENE340	Comparative Labour Studies - 8
3. The remaining subjects will normally be chosen from the Schedule B5.
4. Subjects making up at least 30 credit points will normally be chosen from Schedule B5 - 200 and 300-level subjects, but appropriate 900-level subjects may be prescribed in the place of 100-, 200-, or 300-level subjects referred to in 4.1 and 4.2.
5. The course for the Diploma requires approval by the Chairman of the Department of Economics as providing a coherent study in Industrial Relations.
6. A candidate may not include in his or her diploma programme any course component which duplicates a subject previously passed by the candidate as part of any degree or diploma already held or previously attempted.
7. The diploma will normally occupy two sessions of full-time study, or four sessions of part-time study.
8. Departmental pre-requisites apply to choice of subjects.

**MASTER OF COMMERCE AND MASTER OF ARTS DEGREES, ACCOUNTANCY OR ECONOMICS**

See entry under Department of Accountancy.\*

**MASTER OF COMMERCE, INDUSTRIAL RELATIONS**

- A. 1. Candidates who have completed at an acceptable standard the requirements for the award of a bachelor's degree with honours in Economics or Psychology, or who have an equivalent qualification, may fulfil the requirements for an M.Com degree in Industrial Relations by completing at honours standard an approved course of at least 48 credit points from the following schedule:
- (i) Thesis (48 credit points).
  - or (ii) Project (16 credit points) and course work aggregating not less than 32 credit points.
  - or (iii) Research report (24 credit points) and coursework aggregating not less than 24 credit points.
  - or (iv) Coursework aggregating not less than 48 credit points.
2. Supervision of research and approval of courses will be organized

\* See pp. 554 - 555.



jointly by the Chairmen of the Departments of Economics and Psychology.

3. Subjects are to be selected from the Schedule of Graduate Subjects; subjects aggregating not more than 12 credit points may be selected from those offered by Departments other than Economics and Psychology.

- B. Applicants who have completed at an acceptable standard the requirements for a bachelor's degree with a specialisation in Economics or Psychology, or who have an equivalent qualification, may be permitted to register as candidates for the M.Com. degree in Industrial Relations. Such candidates may qualify for the award of the degree by completing at honours standard subjects aggregating not less than 96 credit points of which subjects aggregating not less than 48 credit points shall be selected in accordance with requirements 1, 2 and 3 above.

*Composition of Courses and Credit Points:*

Three hours per week and 8 credit points for all of the subjects described below other than Project, Research Report and Thesis.

*Assessment:*

Continuous assessment by written assignments and Departmental examinations.

### **ECON901 MONETARY ECONOMICS**

The course is in two sections. The first section compares the monetarist theory of money with the reinterpreted Keynesian theory of money, examining: theories and evidence on the demand for money; the relative stability debate; the transmission mechanism and the policy implications of both theories.

The second section examines conflicting theories such as Monetarist and Keynesian Neutral. The topics to be covered are: The theories of the supply of money; the effect of the growth of financial institutions on the efficacy of monetary policy; and the debate on the term structure of interest rules.

Much of the course will be based on the formal articles in which most of the debates have been carried.

### **ECON902 ADVANCED INTERNATIONAL MONETARY ECONOMICS**

Foreign exchange markets; banking and financial institutions; money supply, price level and international adjustment; international monetary system.

### **ECON903 PUBLIC FINANCE**

This course further develops topics encountered in the undergraduate Public Finance course. Particular emphasis will be placed on issues surrounding inter-governmental fiscal relations in a federal system. Questions of fiscal transfer mechanism, divisions of powers and responsibilities and the equalisation measures which might be used will be considered.

### **ECON904 PUBLIC SECTOR ECONOMICS**

The course examines the public sector as an economic entity in an industrial economy. The concept of a public good is discussed and the question of what goods the government should provide is examined. The growth of the public sector is analysed and the undernourishment thesis is examined. Public enterprises' pricing policies, goals, and efficiency are then examined. Finally the interaction between private and public sectors is considered.

**ECON905 INPUT-OUTPUT ANALYSIS**

Design and estimation of input-output matrices. Basic equilibrium, optimising and forecasting techniques. Application to planning and some regional problems.

**ECON906 HISTORY OF ECONOMIC THOUGHT**

A study of the history of Economics, mainly concerned with the origins and development of modern Economics.

**ECON911 ADVANCED INTERNATIONAL ECONOMICS**

Aspects of some of the following topics are studied in depth:

1. Growth and Trade
2. Factor Transfers (Foreign Investment)
3. Tariffs
4. Import-Substituting Industrialisation
5. Foreign Exchange Market
6. Internal and External Balance (the two-gap model)

**ECON912 LABOUR ECONOMICS**

The theory of the labour market and applications to the Australian situation, including labour supply and demand. Special emphasis is placed on analysing the character of the workforce and structural changes in industries and occupations. Wage theory and practice are examined under conditions of collective bargaining and arbitration. The development of the arbitration system in Australia and principles of wage determination followed by the Commission are of particular importance. Wages and income policies, including indexation policies will also be studied, as will wage developments outside the arbitration system.

**TEXTBOOK**

Niland & Isaac. *Australian Labour Economics Readings*. Sun, 1975.

**ECON913 INDUSTRIAL ECONOMICS**

A study of industrial organisation and performance, decision-making criteria and constraints affecting output and distribution of revenue, market behaviour, and matters of ownership and control of the unit organisation.

**ECON914 ECONOMICS OF SOCIAL WELFARE I**

A study of the theoretical basis of economic policy decisions and the economic significance of criteria adopted or proposed for policy decisions about the use of public goods or about conditions affecting the use of private goods.

**ECON915 ECONOMICS OF SOCIAL WELFARE II**

The course is concerned with aspects of the distribution of income. Various theories of distribution are studied, and these are related to welfare economics. In addition, there is considerable emphasis on empirical studies of functional and personal income distribution in various countries. The impact of the government sector on income distribution is studied. Particular emphasis is placed on the measurement of poverty and the economic measures which might be used to alleviate poverty.

**TEXTBOOKS**

Atkinson, A.B. ed. *Wealth, Income & Inequality*. Penguin, 1973.

Atkinson, A.B. ed. *Unequal Shares*. Pelican, 1974.

Pen, J. *Income Distribution*. Pelican, 1974.

## **ECON916 MICROECONOMIC ANALYSIS**

Several areas of Microeconomic theory will be selected for advanced treatment. Within each topic contemporary applications will be explored after the development of a theoretical base.

## **ECON921 ECONOMETRIC MODELS**

This is an applied course in econometric model building. Both single equations and multi-equation models will be analysed. Emphasis will be placed on the use of theory and a *priori* information in model modification and forecasting evaluation. Some background in theoretical econometrics is required for the course.

### **TEXTBOOKS**

Johnston, J. *Econometric Methods*. 2nd ed. McGraw-Hill, 1973.  
Wonnacott, R. J. & Wonnacott, T. *Econometrics*. Wiley, 1969.

## **ECON930 PERSONNEL MANAGEMENT**

An integrated inter-disciplinary study of the subject area, the Economics contribution is based on the study of the supply of and demand for human resources both in the organisation of the individual management unit and in macroeconomic terms.

### **ECON941 ADVANCED TOPICS IN ECONOMICS - A**

### **ECON942 ADVANCED TOPICS IN ECONOMICS - B**

### **ECON943 ADVANCED TOPICS IN ECONOMICS - C**

Topics for these subjects may be drawn from any area of Economics which the Departmental Chairman considers to be suitable preparation for a higher degree and appropriate to the student's special interests.

## **ECON952 MANAGEMENT ECONOMICS**

A study of the organisation unit in the public and private undertaking, the industry, the industrial sector, particularly as a matter of demand analysis of resource allocation in investment, choice of technology, and determination of output patterns.

## **ECON991 PROJECT**

*16 credit points*

## **ECON992 RESEARCH REPORT**

*24 credit points*

## **ECON993 THESIS**

*48 credit points*

## EDUCATION

## DIPLOMA IN EDUCATION

The Diploma in Education is a professional course in education for graduates of this or another approved university who seek teacher qualifications. It also serves as an introduction to the research disciplines of education for those who will later pursue higher studies in the field. At present the course is for one year full-time. The various subjects involve lectures, seminars, tutorials, individual assignments and group exercises. Demonstrations of teaching methods and practice teaching are provided in co-operation with local schools.

Intending applicants for the Diploma in Education course are advised that it may be necessary to restrict enrolments to the course in 1981. If this is necessary, selection to the course will be made on the basis of academic merit and suitability of degree to teaching requirements. Students are advised to consult staff before purchasing text books.

Teacher Education Scholarship holders are advised that it is necessary for them to make application for the Diploma in Education course and should be aware that possession of a Scholarship does not guarantee admission to the course.

*Course Outline*

Students are required to complete subjects as set out below, with a total of 48 credit points. Credit points for specific subjects are indicated in brackets. The decision as to whether subjects are offered in first or second session or both, is taken at enrolment time in the light of staff availability.

*Education*

- Australian Education (4)
- Educational Practice (4)
- Educational Psychology (4)
- Sociology of Education (4)
- Philosophy in Education (4)
- Curriculum Planning and Instructional Design (4)
- Teaching Methods (3 + 3)

Students must study two methods, averaging 6 hours of class time per week and including lectures, seminars, observations, demonstrations, and field experience.

*Selected Topics*

- Physical Education (2)
- Communication Skills (3)
- Health Education (3)
- Electives (4)

*Supervised Teaching Practice (6)*

The equivalent of eight weeks in term time at schools in the Wollongong area, or elsewhere by arrangement with the Departmental Chairman.

## EDUC901 AUSTRALIAN EDUCATION

*4 credit points*

This subject seeks to lift student awareness of problems in Australian education above the level of opinion and limited personal experience, by presenting them in their historical and comparative setting. Various developments in primary, secondary, and tertiary education are discussed, with a view to understanding the interplay of social, economic, political, and ideological factors, and the need to subject them to more rigorous research.



**TEXTBOOKS**

- Cleverley, J.F. & Lawry, J. *Australian Education in the Twentieth Century*. Longman, Camberwell, 1972.  
Partridge, P.H. *Society, Schools and Progress in Australia*. Pergamon Press, Sydney, 1968.  
Gilmour, P. & Lansbury, R. *Ticket to Nowhere*. Penguin, Harmondsworth, 1978.

**EDUC902 EDUCATIONAL PRACTICE**

*4 credit points*

An appreciation of guiding principles common to the teaching of secondary school children will be gained through study of preparation at course, topic and lesson levels and the utilization of school and community resources; aspects of classroom control and discipline; individual and group techniques of teaching; and evaluation procedures including the construction and administration of tests and examinations.

**TEXTBOOKS**

- Gronlund, N.E. *Measurement and Evaluation in Teaching*. Macmillan, New York, 1976.  
Hirst, P.H. & Peters, R.S. *The Logic of Education*. Routledge & Kegan Paul, London, 1972.

**EDUC903 EDUCATIONAL PSYCHOLOGY**

*4 credit points*

A study of psychology as it bears on the educational process, through a treatment of learning, motivation and the development of adult modes of thinking. Although attention is paid to cognitive development throughout the school years, the cognition of the adolescent is especially considered.

**TEXTBOOKS**

- de Lacey, P.R. *So Many Lessons to Learn*. Penguin, Ringwood, Vic., 1974.  
Hill, W. F. *Learning: A Survey of Psychological Interpretations*. London, 1972.  
Lefrancois, G.R. *Psychology for Teaching*. Wadsworth, Belmont, Ca., 1975.  
Muus, R.E. ed. *Adolescent Behaviour and Society*. Random House, New York, 1971.

**EDUC904 SOCIOLOGY OF EDUCATION**

*4 credit points*

The aim of this course is to study all aspects of education within a sociological perspective. Models of society will be discussed as will the role of the school in society.

**TEXTBOOKS**

- Berger, P. *Invitation to Sociology: A Humanistic Perspective*. Doubleday Anchor, New York, 1963.  
Goffman, E. *The Presentation of the Self in Everyday Life*. Doubleday, New York, 1959.  
Hargreaves, D.H. *Interpersonal Relations and Education*. Routledge & Kegan Paul, London, 1972.

**EDUC905 PHILOSOPHY IN EDUCATION**

*4 credit points*



A study of the nature and scope of educational theory. By tracing the development of educational ideas in western culture, it is seen how the various disciplines of educational theory have emerged to cope with problems of value, knowledge and public education.

**TEXTBOOK**

Thompson, K. *Education and Philosophy*. Basil Blackwell, Oxford, 1972.

**EDUC916 AN INTRODUCTION TO CURRICULUM PLANNING AND INSTRUCTIONAL DESIGN**

*4 credit points*

This subject is designed to introduce teacher trainees to fundamentals of curriculum planning and design for instruction.

**TEXTBOOKS**

Kemp, J. *Instructional Design*. Fearon Publishers, Belmont, Calif., 1972.

Nichols, A. & Nichols, H. *Developing a Curriculum*. George Allen and Unwin, London, 1978.

**EDUC921 ECONOMICS AND COMMERCE METHOD**

*3 credit points*

The aim is to develop competent and critical teachers of economics and commerce. These subjects are discussed in relation to a general theory of education, problems of programming, lesson preparation and presentation.

**EDUC922 ENGLISH I METHOD**

*3 credit points*

This course deals with the aspects of language, expression and literature that concern the teacher in the secondary school. Language work examines contemporary theories and practice and the changing nature of linguistic studies. Expression themes include the fostering of responsive writing and aims and methods in oral practice. In the examination of literature the need is stressed to foster enjoyment and understanding at various levels. Some attention is given to testing, the programming of work and the interpretation of curricula.

**EDUC927 ENGLISH II METHOD**

*3 credit points*

An advanced treatment of the methodology of English teaching and linguistic studies in formal situations, including an analysis of poetry structure, literary style and creative writing, with reference to curricular composition and interpretation.

**EDUC923 GEOGRAPHY METHOD**

*3 credit points*

A survey of the principles and problems underlying the selection, organization and presentation of geographical knowledge. Topics include: the place of geography in the secondary school, the nature and organization of programmes, the inter-relationship of systematic and regional geography, and specific aspects of classroom practice and field studies.

**EDUC924 HISTORY METHOD**

*3 credit points*

Students are introduced to the theory and practice of the teaching of history at the secondary school level through a study of the principles and problems underlying the selection, organisation and presentation of historical information. Topics include the nature of history; the purposes behind its teaching; programming; practical aspects of classroom work.

**EDUC925 MATHEMATICS I METHOD**

**EDUC935 MATHEMATICS II METHOD**

*3 credit points each*

Mathematics First Method seeks to develop in students an awareness of various methods possible in secondary school. Emphasis is placed on the development of concepts, use of discovery and grading of material. Aims for different age and ability groups are related to these. Students doing another subject method as well will take this course.

Mathematics Second Method deals with a selection of these topics from an advanced standpoint, and is for students taking mathematics as a double method.

**EDUC930 SOCIAL SCIENCE METHOD**

*3 credit points*

A treatment of teaching in the social sciences, with emphasis on the inter-relationship of economics, commerce, geography and sociology. This course will include a study of school curricula in the social sciences, and of the application and interpretation of these curricula.

**EDUC931 FRENCH I METHOD**

*3 credit points; (2 hrs per week)*

A course in the teaching principles methodology of teaching French as a second language.

**TEXTBOOK**

Capelle, J. *La France en directe: guide pedagogique*. Hachette, Paris, 1975.

**EDUC933 FRENCH II METHOD**

*3 credit points*

An advanced study of the methodology of teaching French as a first and second language, or linguistic principles relating to French, of selected French poetry, literature, references to French civilisation, and French expression, and of French school curricula and interpretation of curricula.

**EDUC932 ITALIAN I METHOD**

*3 credit points; (2 hrs per week)*

A course in teaching principles methodology of teaching Italian as a second language.

**TEXTBOOK**

Mollica, A. *A Handbook for Teachers of Italian*. American Association of Teachers

of Italian, N.Y., 1976.

### EDUC934 ITALIAN II METHOD

*3 credit points*

An advanced study of the methodology of teaching Italian, as a first and second language, of linguistic principles relating to Italian, of selected Italian poetry, literature, references to Italian civilisation, Italian skills, and of Italian school-curricula and interpretations of curricula.

### EDUC926 SCIENCE I METHOD

### EDUC936 SCIENCE II METHOD

*3 credit points each*

Science First Method seeks to prepare graduates to teach science at the junior secondary school level (yrs 7 - 10).

Science Second Method seeks to prepare graduates to teach senior secondary school science (yrs 11 - 12).

Both methods are concerned with science curricula, teaching arts, records and assessment, teaching procedures, and safety precautions. During the course, attention is given to the aims and philosophy of science teaching.

Science First Method is to be preferred if the student takes only one science method.

### EDUC937 PRIMARY I METHOD

*3 credit points;*

Outline and study of Curriculum requirements in basic subjects: Mathematics, Language Arts, and Social Sciences. Basic methods of teaching. Classroom management. Use of Software and Hardware. Practical study of Handicrafts.

#### TEXTBOOKS

*N.S.W. Department of Education Primary School Syllabus Guides.* Govt. Printer, Sydney, 1977.

Souper, P.C. *About to Teach.* Routledge & Kegan Paul, London, 1976.

### EDUC938 PRIMARY II METHOD

*3 credit points;*

Study of aims and objectives of Primary Education in N.S.W.; Planning and programming in Mathematics, Language, and Social Sciences; Planning lessons and units; Professional development - study of Education of handicapped, exceptionally intelligent, and migrant children.

#### TEXTBOOKS

*N.S.W. Department of Education Primary School Syllabus Guides.* Govt. Printer, Sydney, 1977.

Souper, P.C. *About to Teach.* Routledge and Kegan Paul, London, 1976.

### EDUC928 GERMAN METHOD

*3 credit points;*

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A treatment of teaching methodologies of German as a second language, including relevant linguistic principles and processes of studying German language and literature with relevance to Australian and German cultural characteristics.

### *TEXTBOOK*

Schultz, G.R., Griesbach, A. & Lund, G. *Auf Deutsch, bitte*, Munich: M. H. Heuber, 1969.

### *Selected Topics*

The selected topics are of two kinds: professional skills and academic electives.

## EDUC912 PHYSICAL EDUCATION

### *2 credit points*

The aim is to encourage personal physical fitness in the Diploma student, as well as to prepare him for the duties in this area that fall to the general teacher.

## EDUC911 HEALTH EDUCATION

### *3 credit points*

Students are given guidance concerning physical and mental health, and informed of resources available in the schools.

## EDUC910 COMMUNICATION SKILLS

### *3 credit points*

Students are made aware of problems of communication in the classroom, and their own personal competence is improved.

## EDUC914 ELECTIVES

### *4 credit points*

Lectures and tutorials are offered in a variety of electives designed to provide opportunity for students to pursue some studies at greater depth. While the composition of the student group from year to year will partly determine which electives are offered, it is intended to provide a range representative of the main disciplines of education. Students are expected to choose electives that enable them to draw in some way on their previous studies.

### *Supervised Teaching Practice*

## EDUC915 TEACHING PRACTICE

### *6 credit points*

Students engage in the equivalent of eight weeks full-time teaching practice in schools. They are expected to plan learning units, observe and take individual lessons, develop classroom routines and controls, test and evaluate pupil learnings, and become acquainted with the general school duties of a teacher. As the practice situation is meant to be the application in the field of principles studied and informal subjects already described, a detailed reference list is not appropriate, but a specific orientation to Teaching Practice is provided by the following books.

## BACHELOR OF EDUCATION

1. The degree of Bachelor of Education may be conferred by the Council on



the recommendation of the Academic Senate on a candidate who has with the approval of Academic Senate satisfactorily completed courses of study to the value of 48 credit points and who has satisfied other requirements specified for the award of the degree.

2. An application to register as a candidate for the degree of Bachelor of Education shall be made on the prescribed form which shall be lodged with the Registrar at least one full calendar month before the commencement of the session in which the candidate intends to register.
3. The candidate for registration for the degree of Bachelor of Education shall have qualified for
  - (a) a degree of bachelor in the University or a degree from another institution approved by the Academic Senate; and
  - (b) the Diploma in Education in the University or equivalent qualification approved by the Academic Senate.
4. In appropriate circumstances, a person may be permitted to register as a candidate for the degree if he submits evidence of such academic and professional attainments as may be approved by the Academic Senate.
5. Notwithstanding any other provisions of these conditions the Academic Senate may require an applicant to demonstrate fitness for candidature by carrying out such work and sitting for such examinations as it may determine.
6. An approved candidate shall register with the University in one of the following categories:
  - (a) a student undertaking full-time study; or
  - (b) a student undertaking part-time study.
7. No candidate shall, without the approval of the Academic Senate, be enrolled at the same time in any other degree or diploma in the University or elsewhere.
8. A candidate who is undertaking full-time study will normally be examined after 2 academic sessions but shall not be allowed to proceed with the degree if the requirements have not been fulfilled after registration for 4 academic sessions. A candidate who is undertaking part-time study normally shall not be allowed to proceed if the requirements for the degree have not been fulfilled after registration for 8 academic sessions. In exceptional cases an extension of these times may be granted by the Academic Senate.
9. The maximum period for a candidate to re-apply after discontinuation shall be determined by the Academic Senate.
10. A candidate shall be required to pay such charges as may be determined from time to time by Council.
11. In satisfying the requirements for the degree the candidate shall complete subjects to the value of 48 credit points from the Schedule of Subjects for the Bachelor of Education degree (Department of Education) such subjects to be selected in consultation with an academic adviser appointed by the departmental chairman.
12. A candidate may not include in this degree programme any subject which the candidate has previously taken and had credited towards a qualification accepted for admission under Section 3 of these requirements.



Students are advised to see the Departmental handbook for details of 1) actual courses available; and 2) session offered. (Available in the Department from October each year.)

### **EDUC939 EDUCATIONAL RESEARCH METHODOLOGY AND DESIGN**

*Double session; 16 credit points (4 hrs per week: lectures, seminars & tutorials)*  
*Assessment:* Assignments and associated projects, optional examination.

The logic of educational research.  
Descriptive techniques.  
Inferential techniques.  
Sampling problems.  
Validity of experiments in social settings.  
Statistical and scientific hypotheses.  
Quasi-experimental designs.  
Generalizations and predictions.  
Applications of research to the classroom.  
Applications of research to education.

#### **TEXTBOOK**

Gephart, W.J. & Ingle, R.B. *Educational Research*. Merrill, Columbus, Ohio, 1969.

### **EDUC940 EDUCATIONAL PSYCHOLOGY TOPIC A**

*Single or double session; 8 credit points (3 hrs per week on single session basis: lectures, seminars & tutorials)*  
*Assessment:* Assignments and associated projects, optional examination.

Language in early childhood.  
Language in the school.  
Continuity and discontinuity in development Tests of conceptual and language development.  
Special topic.

#### **TEXTBOOKS**

Birch, H.G. & Gussow, J.D. *Disadvantaged Children*. Grune and Stratton, London, 1970.  
Rubin, D. *Teaching elementary language arts*. Holt, Rinehart and Winston, New York, 1975.  
Sattler, J.M. *Assessment of children's intelligence*. Saunders, Philadelphia, 1974.  
Seaborne, P.C. *An introduction to the Dienes Mathematics programme*. University of London Press, London, 1975.

### **EDUC941 EDUCATIONAL PSYCHOLOGY TOPIC B**

*Single or double session; 8 credit points (3 hrs per week on a single session basis, lectures, seminars & tutorials)*  
*Assessment:* Assignments and associated projects, optional examination.

Social class and intelligence.  
Ethnic differences and mental growth.  
Compensatory education.  
Literacy and numeracy programmes.  
Special topic.

#### **TEXTBOOKS**

As for EDUC940.

**EDUC942 EDUCATIONAL SOCIOLOGY TOPIC A**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures, seminars & tutorials)*

*Assessment:* Assignments and associated projects, optional examination.

The family and education.  
Social class and education.  
The economy and education.

**TEXTBOOKS**

Edgar, D.E. ed. *Sociology of Australian education*. McGraw-Hill, Sydney, 1975.  
Musgrave, P.W. *Sociology of education*. Methuen, London, 1965.

**EDUC943 EDUCATIONAL SOCIOLOGY TOPIC B**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures, seminars & tutorials)*

*Assessment:* Assignments and associated projects, optional examination.

The political functions of education.  
The use of education for selection.  
Implications of teaching becoming a profession.  
The roles of the teacher.

**TEXTBOOKS**

As for EDUC942.

**EDUC944 COMPARATIVE EDUCATION AND HISTORY OF EDUCATION**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures, seminars & tutorials)*

*Assessment:* Assignments and associated projects, optional examination.

Systematic study of educational systems selected from Australia, U.S.A., U.K., France, Japan, S.E. Asia and China.  
Selected case study analyses showing the problem and inductive approaches in comparative methodology.  
Interdisciplinary contributions to Comparative Education.  
The Australian context.  
Historical antecedents to formal education systems in selected countries.

**TEXTBOOKS**

*Yearbooks of Education, 1948-1975*. Evan Bros., London.  
Ullich, R. *Three thousand years of educational wisdom*. New York, 1973.

**EDUC945 PHILOSOPHY OF EDUCATION AND THEORIES OF EDUCATION**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures, seminars & tutorials)*

*Assessment:* Assignments and associated projects, optional examination.

Impact of philosophers on education.  
Application of philosophical methods of enquiry to education.  
Axiology and education.  
Epistemology and education.

**TEXTBOOKS**

- Soltis, J.F. *An Introduction to the Analysis of Educational Concepts*, 2nd ed. Addison Wesley, Reading, 1978.  
McClellan, J.E. *Philosophy of Education*, Prentice Hall, New Jersey, 1976.

**EDUC946 INTRODUCTION TO EDUCATIONAL RESEARCH  
METHODOLOGY**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures and seminars)*  
*Assessment:* Assignments, optional examination.

Principles of Educational Research.  
Descriptive Techniques.  
Inferential Techniques.  
Problem Identification.  
Design and Analysis.  
Interpretation of Findings.

**TEXTBOOK**

Gephart, W.J. & Ingle, R.B. *Educational Research*. Merrill, Columbus, Ohio, 1969.

**EDUC947 INTRODUCTION TO CURRICULUM THEORY AND  
DEVELOPMENT**

*Single or double session; 8 credit points (3 hrs per week on a single session basis).*  
*Assessment:* assignments, optional examinations.

Origins of the Curriculum in Public School systems.  
Curriculum Theories of

- (a) Gwyn and Chase
- (b) Hirst and Peters
- (c) Saylor and Alexander
- (d) Contemporary Australian Theorists.

The Socio-philosophical bases of the curriculum.

General methods of developing, implementing, and evaluating curriculum at the school and classroom level.

**TEXTBOOKS**

- Gwyn, J. & Chase, J. *Curriculum Principles and Social Change*. Macmillan, London, 1970.  
Kemp, J. *Instructional Design*. Fearon Press, Palo Alto, Calif., 1973.  
Musgrave, P.W. ed. *Contemporary Studies in the Curriculum*. Angus and Robertson, Sydney, 1974.

**EDUC948 ADVANCED CURRICULUM THEORY AND  
DEVELOPMENT**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures, tutorials & seminars)*  
*Assessment:* assignments, optional examinations.

Modelling procedures in curriculum design; analysis of educational contexts defining a curriculum design: e.g., teaching, learning, organisational, philosophical, sociological, political, and economic.

**TEXTBOOKS**

None specified - students will draw from an extensive bibliography of primary and secondary literature.

**EDUC949 SCHOOL ADMINISTRATION**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures & seminars)*

*Assessment:* Assignments, optional examinations.

Organisation for Instruction.  
 Grouping Procedures.  
 The Leadership Function.  
 Role Expectations.  
 Characteristics of Organisation.  
 Informal Organisation.

**TEXTBOOKS**

Gorton, R.A. *Conflict, Controversy and Crises in School Administration and Supervision*. William Brown, Dubuque, Iowa, 1972.  
 Musgrave and Selleck. *Alternative Schools*. Wiley, Sydney, 1975.  
 Sergiovanni, T.J. & Starratt, R.J. *Emerging Patterns of Supervision*. McGraw-Hill, 1971.

**EDUC950 DYNAMICS OF CLASSROOM INTERACTION**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures & seminars)*

*Assessment:* assignments, optional examination.

An examination of classroom talk and behaviour from the perspective of ethnomethodology, conversational analysis and linguistic pragmatics.

**TEXTBOOKS**

Psatnas, G., *Everyday Language: Studies in Ethnomethodology*, N.Y., Irvington, 1979.  
 Schenkein, J.N., *Studies in the Organisation of Conversational Interaction*, Academic Press, N.Y., 1978.

**EDUC951 DEVELOPMENTAL THEORIES AND SCHOOL EDUCATIONAL PRACTICE**

*Single or double session; 8 credit points (3 hrs per week: on a single session basis; lectures & seminars)*

*Assessment:* assignments, optional examination.

A treatment of a selection of developmental theories in relation to formal and informal educational principles.

**TEXTBOOKS**

Aronfreed, J. et al. *Developmental Psychology Today*. C.R.M. Books, Del Mar, Col., 1971.  
 Sprinthall, R.C. & Sprinthall, N.A. *Educational Psychology: a developmental approach*. Addison-Wesley, Reading, Mass., 1974.

**EDUC952 AN INTRODUCTION TO THE HISTORY OF EDUCATION**

*Single or double session; 8 credit points; 3 hrs per week on a single session basis.*

*Assessment:* major project.

An introduction to the historical study of education. The content of the course will focus on the history of western education since the Renaissance with a concern for education as a social process. Considerable emphasis will be placed on

historical methodology, particularly the use of primary sources, relevant historiography, and the relationship between history and the social sciences.

### **EDUC953 EDUCATION AND MODERN SOCIETY**

*Single or double session; 8 credit points; 3 hrs per week on a single session basis.*  
*Assessment:* major project.

A study of western and non-western societies and their respective educational systems since the eighteenth century. The major theme of the course will be the process of modernisation from pre-industrial to industrial societies. There will be comparative historical studies of the U.K., U.S.A., U.S.S.R., Germany, France, Australia, China and Japan.

### **EDUC954 SPECIAL TOPIC IN EDUCATION A**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: tutorials & seminars)*

*Pre-requisite:* Demonstrated expertise in a special area of Educational Practice as determined by the Chairman of the Department.

*Assessment:* Project

The special subject topics in Education exist to enable advanced study to be undertaken by practitioners who have already reached an advanced level of performance in the area concerned.

Syllabus will be designed on an individual basis.

### **EDUC955 SPECIAL TOPIC IN EDUCATION B**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: tutorials & seminars)*

*Pre-requisite:* Demonstrated expertise in a special area of Educational Practice as determined by the Chairman of the Department.

*Assessment:* Project

The special subject topics in Education exist to enable advanced study to be undertaken by practitioners who have already reached an advanced level of performance in the area concerned.

Syllabus will be designed on an individual basis.

### **EDUC956 SPECIAL TOPIC IN EDUCATION C**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: tutorials & seminars)*

*Pre-requisite:* as for EDUC955

*Assessment:* Project.

The special topics in education exist to enable advanced study to be undertaken by practitioners who have already reached an advanced level of performance in the area concerned.

Syllabus to be designed on an individual basis.

### **TEXTBOOKS**

None specified - Reading lists to be arranged in consultation with academic adviser.

### **MASTER OF EDUCATION**

The degree of Master of Education (MEd) in the Department of Education shall



be subject to the University's requirements for the award of the degree of Master together with the following guidelines:

1. Entry to the degree programme will normally be available to a person who has:
  - (a) Completed the requirements for the University's Bachelor of Education degree with the results averaging credit level or better;
  - (b) completed qualifications deemed by the Academic Senate to be the equivalent of the University's Bachelor of Education degree with results averaging credit level or better;
  - (c) completed the requirements for an approved Bachelor's degree with Honours and who holds an approved teaching qualification; or
  - (d) completed such other qualifications as might be approved by the Academic Senate on the recommendation of the Departmental Chairman provided that in view of the Academic Senate any such person shall have accumulated the equivalent of 48 credit points beyond a Pass degree.
2. The degree programme will normally be completed in two sessions of full-time study or four sessions of part-time study.
3. The degree programme shall involve:
  - (a) Satisfactory completion of a project whose credit point value is 8 together with the satisfactory completion of graduate subjects chosen from the Schedule of Subjects for the Master of Education degree (Department of Education) to the value of 40 credit points; or
  - (b) satisfactory completion of a project whose credit point value is 16 together with satisfactory completion of graduate subjects chosen from the Schedule of Subjects for the Master of Education degree (Department of Education) to the value of 32 credit points; or
  - (c) a minor thesis embodying the results of an investigation whose credit point value is 24 together with satisfactory completion of graduate subjects chosen from the Schedule of Subjects for the Master of Education degree (Department of Education) to the value of 24 credit points; or
  - (d) a thesis embodying the results of an investigation to the value of 48 credit points.
4. A candidate may not include in this degree programme any subject which the candidate has previously taken and had credited towards a qualification accepted for admission under Section 1 of these requirements.
5. Each candidate for the degree programme in 3.1(a) or 3.1(b) shall be assigned a supervisor by the Chairman of the Department of Education. Where a candidate has enrolled in a degree programme that includes either a thesis or a minor thesis the Academic Senate shall appoint a supervisor on the recommendation of the Chairman of the Department of Education.
6. A project completed in satisfaction of 3.1(a) or 3.1(b) shall be assessed by two examiners appointed by the Chairman of the Department of Education.

Students are advised to see Departmental handbook for details of:

- 1) actual courses available, and
- 2) session offered.

(Available in the Department from October of each year.)

### **EDUC970 EDUCATIONAL PSYCHOLOGY A**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures & seminars)*

*Assessment:* assignments, optional examination.

An intensive study of contemporary issues in learning in a formal educational context. Opportunity will be provided for students to specialise in early and middle childhood learning or learning of adolescents.

#### **TEXTBOOKS**

Although a text will be arranged, wide recourse will be made to the literature available at the commencement of the course.

### **EDUC971 EDUCATIONAL PSYCHOLOGY B**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures & seminars)*

*Assessment:* assignments, optional examination.

This course offers a detailed enquiry into theories of motivation and achievement motivation.

#### **TEXTBOOKS**

Although a text will be arranged, wide recourse will be made to the literature available at the commencement of the course.

### **EDUC972 CURRICULUM STUDIES A**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures & seminars)*

*Assessment:* assignments, optional examination.

- (a) Survey of the origins of the curriculum in public school systems - historical, political, economic, and philosophical antecedents to the development of the modern public school curriculum.
- (b) Methods of designing curricula for a variety of educational environments and socio-political philosophies.
- (c) Curriculum construction, implementation, and evaluation at the local school level.
- (d) Transitional concepts of curriculum development in relation to the contemporary relocation in the locus of control over educational outcomes.

#### **TEXTBOOKS**

None specified: students will draw from an extensive bibliography of selected primary and secondary literature.

### **EDUC973 CURRICULUM STUDIES B**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures & seminars)*

*Assessment:* Assignments, optional examination.

- (a) Advanced topics in curriculum theory, planning and instructional design.
- (b) Humanistic, pragmatic, and rationalistic approaches to curriculum theory.
- (c) The 'systems' approach to curriculum planning and instructional design.
- (d) Selected topics from (i) curriculum development for primary schools, (ii) curriculum development for secondary schools, (iii) curriculum development for senior secondary schools, (iv) curriculum development for higher educational programmes.

#### TEXTBOOKS

None specified: students will draw from an extensive bibliography of selected primary and secondary literature.

### EDUC974 EDUCATIONAL ADMINISTRATION AND ORGANISATION A

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures & seminars)*

*Assessment:* assignments, optional examination.

Structure and processes in organisation.  
Bureaucracy in Education.  
Policy-making.  
Educational leadership in a changing society.

#### TEXTBOOKS

Baron, G. & Taylor, W. *Educational administration and the Social Sciences*. Athlone Press, London, 1969.

Thomas, A.R., Farquhar, R.H. & Taylor, W. eds. *Educational administration in Australia and abroad*. University of Queensland Press, St. Lucia, 1975.

### EDUC975 EDUCATIONAL ADMINISTRATION AND ORGANISATION B

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures & seminars)*

*Assessment:* assignments, optional examination.

Assessment and accountability of teachers.  
Role theory and educational administration.  
The economics and administration of education.  
The politics of educational administration.

#### TEXTBOOKS

As for EDUC974.

### EDUC976 EDUCATION RESEARCH AND DESIGN OF EXPERIMENTS

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures & seminars)*

*Assessment:* assignments, optional examination.

This subject is strongly recommended for each MEd candidate unless otherwise recommended by supervisor. Experimental and Quasi-experimental designs for Research; Planning Research; Sampling; Interviewing; Questionnaires; Data Processing; Personality Assessing; Attitude Measurement; Observation and Case Studies; Interpreting Results; Report Writing.

**TEXTBOOKS**

- Campbell, D.T. & Stanley, J.C. *Experimental and Quasi-Experimental Designs for Research*. Rand McNally, Chicago, 1966.
- Gephart, W.J. & Ingle, R.B. *Educational Research Selected Readings*. Merrill, Columbus, Ohio, 1969.
- Nisbet, J.D. *Educational Research Methods*. University of London Press, London, 1970.

**EDUC977 EDUCATION, INDUSTRIALIZATION AND CULTURE**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures & seminars)*

*Assessment:* assignments, optional examination.

A study of the cultural purpose of education in modern society as understood by intellectuals, philosophers, and educators during the past two centuries. Figures studied will include:

Robert Owen, J. Newman, T. H. Huxley, Herbert Spencer,  
Matthew Arnold, John Dewey, Maria Montessori and T. Eliot.

**EDUC978 THE POLITICS OF EDUCATION**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: lectures and seminars)*

*Assessment:* assignments, optional examination.

The politics of education in modern society. There will be an emphasis on the political role of educational institutions as well as the relationship between political and educational systems. Individual case studies of the politics of national educational systems as well as general theoretical issues of methodology.

**EDUC979 SPECIAL TOPIC IN EDUCATION A**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: tutorials & seminars)*

*Pre-requisite:* Demonstrated expertise in an area of educational practice or theory.

*Assessment:* Project

The special subject topics in Education exist to enable advanced study to be undertaken by practitioners who have already reached an advanced level of performance in the area concerned.

**EDUC980 SPECIAL TOPIC IN EDUCATION B**

*Single or double session; 8 credit points (3 hrs per week on a single session basis: tutorials & seminars)*

*Pre-requisite:* Demonstrated expertise in an area of educational practice or theory.

*Assessment:* Project

The special subject topics in Education exist to enable advanced study to be undertaken by practitioners who have already reached an advanced level of performance in the area concerned.

**EDUC981 MINOR PROJECT IN EDUCATION**

*8 credit points*

**EDUC982 MAJOR PROJECT IN EDUCATION**

*16 credit points*

**EDUC983 MINOR THESIS**

*24 credit points*

**EDUC984 THESIS**

*48 credit points*



**ELECTRICAL ENGINEERING****MASTER OF ENGINEERING**

Under the Requirements for the degree of Master of Engineering, candidates may meet the major requirements by satisfactorily completing:

- (a) a thesis embodying the results of an investigation; or
- (b) a study comprising formal course work; or
- (c) study comprising formal course work and a minor thesis.

(No new candidates for the degree of Master of Engineering Science will be accepted; so graduates wishing to undertake additional formal studies in electrical engineering will now be able to do so by following one of the three prescriptions (a), (b) or (c) above.)

The majority of engineering graduates seeking entry to the Masters programme will have qualifications which fall within one of four main categories, namely:

- (i) A nominal 6 year, part time pass degree e.g. BSc (Eng).
- (ii) A nominal 4 year, full time pass degree e.g. BE.
- (iii) A nominal 6 year, part time degree with Merit.
- (iv) A nominal full time, 4 year degree with Honours.

Those in categories (iii) and (iv) qualify for entry under Section 6(1) of the Conditions for the Award of the Degree of Master, while those in sections (i) and (ii) must seek entry under Section 6(2).

*Entry Under Section 6(1) - Graduates with Honours Degree*

Under Section 6(1) of the Masters Degree Requirements, candidates must accumulate a total of not less than 48 credit points by the successful completion of subjects from the Schedule of Graduate Subjects, which are described below.

*Entry Under Section 6(2) - Graduates with Pass Degree*

Under Section 6(2) of the Masters Degree Requirements, candidates are required to accumulate 96 credit points of which at least 48 points shall be from subjects included in the Schedule of Graduate Subjects; the remaining 48 credit points however need not be for subjects at the Postgraduate level. Graduates in category (i) above could take a selection of 400-level subjects from Schedule C of the Bachelor Degree Requirements. However, it is expected that Graduates in categories (i) and (ii) will enrol in ELEC999 ADVANCED TOPICS IN ENGINEERING.

In any year a restricted range of topics only will be offered, both in ELEC999 and from other Postgraduate subjects, so graduates intending to enrol should arrange to discuss their desired programme with the Department as soon as possible in order to ensure that an appropriate selection of topics will be offered. Formal Postgraduate lectures normally begin at the end of March.

Subject to the approval of the Departmental Chairman and the Graduate Studies Committee, courses offered by other Departments will be acceptable for the Masters course in Electrical Engineering.

*Details of Subjects*

There are no exclusions, pre-requisites or co-requisites within the subjects offered.

Unless otherwise stated each subject comprises 56 hours of lectures and tutorials,

is worth six credit points and may be offered in the first or second session or throughout the year.

There are no set textbooks or recommended reading but each year reading lists will be set from the published literature.

### **ELEC901 COMPUTER AIDED ANALYSIS AND DESIGN**

Analysis and design of electronic networks using digital computers. Advanced techniques, including state-space methods, modelling and optimisation. Development of automatic routines for batch, remote and on-line processing.

### **ELEC911 RELIABILITY ENGINEERING**

Methods of analysis, modelling, probabilistic system analysis and design. Redundant systems, computer techniques and reliability optimisation. Fault identification techniques.

### **ELEC921 MATRIX ANALYSIS OF ELECTRICAL MACHINES**

Derivation of mathematical models, properties and applications of transformations, solution methods; non-ideal machines.

### **ELEC922 MACHINES IN CONTROL SYSTEMS**

Stability and transient performance, heating and ratings, simplified models, converter-fed a.c. and d.c. machines as control system elements.

### **ELEC923 STATIC CONVERTERS**

Properties, protection and control of high power solid state switching elements. Characteristics of rectifiers, inverters, pulse and cycloconverters and their application to a.c. and d.c. variable speed drives.

### **ELEC924 ADVANCED POWER SYSTEMS**

An advanced course on industrial and high voltage power systems dealing with load flow, faults, stability, transients, insulation co-ordination, economic evaluations and application of computers.

### **ELEC931 CONTROL COMPUTING**

Digital, analogue and hybrid computational methods for the solution of engineering problems. On-line control, microprocessors, and operation of hybrid computers. Computer interfacing techniques.

### **ELEC941 CONTROL SYSTEM ANALYSIS AND DESIGN**

A unified approach using "classical" and "modern" methods to treat the control problems of identification, representation and solution, stability, design and optimisation.

### **ELEC942 OPTIMAL CONTROL SYSTEMS**

Problem formulation and methods of solution including advanced optimisation techniques, variational, dynamic programming and Pontryagin's Maximum Principle.

### **ELEC943 NONLINEAR CONTROL SYSTEMS**

Analysis of nonlinear control systems including numerical, series approximation, graphical and describing function methods. Stability investigation using Lyapunov's methods and extensions, and functional methods.

### **ELEC944 SAMPLED-DATA CONTROL SYSTEMS**

Topics related to the use of digital equipment in control systems. Analysis and synthesis of control systems using sampling techniques.

### **ELEC961 NOISE AND INFORMATION THEORY**

Principles of coding, channel capacity, redundancy; application of information theory to engineering systems.

### **ELEC962 ELECTROMAGNETIC FIELDS AND ANTENNAS**

Analysis of biconical and cylindrical antennae, aperture radiating systems. Obstacles and mounts in waveguides, numerical methods for solution of field problems.

### **ELEC963 MICROWAVE DEVICES AND ELECTRONICS**

Scattering matrix analysis; structures and mounts; transistor amplifiers; parametric amplifiers; Impatt and Gunn devices; electron beam devices.

### **ELEC971 HIGH VOLTAGE PROPERTIES OF MATERIALS**

Electrical conduction and breakdown in gases, liquids and solids. Advanced application of ionised gases. Generation and measurement of high voltages and non-destructive dielectric test techniques.

### **ELEC972 AIR POLLUTION CONTROL TECHNIQUES**

Surface, dynamic, optical and adhesive properties of particulates, effects of particulates and gases on air quality, basic theory of particulate collection using electrostatic, inertial and gravitational forces, filtration and measurement methods.

### **ELEC981 MATHEMATICAL METHODS IN ELECTRICAL ENGINEERING 1**

Transform methods applied to analysis and synthesis problems arising in electrical engineering, properties and applications of Fourier, Laplace and Z transforms.

### **ELEC982 MATHEMATICAL METHODS IN ELECTRICAL ENGINEERING 2**

Time domain methods applied to analysis and synthesis problems arising in electrical engineering, state variable methods, linear and nonlinear systems, input-output and convolution.

### **ELEC951 THESIS**

*48 credit points*

### **ELEC952 THESIS**

*24 credit points*

### **ELEC953 REPORT**

*12 credit points*

**ELEC999 ADVANCED TOPICS IN ENGINEERING**

*Double session subject, 48 credit points 12 hrs per week, including 2 seminar hrs and some project work*

**Assessment:** Formal examinations, tests, assignments and associated (if any) experimental work

Students will normally take a selection of topics at advanced level. The selection of the topics will be subject to the approval of the Chairman of the Department in which the student wishes to enrol and subsequently specialise.

The subject may include topics from:

- Air, noise and water pollution
- Air pollution control techniques
- Anisotropic elasticity
- Analogue and digital filters
- Antennas
- Boiling heat transfer
- Boundary layer theory
- Computer aided analysis and design
- Computer methods
- Conformal mapping
- Control computing
- Economic & social evaluation of engineering projects
- Electrical properties of materials
- Energy from the environment
- Field theory
- Finite element techniques
- Heat and mass transfer
- Microscopic thermodynamics
- Microwave electronics
- Modern control systems theory
- Noise and information theory
- Numerical techniques
- Power system, analysis and design
- Process control
- Propagation
- Refrigeration and air conditioning
- Signal processing
- Simulation
- Static converters
- Structural dynamics
- Structural topology
- Transient performance of machines
- Variational methods

## EUROPEAN LANGUAGES

## DIPLOMA IN EUROPEAN STUDIES

The purpose of the Graduate Diploma in European Studies is to provide in a recognized university course a means for graduates with limited acquaintance with European languages, thought and culture to acquire competence in these areas at a reasonably advanced level. The Diploma shall be subject to the University requirements for the award of Graduate Diplomas together with the following conditions:

- 1) Candidates are required to complete subjects totalling 48 credit points, of which at least 28 are to be from those listed in Schedule A under European Languages. Subjects up to a total of 20 credit points may be chosen from subjects listed by other departments in Schedule A provided that, in the view of the Chairman of the Department of European Languages, these relate to European studies. The attention of candidates is drawn particularly to Education 215; History 103, History 222, History 311, History 231, History 321, History 232 and History 326; HPS13C, HPS230; Philosophy 163 and Philosophy 263; Sociology 223.
- 2) Of the required 48 credit points at least 24 must be from 200 or 300 level courses.
- 3) A candidate may not include in his or her Diploma programme any course component which substantially duplicates a subject or part of a subject previously passed by the candidate as part of any degree or diploma already held or previously attempted.
- 4) The selection of courses and the programme of study shall be approved by the Departmental Chairman.
- 5) A full-time candidate shall normally complete the Diploma in one academic year, a part-time candidate in no less than 2 and no more than 3 academic years.
- 6) Admission to candidature for the Diploma is on the recommendation of the Chairman of the Department of European Languages who shall assess the applicant's aptitude for the course.

## MASTER OF ARTS

*Structure*

Students entering the programme with a pass degree in French and/or Italian will be required to complete one of the following subjects:

EURO913	Advanced Topics in French	48 pts
EURO923	Advanced Topics in French and Italian	48 pts
EURO953	Advanced Topics in Italian	48 pts

They then proceed to:

EURO903	Major thesis	48 pts
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Students entering the programme with an appropriate honours degree will be required to complete only:

EURO903	Major thesis	48 pts
EURO913)		
EURO903)		
EURO923)	details attached	
EURO953)		



## GEOGRAPHY

## DIPLOMA IN GEOGRAPHY

The graduate Diploma in Geography offers graduates lacking a major strand of Geography in their degree the opportunity to acquire competence in the discipline. Alternatively, Geography graduates may enrol in the program in order to update, broaden and/or intensify their knowledge, e.g. for teaching, or to equip themselves for work in applied fields such as environmental, urban, regional or social planning. In addition to the University's regulations for graduate diplomas, candidates for the Diploma in Geography shall:

- i) complete Geography subjects to a value of not less than 48 credit points from those listed in Schedule A, at least 24 credit points being for subjects at the 300-level and the remainder at 200-level, provided that, by approval of the Chairman of Department of Geography, up to 12 credit points at 200-level may be obtained for cognate subjects offered by another Department.
- ii) not include in the diploma programme subjects which, in the opinion of the Chairman of Department, are substantially equivalent in the content to those for which credit has already been obtained towards some other degree or diploma.
- iii) have their programs approved by the Chairman of Department before enrolling.
- iv) successfully complete the diploma program in not more than 4 academic sessions.

## MASTER OF ARTS BY COURSE WORK

*Introduction*

There is an increasing need in the community for graduates in Geography with more advanced and extensive knowledge of the discipline than is commonly attained by the 3 year pass degree holder. Such a need is not always most appropriately satisfied by requiring graduates to embark on the fourth year Honours programme with its heavy research component. Accordingly, the Department of Geography offers a programme of post-graduate level courses which leads to the degree of M.A. in Geography. Such qualifications will be of particular use to geographers engaged in Education or employed in other areas such as the various branches of the Public Service, in Local Government or in Planning Consultancies where an up to date knowledge of urban, social and environmental matters is imperative.

*Structure*

Students entering the programme with a pass degree in Geography or some other appropriate discipline (Category A) will be required to complete subjects with a value of at least 96 credit points. Those with an Honours degree or its equivalent (Category B) will be required to complete subjects with a minimum value of 48 credit points.

*Category A*

Students are required to take their first 48 credit points from the following subjects.

GEOG901	Issues in the Philosophy and Methodology of Geography	(12 cr. pts.)
GEOG902	Special seminar in Geography	(12 cr. pts.)
<i>plus either</i> GEOG903 Special Project in Geography (24 cr. pts.) or GEOG904		

## 600 POSTGRADUATE STUDY

Special Topics in Geography (24 cr. pts.).

### *Category B*

Category B students and Category A students who have successfully completed the first 48 credit points of the programme will select their subjects from the following:

GEOG907	Advanced Topics in Economic Geography	(12 cr. pts.)
GEOG908	Advanced Topics in Social Geography	(12 cr. pts.)
GEOG909	Advanced Topics in Urban Geography	(12 cr. pts.)
GEOG911	Advanced Topics in Fluvial Geomorphology	(12 cr. pts.)
GEOG912	Advanced Topics in Coastal Geomorphology	(12 cr. pts.)
GEOG913	Advanced Topics in Environmental Management	(12 cr. pts.)
GEOG921	Research Report in Geography A	(12 cr. pts.)
GEOG922	Research Report in Geography B	(12 cr. pts.)
GEOG923	Minor Thesis in Geography	(24 cr. pts.)

but *must* include at least one of the subjects GEOG921, 922, 923.

### *Entry to Course*

Entry to the course will be dependent upon approval by the Departmental Chairman.

### *Programme Determination*

Students wishing to enrol for this programme must have their proposed course of study approved by the Departmental Chairman.

## **GEOG901 ISSUES IN THE PHILOSOPHY AND METHODOLOGY OF GEOGRAPHY**

*Contact hrs per week: 4 hrs*

*Assessment:* Essays, seminar papers, examination

Changing view on the nature of Geography from the ancient Greeks to the present; issues and trends in modern Geography, for example, determinism; exceptionalism; cause and effect; theory in Geography; the quantitative revolution; the ecological approach; systems in Geography; humanistic Geography; radical Geography; etc.

## **GEOG902 SPECIAL SEMINAR IN GEOGRAPHY**

*Contact hrs per week: 4 hrs*

*Assessment:* Reports and tutorial participation

A guided reading course in a topic selected by the student in consultation with a staff member, leading to the preparation of an extensive review and critique of the relevant literature.

## **GEOG903 SPECIAL PROJECT IN GEOGRAPHY**

*Contact hrs per week: 4 hrs*

*Assessment:* Project report (external assessment)

A report on a piece of supervised research.

**GEOG904 SPECIAL TOPICS IN GEOGRAPHY**

*Contact hrs per week: 6 hrs lecture/seminar/tutorial/laboratory/field work as appropriate*

*Assessment:* Examination, essays/seminar papers, project work. The precise weighting of any element to be determined after consultation with class.

Students will take a selection of topics appropriate to their field of special interest, subject to the approval of the Chairman of Department and to their availability in any year.

The subject may include topics from:

- Agricultural Geography
- Population Dynamics
- Urban Structure
- Urban Systems
- Transportation Systems
- Urban and Regional Planning
- Location Theory
- Social Behaviour in Urban Space
- Asian Geography
- Medical Geography
- Health Service Planning
- Urban Ecology
- Spatial Perspectives on Welfare
- Positive and Normative Economic Geography
- Biogeography
- Ecology
- Pedology
- Environmental Management
- Surface Hydrology
- Channel Dynamics
- Fluid Mechanics
- Coastal Lagoons and Estuaries
- Quaternary Geomorphology
- Sandy Beach Morphodynamics
- Origins and Characteristics of Arid Climates
- Climatic-Vegetational Relationships in Arid Areas

**GEOG907 ADVANCED TOPICS IN ECONOMIC GEOGRAPHY**

*Contact hrs per week: 4 hrs*

*Assessment:* Assignments, participation in seminars

Topics to be considered will vary from year to year according to staff involvement.

**GEOG908 ADVANCED TOPICS IN SOCIAL GEOGRAPHY**

*Contact hrs per week: 4 hrs*

*Assessment:* Assignments, participation in seminars

Topics to be considered will vary from year to year according to staff involvement.

**GEOG909 ADVANCED TOPICS IN URBAN GEOGRAPHY**

*Contact hrs per week: 4 hrs*

*Assessment:* Assignments, participation in seminars

Topics to be considered will vary from year to year according to staff involvement.

**GEOG911 ADVANCED TOPICS IN FLUVIAL GEOMORPHOLOGY**

*Contact hrs per week: 4 hrs*

## 602 POSTGRADUATE STUDY

*Assessment:* Assignments, participation in seminars

Topics to be considered will vary from year to year according to staff involvement.

### **GEOG912 ADVANCED TOPICS IN COASTAL GEOMORPHOLOGY**

*Contact hrs per week: 4 hrs*

*Assessment:* Assignments, participation in seminars

Topics to be considered will vary from year to year according to staff involvement.

### **GEOG913 ADVANCED TOPICS IN ENVIRONMENTAL MANAGEMENT**

*Contact hrs per week: 4 hrs*

*Assessment:* Assignments, participation in seminars

Topics to be considered will vary from year to year according to staff involvement.

### **GEOG921 RESEARCH REPORT IN GEOGRAPHY A**

*Contact hrs per week: 4 hrs*

*Assessment:* Research report

A report on an investigation into an approved topic conducted by the candidate.

### **GEOG922 RESEARCH REPORT IN GEOGRAPHY B**

*Contact hrs per week: 4 hrs*

*Assessment:* Research report

A report on an investigation into an approved topic conducted by the candidate in an area not already covered in GEOG921.

### **GEOG923 MINOR THESIS IN GEOGRAPHY**

*Contact hrs per week: 4 hrs*

*Assessment:* Thesis

A thesis embodying the results of an original investigation of a problem approved by the Departmental Chairman under the supervision of a staff member and in accordance with Section 14\* of the Masters' Degree Requirements.

### **GEOG999 MAJOR THESIS**

*48 credit points*

\*This refers to the Masters Degree Requirements which were effective prior to 1980 - as printed in the 1979 Calendar.

## GEOLOGY

**DIPLOMA IN COAL GEOLOGY**

For details of the diploma, students are advised to contact the Department of Geology or Student Enquiries.

**MASTER OF SCIENCE***Introduction and Objectives*

The rapid development of earth sciences has produced a need for postgraduate coursework. The courses offered by the Department of Geology will provide further training to graduates currently employed in industry or in education. The courses are intended to provide general rather than specialist coursework training. Specialist training is mainly by the preparation of a thesis, but specialist coursework training is also available.

*Structure of the Course*

The course will be made up of subjects selected from those described below, in accordance with the Masters Degree Requirements.

Students entering with an Honours degree in Geology will take subjects to a value of 48 credit points.

Students entering with a pass degree will take subjects to a value of 96 credit points.

Subjects to be offered each year will depend upon student and staff availability.

*Entry to the Course*

Entry is subject to the approval of the Academic Senate on the advice of the Chairman, Department of Geology.

*Selection of Subjects*

Students must consult the Chairman, Department of Geology, for approval of their proposed choice of subjects.

*Reading Lists*

Reading lists will be provided by the staff involved in each subject.

*Pre-Requisites*

The minimum pre-requisite for all subjects is that the student must have graduated with at least 24 credit points of 300-level Geology subjects.

**GEOL901 HISTORY OF GEOLOGICAL THOUGHT**

*Single Session Subject; 6 credit points (14 hrs lectures and 14 hrs tutorials)*  
Assessments, and written examination at the end of session.

Development through to the Wernerian and Huttonian schools of thought.

Uniformitarianism and catastrophism from Hutton, Buckland and Cuvier through Umbgrove, to the present spectrum of attitudes concerning these concepts. The influence of Lyell upon the early development of geological studies. Geosynclinal theory and continental drift from Hall, Dana, Taylor and Wegener to Hess, Dietz, Vine and Dewey and the plate tectonics theory.

The influence of other disciplines on major strands of geological thought. Kelvin



and the age of the earth. Jeffrey's effect on continental drift theory contrasted with the conclusions from studies of rock magnetism.

Great problems and their "solution." The granite problem. The sudden appearance of Metazoa in the Phanerozoic.

Strzelecki and Clarke and their successors.

### **GEOLOGY 902 RECENT ADVANCES IN GEOLOGY**

*Single Session Subject; 6 credit points (14hrs lectures and 14hrs tutorials)*  
Assessments, and written examination at the end of session.

Topics of current interest and significance.

### **GEOLOGY 903 BIOSTRATIGRAPHY**

*Single Session Subject; 6 credit points (14 hrs lectures and 14 hrs tutorials)*  
Assessments, and written examination at the end of session.

Australian and, to a lesser extent, other sequences of special interest.

Important faunal groups, assemblages and sequences, from the point of view of morphology, taxonomy, ecology, palaeogeography, correlation.

Principles of, and recent developments in, correlation.

### **GEOLOGY 904 ASPECTS OF COAL AND PETROLEUM GEOLOGY**

*Single Session Subject; 6 credit points (14 hrs lectures and 14 hrs tutorials)*  
Assessments, and written examination at the end of session.

Organic material in sediments, its origin, nature, biochemical and physico-chemical alteration. The influence of organic matter of geological factors such as the mineralogy of the host rock, the rate of alteration, the nature and intensity of stress fields.

Artificial coalification, and the artificial generation of alkanes from coal and kerogen.

The relation of alkane distribution of sediment extracts to coal rank. The vertical and lateral variation of coal rank in the interpretation of the sedimentation, thermal and structural history of basins.

### **GEOLOGY 905 MATHEMATICAL GEOLOGY**

*Single Session Subject; 6 credit points (14 hrs lectures and 14 hrs tutorials)*  
Assessments, and written examination at the end of session.

The quantitative approach in geology. Experimental design as applied to normal field activities. Recent case studies in applying mathematical methods.

### **GEOLOGY 906 MINERAL PARAGENESIS**

*Single Session Subject; 6 credit points (14 hrs lectures and 14 hrs tutorials)*  
Assessments, and written examination at the end of session.

Metamorphic mineral paragenesis with examples of metamorphic facies.

Thermodynamic considerations for equilibrium mineral assemblages.

Patterns of igneous phenomena and crystal-liquid equilibria.

**GEOL907 ROCK MAGNETISM**

*Single Session Subject; 6 credit points (14 hrs lectures and 14 hrs tutorials)*  
Assessments, and written examination at the end of session.

Detailed study of remanent magnetizations - acquisition, stability, separation and relative importance. Influence of remanence in magnetic surveys. Use of remanence - palaeomagnetism, history of the Earth's magnetic field, including reversals and multipoles, and the use of such data in broader geological and geophysical theory. The iron-titanium oxides in rock magnetism - especially in igneous rock types, effect of composition, oxidation and textural influences. Magnetic susceptibility anisotropy.

**GEOL908 SEDIMENTOLOGY**

*Single Session Subject; 6 credit points (14 hrs lectures and 14 hrs tutorials)*  
Assessments, and written examination at the end of session.

The major sedimentary facies, their development and characteristics. The analysis of sedimentary assemblages and the synthesis of the results of analysis. Sedimentary structures and their use in the interpretation of palaeoenvironments.

**GEOL950 THESIS**

*18 credit points*

**GEOL990 ADVANCED TOPICS IN GEOLOGY**

*Double Session Subject; 48 credit points (12 hrs per week including 2 seminar hrs and some project work)*

*Assessment:* formal examinations, tests, assignments and where appropriate, field and laboratory work.

Students will take a selection of the following topics at advanced level. The selection of topics will be subject to the approval of the Chairman of the Department of Geology and will be subject to their availability in any given year.

Topics from:

Biostratigraphy, Chemical Geology, Coal Petrology, Correlation Methods, Crystallography, Diagenesis, Economic Geology, Engineering Geology, Environmental Geology, Exploration Geochemistry, Exploration Geophysics, Geological Mapping, Geomagnetism, Geothermal Studies, Hydrocarbon Geology, Igneous Petrology, Industrial Mineralogy, Inorganic Geochemistry, Log Analysis, Metamorphic Petrology, Mineral Equilibria, Mineral Paragenesis, Mineralogy, Mining Geology, Mining Regulations, Numerical Methods in Geology, Oceanography, Organic Geochemistry, Organic Maturation, Organic Petrology, Palaeoecology, Palaeontology, Quaternary Geology, Remote Sensing, Resource Assessment, Sedimentary Petrology, Sedimentology, Structural Geology, Thermal Regimes, Vulcanism.

**GEOL999 MAJOR THESIS**

*48 credit points*

## HISTORY AND PHILOSOPHY OF SCIENCE

### DIPLOMA IN HISTORY AND PHILOSOPHY OF SCIENCE

The aim of this course is to enable graduates with a limited acquaintance with the history and philosophy of science and technology or the role of science and technology in contemporary society, to acquire an understanding of these subjects to a reasonably advanced level. The Diploma shall be subject to the University Conditions For The Award of Graduate Diplomas together with the following conditions.

1. Candidates are required to complete subjects totalling 48 credit points from those listed in Schedule A under 'History and Philosophy of Science'. Of these at least 24 must be from 300-level subjects and the remainder from 200-level subjects. Subject to the joint approval of the Chairman of the Department of History and Philosophy of Science and the Chairman of the other department concerned, 12 credit points may be taken from suitable subjects listed in Schedule A under other Departments.
2. A candidate may not include in his or her diploma programme any course component which substantially duplicates a subject or part of a subject previously passed by the candidate as part of any degree or diploma already held or previously attempted.
3. The selection of courses and the programme of study shall be approved by the Departmental Chairman.
4. A full-time candidate shall normally complete the diploma in one academic year, a part-time candidate in no less than two and no more than three academic years.
5. Admission to candidature for the Diploma is on the recommendation of the Chairman of the Department of History and Philosophy of Science.

The Department of History and Philosophy of Science offers two separate Masters programmes by coursework. The first is designed primarily for graduates who have a grounding in History and Philosophy of Science and who wish to pursue their studies at a higher level. The second programme is designed primarily for graduates with little or no HPS background, and centres on the new area of the study of technology in its socio-economic and political context.

### PROGRAMME 1

#### MASTER OF ARTS

##### *Structure*

Students entering the programme with a pass degree in History and Philosophy of Science or a degree in another appropriate discipline (Category A) will be required to complete subjects with a value of at least 96 credit points. Those with an Honours degree in History and Philosophy of Science or its equivalent (Category B) will be required to complete subjects with a minimum value of 48 credit points.

##### *Category A*

Students are required to take their first 48 credit points from the following subjects:

HPS910	Topics in History and Philosophy of Science A
HPS911	Topics in History and Philosophy of Science B

**Category B**

Category B students and Category A students who have successfully completed the first 48 credit points of the programme will select their subjects from the following:

HPS901	Theory and Methods of History and Philosophy of Science
HPS902	Advanced Topics in History and Philosophy of Science
HPS903	Minor Thesis
HPS999	Major Thesis

**Interdisciplinary Seminar**

All students are required to attend and contribute to a series of regular informal seminars and discussion meetings held within the department of History and Philosophy of Science during Sessions 1 and 2.

### **HPS910 TOPICS IN HISTORY AND PHILOSOPHY OF SCIENCE A**

*Double session subject; 24 credit points (contact hrs per week: 4 hrs)*  
*Assessment:* Essays and seminar papers

Students will take a selection of topics appropriate to their field of special interest, subject to the approval of the Chairman of Department and to their availability in any year.

### **HPS911 TOPICS IN HISTORY AND PHILOSOPHY OF SCIENCE B**

*Double session subject; 24 credit points (contact hrs per week: 4 hrs)*  
*Assessment:* Essays and seminar papers

Students will take a selection of topics appropriate to their field of special interest, subject to the approval of the Chairman of Department and to their availability in any year. Topics shall not include those studied in HPS910.

### **HPS901 THEORIES AND METHODS OF HISTORY AND PHILOSOPHY OF SCIENCE**

*12 credit points (contact hours per week: 3 hrs seminars)*  
*Assessment:* Essays and Seminar papers.

Historiography of the history of science; philosophy of history; structure and explanation of science; epistemological and social basis of scientific knowledge; research method.

### **HPS902 ADVANCED TOPICS IN HISTORY AND PHILOSOPHY OF SCIENCE**

*12 credit points (contact hours per week: 3 hrs)*  
*Assessment:* Essays and Seminar papers.

Students will study topics appropriate to their field of special interest, subject to the approval of the Chairman of Department. Topics shall not include those studied in HPS910 or HPS911.

### **HPS903 MINOR THESIS**

*24 credit points (contact hrs per week: 4 hrs)*  
*Assessment:* Thesis

A thesis embodying the result of an original investigation of a problem approved



by the Departmental Chairman under the supervision of a staff member.

## HPS999 MAJOR THESIS

*Double session; 48 credit points*

### PROGRAMME 2

## MASTER OF ARTS IN THE AREA OF TECHNOLOGY AND SOCIAL CHANGE

### *Introduction*

This programme offers a coherent set of courses in the new area of technology in its socio-economic and political context.

Technology plays a central and crucial role in our society. Its social and economic implications are becoming increasingly important and contentious issues. This programme of post-graduate level courses is offered by the Department of History and Philosophy of Science to science, applied science, humanities and social science graduates who wish to further their understanding of the forces shaping technology and its social, economic and political dimensions in modern industrial society.

The degree of Master of Arts in the area of technology and social change has been designed for graduates without an extensive HPS background and is of particular relevance to those employed in government, administration and management, teaching and educational planning; and relevant to those more generally concerned with the social relations of technology.

### *Structure*

Students entering the programme with a pass degree in History and Philosophy of Science or a degree in another appropriate discipline (Category A) will be required to complete subjects with a minimum value of 96 credit points. Those with an Honours degree in History and Philosophy of Science or its equivalent (Category B) will be required to complete subjects with a minimum value of 48 credit points.

### *Category A*

Students are required to take 60 credit points from the following subjects:

HPS921	A Historical Introduction to Technology	12 cr. pts.
HPS922	The Impact and Social Relations of Technology A	12 cr. pts.
HPS923	The Impact and Social Relations of Technology B	12 cr. pts.
HPS924	Minor Thesis	24 cr. pts.

and to select three of the following subjects (36 credit points):

HPS931	Risk Assessment, Health and Safety	12 cr. pts.
HPS932	The Organisation of Technological Change	12 cr. pts.
HPS933	Energy and Technological Development	12 cr. pts.
HPS934	Genetics and Technological Innovation	12 cr. pts.
HPS935	The Impact of Computers	12 cr. pts.
HPS936	The Technology of Medicine and Health	12 cr. pts.



*Category B*

Category B students are required to take 48 credit points from the following subjects:

HPS921	A Historical Introduction to Technology	12 cr. pts.
HPS922	The Impact and Social Relations of Technology A	12 cr. pts.
HPS923	The Impact and Social Relations of Technology B	12 cr. pts.
HPS931	Risk Assessment, Health and Safety	12 cr. pts.
HPS932	The Organisation of Technological Change	12 cr. pts.
HPS933	Energy and Technological Development	12 cr. pts.
HPS934	Genetics and Technological Innovation	12 cr. pts.
HPS935	The Impact of Computers	12 cr. pts.
HPS936	The Technology of Medicine and Health	12 cr. pts.

24 credit points must be taken from:

HPS921	A Historical Introduction to Technology	12 cr. pts.
HPS922	The Impact and Social Relations of Technology A	12 cr. pts.
HPS923	The Impact and Social Relations of Technology B	12 cr. pts.

*Interdisciplinary Seminar*

All students are required to attend and contribute to a series of regular informal seminars and discussion meetings held within the department of History and Philosophy of Science during Sessions 1 and 2.

*Assessment*

Continuous Assessment by written assignments and seminar dissertations.

*Entry to Course*

Entry to the course will be dependent upon approval by the Departmental Chairman.

*Programme Determination*

Students wishing to enrol for this programme must have their proposed course of study approved by the Departmental Chairman.

*Details of Subjects***HPS921 A HISTORICAL INTRODUCTION TO TECHNOLOGY**

*Single Session subject; 12 credit points (contact hours per week: 3 hours)*

An investigation of the development of technology, the various forms it has taken, its response to and effect on social and economic conditions from the eighteenth century onwards.

## **HPS922 THE IMPACT AND SOCIAL RELATIONS OF TECHNOLOGY A**

*Single Session subject; 12 credit points (2 lectures, 1 tutorial, 1 seminar per week)*

An examination of the social and physical impact of contemporary technological development, and the social constraints which guide and obstruct alternative paths of socio-technical development.

## **HPS923 THE IMPACT AND SOCIAL RELATIONS OF TECHNOLOGY B**

*Single Session subject; 12 credit points (2 lectures, 1 tutorial, 1 seminar per week)*

*Pre-requisite:* HPS922 The Impact and Social Relations of Technology A

Further development of analytic methods for the assessment of the impact of contemporary technological developments and analysis of problems associated with the construction and development of different socio-technical options.

## **HPS924 MINOR THESIS**

*24 credit points (contact hours per week: 4 hours)*

A thesis embodying the results of an original investigation of a problem approved by the Departmental Chairman under the supervision of a staff member.

## **HPS931 RISK ASSESSMENT, HEALTH AND SAFETY**

*Single Session subject; 12 credit points (contact hours per week: 3 hours)*

This subject investigates scientific and political aspects of environmental and occupational hazards, with special reference to contemporary Australia. Themes will include: concept of acceptable risk, public participation in decisions about risks, shaping of attitudes to risks, the social production of scientific knowledge. The course will draw on case studies which are currently being debated in Australia: e.g. herbicides, asbestos, radiation, fuel additives.

## **HPS932 THE ORGANISATION OF TECHNOLOGICAL CHANGE**

*Single Session subject; 12 credit points (contact hours per week: 3 hours)*

The organisation and management of R & D, patterns of industrial innovation, State-subsidised technological development, assessing the costs and benefits of technology.

## **HPS933 ENERGY AND TECHNICAL DEVELOPMENT**

*Single Session subject; 12 credit points (contact hours per week: 3 hours)*

An examination of the social, economic and political factors which constrain the development and use of different energy technologies, and the limits that these place on other socio-technical choices.

## **HPS934 GENETICS AND TECHNOLOGICAL INNOVATION**

*Single Session subject; 12 credit points (contact hours per week: 3 hours)*

Topics include the history of molecular genetics and possible further developments; the study of techniques utilized by researchers and their exploitation in medicine and industry; discussion of the problems of assessing the effects of mutagenic agents.

**HPS935 THE IMPACT OF COMPUTERS**

*Single Session subject; 12 credit points (contact hours per week: 3 hours)*

The development, role and implications of computers, including applications in corporate decision-making, government planning, education, health-care, automation, robotics, data processing, and implications for employment, education, social control and artificial intelligence.

**HPS936 THE TECHNOLOGY OF MEDICINE AND HEALTH**

*Single Session subject; 12 credit points (contact hours per week: 3 hours)*

An examination of the increasing technological dependency and automation of diagnosis and treatment in modern medicine and health care; their socio-economic and political implications.

**DIPLOMA IN MATHEMATICS**

The graduate Diploma in Mathematics shall be subject to the University requirements for the award of graduate Diplomas together with the following conditions.

1. A candidate shall undertake a course of graduate studies in one or more of the following fields:

Applied Mathematics, Computing Science, Numerical Analysis, Operations Research, Physical Oceanography, Algebra, Functional Analysis, Mathematical Logic and Statistics.

2. Entry to the Diploma will normally be from a pass degree with an appropriate 3 year sequence in Mathematics, or, subject to the approval of the Academic Senate on the recommendation of the Chairman of the Department of Mathematics, from a degree or diploma containing substantial study in an appropriate discipline.
3. The diploma will normally occupy two sessions of full-time study or four sessions of part-time study, and will involve:

the successful completion of Mathematics Honours Seminar whose credit point value is 12, and the satisfactory completion of subjects chosen from the Schedule of Subjects for the Master of Science Degree (Department of Mathematics) (*under certain circumstances, with the approval of the Chairman of the Department of Mathematics, a limited number of subjects may be chosen from the Schedule of Graduate Subjects (Department of Computing Science)*) and Schedule F of the Bachelor Degree Requirements to the credit point value of 36, provided that not less than 24 credit points shall be obtained in respect to graduate subjects taken from the Schedule of Subjects for the Master of Science Degree.

4. A candidate may not include in this diploma programme any subject which the candidate has previously taken and had credited towards another degree or diploma of the University.
5. Not all graduate subjects will necessarily be available during a given year.
6. Unless otherwise determined by the Academic Senate, the registration of a candidate shall be terminated if that candidate fails subjects to the total value of 18 or more credit points.

**MASTER OF SCIENCE**

The degree of Master of Science (MSc) in the Department of Mathematics shall be subject to the University requirements for the award of the degree of Master together with the following conditions.

1. A candidate shall undertake research, or a course of graduate studies and research in one or more of the following fields:

Applied Mathematics, Computing Science, Numerical Analysis, Operations Research, Physical Oceanography, Algebra, Functional Analysis, Mathematical Logic and Statistics.

2. Entry to the degree programme will normally be from an Honours degree in Mathematics or from a pass degree with an appropriate 3 year sequence in Mathematics. Entry to the degree programme may also be approved by the Academic Senate for candidates with the qualification of Diploma in Mathematics on the recommendation of the Chairman of the Department of Mathematics.



3. Where entry to the degree programme has been approved from an Honours degree or a Diploma in Mathematics, it will normally occupy two sessions of full-time study or four sessions of part-time study, and shall involve:
- (a) a thesis embodying the results of investigation to the value of 48 credit points, or
  - (b) a minor thesis embodying the results of an investigation whose credit point value is 24 together with the satisfactory completion of graduate subjects chosen from the Schedule of Subjects for the Master of Science Degree (Department of Mathematics) (*under certain circumstances, with the approval of the Chairman of the Department of Mathematics, a limited number of subjects may be chosen from the Schedule of Graduate Subjects (Department of Computing Science)*), to the value of 24 credit points, or
  - (c) satisfactory completion of a substantial written project whose credit point value is 12 together with the satisfactory completion of graduate subjects chosen from the Schedule of Subjects for the Master of Science Degree (Department of Mathematics) (*under certain circumstances, with the approval of the Chairman of the Department of Mathematics, a limited number of subjects may be chosen from the Schedule of Graduate Subjects (Department of Computing Science)*), to the value of 36 credit points.
4. Where entry to the degree programme has been approved from a pass degree, it will normally occupy four sessions of full-time study or eight sessions of part-time study, and shall involve:
- (a) a thesis embodying the results of an investigation whose credit point value is 48 together with the satisfactory completion of the Mathematics Honours Seminar whose credit point value is 12 and the satisfactory completion of subjects chosen from the Schedule of Subjects for the Master of Science Degree (Department of Mathematics) (*under certain circumstances, with the approval of the Chairman of the Department of Mathematics, a limited number of subjects may be chosen from the Schedule of Graduate Subjects (Department of Computing Science)*) and Schedule F of the Bachelor Degree Requirements to the credit point value of 36, provided that not less than 24 credit points shall be obtained in respect of graduate subjects taken from the Schedule of Subjects for the Master of Science Degree, or,
  - (b) a minor thesis embodying the results of an investigation whose credit point value is 24 together with the satisfactory completion of the Mathematics Honours Seminar whose credit point value is 12 and the satisfactory completion of subjects chosen from the Schedule of Subjects for the Master of Science Degree (Department of Mathematics) (*under certain circumstances, with the approval of the Chairman of the Department of Mathematics, a limited number of subjects may be chosen from the Schedule of Graduate Subjects (Department of Computing Science)*) and Schedule F of the Bachelor Degree Requirements to the credit point value of 60, provided that not less than 48 credit points shall be obtained in respect of graduate subjects taken from the Schedule of Subjects for the Master of Science Degree, or,
  - (c) satisfactory completion of a substantial written project whose credit point value is 12 together with the satisfactory completion of the Mathematics Honours Seminar whose credit point value is 12 and the satisfactory completion of subjects chosen from the Schedule of Subjects for the Master of Science Degree (Department of Mathematics) (*under certain circumstances, with the approval of the*



*Chairman of the Department of Mathematics, a limited number of subjects may be chosen from the Schedule of Graduate Subjects (Department of Computing Science)) and Schedule F of the Bachelor Degree Requirements to the credit point value of 72, provided that not less than 60 credit points shall be obtained in respect of graduate subjects taken from the Schedule of Subjects for the Master of Science Degree.*

5. A candidate may not include in this degree programme any subject which the candidate has previously taken and had credited towards another degree or diploma of the University.
6. All subjects chosen from either the Schedule of Subjects for the Master of Science Degree or Schedule F of the Bachelor Degree Requirements for inclusion into the degree programme shall be subject to the approval of the Chairman of the Department of Mathematics.
7. Not all graduate subjects will necessarily be available during a given year.
8. Notwithstanding the conditions relating to the limitation of time for the degree of Master, the registration of a candidate will be subject to termination if that candidate fails subjects to the total value of 18 or more credit points.
9. Each candidate for the degree programme under 3(c) and 4(c) shall be assigned a supervisor by the Chairman of the Department of Mathematics.  
  
Where a candidate has enrolled in a degree programme that includes either a thesis or a minor thesis, the Academic Senate shall appoint a supervisor on the recommendation of the Chairman of the Department of Mathematics.
10. The graduate project referred to in 3(c) and 4(c) shall be assessed by two examiners appointed by the Chairman of the Department of Mathematics.

#### *Details of Subjects*

##### *Textbooks*

Students will be advised on the appropriate texts for each subject in the first lecture of the subject. In all cases, the lecturer should be consulted before textbooks are purchased.

##### *Credit Points*

All subjects listed below, with the exception of MATH991, 992 and 993, have a credit point value of 6.

##### *Contact Hours*

All subjects listed below involve at least one contact hour per week for both sessions, or its equivalent.

##### *Method of Assessment*

All 900-level subjects will be assessed by final examinations, or final examinations and limited assignments.

NOTE: Not all graduate subjects will necessarily be available during a given year.

For further details, see the post-graduate coursework coordinator: Dr. Grahame Morris.

**MATH911 ADVANCED MATHEMATICS METHODS A**

Asymptotic Expansion, Advanced Ordinary Differential Equations, and Weierstrassian Elliptic Functions.

**MATH912 CONTINUUM MECHANICS**

The basic principles of continuum mechanics and the solved problems of finite elasticity. Equations for small deformations superimposed upon a state of finite strain and applications to stability problems. Linear elasticity. Selected problems from the theories of non-Newtonian fluids, plasticity and fibre-reinforced materials.

**TEXTBOOK**

Eringen, A.C. *Nonlinear Theory of Continuous Media*. McGraw-Hill, New York.

**MATH913 NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS**

The origin of nonlinear differential equations. General solutions of first and second order partial differential equations. Exact and analytic methods of solution for particular equations. Exact solutions using one parameter transformation groups. Perturbation methods and other approximate methods of solution.

**TEXTBOOKS**

Ames, W. F. *Nonlinear Partial Differential Equations in Engineering*. Vols. 1 & 2, Academic Press, New York.

Cole, J.D. *Perturbation Methods in Applied Mathematics*. Blaisdell Publishing Company, Waltham, Massachusetts.

**MATH914 QUANTUM MECHANICS IN HILBERT SPACE**

In the first part of the course the axioms of Hilbert space, linear functionals, and linear operators are introduced and the spectral theorem is discussed. The second part of the course deals with the physical foundations seen from a mathematical viewpoint. The course tries to show how physical ideas can be expressed much more forcefully and clearly if they are presented in the appropriate language.

**MATH915 ADVANCED MATHEMATICS METHODS B**

Differential Difference Equations, The Renewal Equation, Expansions in Series, Higher Transcendental Functions.

**MATH916 EIGENVALUE THEORY OF ORDINARY DIFFERENTIAL EQUATIONS**

Linear operators in Hilbert space, spectral decomposition of symmetric operators, Weyl's theory of singular differential equations of the second order.

**MATH917 INTEGRAL EQUATIONS**

Fredholm and Volterra Integral Equations, eigenvalues and eigenfunctions, spectral decomposition of integral operators, & its use in solving integral equations, relationships to differential equations. Other aspects of the subjects which may be considered are: singular integral operators (Hilbert's transform), Wiener-Hopf equations, non linear integral equations.

**MATH918 MEAN PERIODIC FUNCTIONS**

An introduction to L. Schwartz's theory of mean periodic functions using the transform of J-P Kahane. Applications to differential equations.

### **MATH919 VISCOUS FLUIDS WITH APPLICATIONS IN THE BIOLOGICAL AND MEDICAL SCIENCES**

Equations of motion of a viscous fluid, kinematics, exact solutions, low Reynolds number flows, boundary layers, matched asymptotic expansions, an introduction to biological fluid mechanics, micro-organism locomotion, air flow in the lung, blood flow.

### **MATH931 LINEAR PROGRAMMING**

Linear programming using the matrix approach. Topics covered include: introduction to linear programming and revision of matrices, the simplex procedure, revised simplex procedure, parametric programming, integer programming, decomposition method, transportation and network problems.

### **MATH932 OPTIMIZATION TECHNIQUES**

Solution of non-linear optimization problems. Topics covered include: unconstrained minimisation using Fletcher-Powell and related techniques, the linear search problem, solution methods specific to least squares problems, linear constraints, penalty function methods, Huhn Tucker conditions, Lagrange multipliers.

### **MATH933 SPARSE MATRIC TECHNIQUES**

Solution of partial differential equations using finite difference and finite element techniques. Topics covered include formulation of finite difference and finite element approximations to partial differential equations, matrix properties of the approximate equations, methods of solution of the approximate equations.

### **MATH934 ADVANCED NUMERICAL ANALYSIS**

Solution of Ordinary and Partial Differential Equations. Integration including multiple integration. Solution of Integral Equations.

### **MATH935 NUMERICAL LINEAR ALGEBRA**

Modern methods of solving the algebraic eigenvalue problem including the generalized problem  $Ax = \lambda Bx$ .

### **MATH941 SIMULATION TECHNIQUES**

Principles of Modelling. Classification of Simulation Modelling. Continuous models compared and contrasted with discrete models. Generation of random numbers. Generation of stochastic variates. Simulation languages. Validation, and design of computer simulation experiments.

### **MATH942 REPLACEMENT THEORY AND POPULATIONS**

Continuous and discrete mathematical models of populations including age structures. Failure distributions. Operating characteristics of maintenance policies. Optimisations of replacement policies. Repairman problem. Redundancy optimisation.

### **MATH943 QUEUEING**

Analysis of arrival patterns. Queue disciplines. The  $L = \lambda W$  relationship. The simple queue. Queues in series and parallel. Transients in queues. The output of a queue. Correlations and queues. Graphical representation.

### **MATH944 INVENTORY CONTROL**

Structure of inventory models. Static and dynamic models. Economic lot size

models and their sensitivity. Two bin models. Karlin Fabens model. Inventory control and computer systems.

### **MATH945 PRINCIPLES OF OPERATING RESEARCH**

The construction of models for decision analysis. Case exercises in Operations Research with particular application to local industries.

### **MATH951 COASTAL DYNAMICS**

Generation and propagation of continental shelf waves of high and low frequency in homogeneous and non-homogeneous oceans, response of the ocean over a shelf to atmospheric disturbances, detection and measurement of shelf waves, dissipative influences, standing edge waves and their relation to beach geomorphology, modelling of physical marine systems.

### **MATH952 DATA ANALYSIS**

Oceanographic data acquisition, preliminary data editing and reduction, probe arrays, first and second order recursive filters, bandpass filters, Fourier transform techniques in oceanography, statistical errors, data windows, coherence functions, spectral studies of oceanographic phenomena.

### **MATH953 WAVES AND CURRENTS**

Basic equations of motion, perturbation equations, density fields, internal waves and currents, topographic effects, propagation of tides, current metres, use of current measurements, major ocean currents, geostrophic currents, inertia currents, gradient currents, wind-driven waves and currents in a homogeneous and non-homogeneous ocean.

### **MATH961 FUNCTIONAL ANALYSIS**

Banach spaces, Linear Operators between Banach spaces, the Uniform Boundedness Principle, Closed graph theorem and open mapping theorem, Hahn-Banach theorem, applications to some of the following: Fourier series, integral equations, quadrature formulae, approximation theory, analytic function theory, spectral theory.

### **MATH962 HARMONIC ANALYSIS**

The course will consist of a certain amount of Lebesgue Integration Theory which will be applied to a discussion of various topics in the theory of Fourier Series. The generalization of Fourier Series to harmonic analysis on groups will also be considered.

### **MATH963 INTEGRATION THEORY AND ITS APPLICATIONS**

Integration on a general measure space, the space  $L^p$  of functions having integrable  $p^{\text{th}}$  power, geometrical properties of  $L^p$  and other Banach spaces, applications to analysis and the measure theoretic formulation of probability theory.

### **MATH964 DISTRIBUTIONS**

Mikusinski's theory of convolution quotients, and an introduction to L. Schwartz's theory of distributions. Properties of the space of continuous functions of a single real variable (equipped with a suitable topology) and its dual space.

### **MATH965 INDEPENDENCE PROOFS IN SET THEORY**

Independence of the axioms of constructibility and choice and of the Generalized Continuum Hypothesis.



**MATH966 LOGIC AND SET THEORY**

Primitive Recursive and recursive functions. Arithmetization, Godels Theorem, Recursive undecidability, Axioms for set theory, ordinal numbers, equinumerosity, Hartog's theorem, the Axiom of Choice.

**MATH967 COMBINATORY LOGIC**

Introduction to Pure and Illature combinatory logic, relation to lambda-conversion, functionality, application to propositional and predicate calculus.

**MATH968 TOPICS IN ALGEBRA A**

Partially ordered sets, lattices, modular lattices, Boolean Algebras and Boolean rings, orthomodular lattices.

**MATH969 TOPICS IN ALGEBRA B**

Partially ordered sets and residuated mappings, Boolean lattices, involution posets, filters in lattices and posets.

**MATH971 DECISION THEORY**

Subjective Probability, Axiomatic Development of utility theory, conjugate prior distributions, Estimation and Testing of Hypothesis, Sequential Decision Procedures, Martingales, Optimality Principle, House Hunting Problem, Parking Place Problem, Quiz Show Problem, Duel Problems, Control and Search Problems.

**MATH972 REGRESSION ANALYSIS**

Linear Regression, Multiple Regression, Examination of Residuals, Model Building, Stepwise and stagewise regression, Relationship between regression analysis and analysis of variance models, Non-linear Models, Models not of Full Rank.

**MATH973 TIME SERIES**

Autocorrelation function, Periodogram Analysis, spectrum and spectral density function, Models for Stationary and Non-Stationary time series, Identification and Estimation of ARIMA models, seasonal Models, Forecasting, Transfer Function Models.

**MATH974 MATHEMATICAL STATISTICS**

A treatment of the theory and practical application of multivariate statistical analysis.

**MATH991 PROJECT**

*12 credit points*

**MATH992 MINOR THESIS**

*24 credit points*

**MATH993 THESIS**

*48 credit points*



**MECHANICAL ENGINEERING****MASTER OF ENGINEERING***Entry under Section 6(1) - Graduates with Honours Degree*

Students entering the course under Section 6(1) of the Masters Degree Requirements are required to complete subjects from the Schedule of Graduate Subjects with an aggregate of not less than 48 credit points. Programmes of study provided by the Department of Mechanical Engineering include a dissertation with a credit point rating of 8 (MECH950), 28 (MECH951), or 48 (MECH952), depending on whether the course chosen is mainly by formal subject matter (8 subjects), or by a combination of dissertation and formal subject matter (4 subjects) or entirely by dissertation.

*Entry under Section 6 (2) - Graduates with Pass Degree*

Students entering the course under Section 6(2) of the Masters Degree Requirements are required to complete subjects with an aggregate of not less than 96 credit points. Programmes of study under this section will normally consist of the subject MECH999 Advanced Topics in Engineering (48 credit points) plus one of the programmes provided under Section 6(1) (above).

*Description of Subjects*

Each of the subjects described below, with the exception of MECH950, 951, 952 and 999, are valued at 5 credit points and have a total contact of 4 hours per week for one session, although in certain cases they may be offered over two sessions.

Similar subjects offered by other departments will be acceptable for the Masters degree course in Mechanical Engineering subject to the approval by the Departmental Chairman and the Graduate Studies Committee.

**MECH901 ADVANCED HEAT TRANSFER 1**

**CONDUCTION HEAT TRANSFER.** Unidimensional heat flow; analysis of extended surfaces; two and three dimensional conduction; unsteady conduction in one or more dimensions; analytical, numerical and analogical methods of solution; transient systems; initial value and boundary value problems; nonhomogeneous bodies; anisotropic bodies; variable material properties.

**RADIATION HEAT TRANSFER.** Thermal radiation properties of materials, black bodies - characteristics of real solids, liquid and gases; radiation exchange between infinite surfaces and between finite surfaces; shape factor for various configurations; radiation shields; re-radiating surfaces and electrical analogies, radiation behaviours of gases and vapours.

**MECH902 ADVANCED HEAT TRANSFER 2**

Revision of the fundamental principles of viscous fluid motion and boundary layer motion. Dimensional analysis, similarity parameters, method of differential similarity. Correlation of experimental results. Forced and free convection. Exact solutions for laminar flow. Analogy between heat and momentum transfer in turbulent flow. Heat exchangers. Design and selection.

**MECH903 STATISTICAL THERMODYNAMICS**

History and review of classical thermodynamics and kinetic theory of an ideal monatomic gas; equations of state; statistical mechanics for systems of independent particles; concept of entropy; Maxwell, Boltzmann, Bose-Einstein and Fermi-Dirac statistics; partition function; velocity and energy distributions; classical-statistical comparisons; quantum mechanics; Schrödinger wave equation and app-

lications; electronic states; the photon gas; the Einstein solid; diatomic and polyatomic gases; low temperature effects; statistical mechanics for systems of dependent particles; behaviour of real gases and liquids; irreversible processes; thermo-electrical and thermochemical phenomena.

### **MECH904 GAS DYNAMICS**

Revision of one-dimensional gas dynamics. Two-dimensional compressible fluid flow. Method of characteristics. One-dimensional unsteady flow. Unsteady shock waves. Combustion waves. Rarefied gas flow. Hypersonic flow.

### **MECH905 ADVANCED DYNAMICS**

Kinematics and dynamics of particles and rigid bodies in three-dimensional motion; fixed and moving reference frames; Newtonian dynamics; inertia tensor; Euler's equations of motion; general motion of gyroscopes and rigid bodies in space.

Calculus of variations; Functions and functionals; stationary values of integrals; Euler-Lagrange equations; constraints and Lagrange multipliers; fixed and variable end points; problems of Lagrange, Mayer and Bolza.

Variational dynamics; Performance optimisation; generalised co-ordinates; Lagrange equation; Hamilton's principle; impulsive motion; oscillatory motion.

### **MECH906 EXPERIMENTAL AND ANALYTICAL MODELLING**

Stochastic processes; Random signal analysis; Correlation function; Probability functions and spectral density functions; System identification; Correlation analysis; Spectral analysis.

Modelling of continuous systems using analytical methods; Lumped parameter systems; Linearisation.

Solution of equations. Parameter estimation.

Rate expressions; introduction to reactor design; non-ideal flow in reactors.

### **MECH907 DESIGN OF CONTROL SYSTEMS I - MULTIVARIABLE SYSTEMS**

Review of classical control techniques; Multi-input multi-output systems; Transfer Functions; State space analysis; Stability analysis; Interaction and inverse Nyquist array; Optimal control.

### **MECH908 COMPUTER AIDED DESIGN**

The application of computers to design; standards for documentation and checking of computer aided engineering computations; computer simulation and optimising techniques.

### **MECH909 WASTEWATER TREATMENT AND DISPOSAL**

Developments and trends in wastewater engineering; wastewater characteristics; physical unit operations; chemical unit processes; biological unit processes; design of facilities for physical and chemical treatment of wastewater; design of facilities for biological treatment of wastewater; advanced wastewater treatment; water-pollution control and effluent disposal; wastewater treatment studies; legal requirements.

### **MECH910 WATER RESOURCE MANAGEMENT**

Water uses, water quality criteria and waste inputs. Principles of water quality systems analysis. Construction of stream and river water quality models. App-

lication of stream and river water models. Construction of estuarine water quality models. Applications of estuarine models.

### **MECH911 BULK SOLIDS HANDLING SYSTEMS 1**

Flow patterns of bulk solids constrained by bins and hoppers; theory of flow; determination of flow properties: hopper design; bin loads.

### **MECH912 BULK SOLIDS HANDLING SYSTEMS 2**

Further consideration concerning bin design; failure criteria for bulk solids; flow promotion; two-phase flow; effects of interstitial gas on flow of fine powders; screening and grading of bulk solids; mixing of dry solids; dust explosions.

### **MECH913 PNEUMATIC AND HYDRAULIC TRANSPORT OF BULK SOLIDS**

Classification and selection of transport systems; flow patterns; pressure drop, minimum operating velocities; design parameters and examples; feeding and withdrawal methods.

### **MECH914 AIR POLLUTION**

Elements of the air pollution problem; Origin and fate of air pollutants; Air pollution meteorology; Air pollution chemistry; Micrometeorology; Atmospheric diffusion; Combustion processes and the formation of gaseous and particulate pollutants; Air pollution control principles.

### **MECH915 NOISE POLLUTION**

The behaviour of sound waves; Levels, decibels and spectra; Sound transducers; Field measurements; equipment and techniques; Data analysis; The measurement of power levels and directivity patterns of noise sources; Sound propagation outdoors. Sound in small spaces; Sound in large rooms; Acoustical properties of porous materials; Interaction of sound waves with solid structures; Noise generation in industry; Noise of gas flows; Damage risk criteria for hearing; Criteria for noise in communities, buildings and vehicles.

### **MECH916 DESIGN OF CONTROL SYSTEMS II - OPTIMAL CONTROL**

Formulation of the optimal control problem: performance criteria; solution of the optimal control problem using calculus of variations, dynamic programming and the maximum principle; applications.

### **MECH917 REFRIGERATION AND AIR CONDITIONING**

Theoretical aspect of refrigeration and air conditioning. Advanced treatment of topics selected from various systems. Design and calculations.

### **MECH918 DESIGN OF CONTROL SYSTEMS III - INVERSE NYQUIST ARRAY TECHNIQUES**

Review of matrix analysis; input-output systems; transfer matrices; system realisation; interactive graphics; diagonal dominance; Inverse Nyquist array; applications.

### **MECH919 ADVANCED TOPICS IN MECHANICAL ENGINEERING I**

There is no set syllabus for this subject. It is intended that it normally be offered on a specialised mechanical engineering topic given by members of the Department, visiting academic staff or engineering consultants.

**MECH920 NUMERICAL METHODS IN  
MECHANICAL ENGINEERING**

Iteration techniques; interpolation; curve fitting; matrix inversion and evaluation of eigenvalues; numerical differentiation and integration; solution of ordinary differential equations, second order partial differential equations and integral equations; accuracy and conservative formulations; introduction to stability analysis; application to engineering problems.

**MECH921 HYDRODYNAMICS**

Applications of complex potential; unsteady fluid flows; foil theory and applications; cavitations and discontinuous flows; body hydrodynamics.

**MECH929 ADVANCED TOPICS IN  
MECHANICAL ENGINEERING II**

There is no set syllabus for this subject. It is intended that it will normally be offered on a specialised mechanical engineering topic given by members of the department or visiting academic staff or engineering consultants.

**MECH939 ADVANCED TOPICS IN  
MECHANICAL ENGINEERING III**

As for MECH929.

**MECH950 DISSERTATION**

*8 credit points*

**MECH951 DISSERTATION**

*28 credit points*

**MECH952 DISSERTATION**

*48 credit points*

**MECH999 ADVANCED TOPICS IN ENGINEERING**

*Double session subject; 48 credit points*

Details of this subject are the same as for ELEC999 Advanced Topics in Engineering as described in the postgraduate entry under the Department of Electrical Engineering.\*

\*See p.597.



**METALLURGY****DIPLOMA IN METALLURGY**

Entry to the diploma normally will be from a bachelors degree in metallurgy or other appropriate discipline and the candidate will be required to undertake a programme either of full-time study for two academic sessions or of part-time study for four academic sessions. The programme comprises courses totalling 48 credit points made up as follows:

- |      |  |                  |
|------|--|------------------|
| (i)  | METL992 Metallurgy Project 4                               | 24 credit points |
| (ii) | Three of the advanced topics in Metallurgy described below | 24 credit points |

*Advanced Topics in Metallurgy for the Postgraduate Diploma*

Each subject is presented in one session, has a value of 8 credit points and comprises a minimum of one lecture per week with associated tutorials, assignments and laboratory work. Subjects are assessed by written examination together with credit for assignments and laboratory and other work.

**METL902 MATERIALS RESOURCES**

Sources of materials of importance in metallurgical and materials science applications. Choice of production methods. Alternative low-energy production routes. Substitution for scarce-materials. Treatment of wastes. Detailed consideration of cases of importance.

**METL903 DEVELOPMENTS IN MATERIALS**

Critical appraisal of recent and projected developments in metallurgical and other materials. Consideration of micro- and crystal-structures, physical and mechanical properties, applications, and the trends in processing of such materials.

**METL904 ENERGY IN THE MATERIALS INDUSTRY**

A selection will be made from the following topics. The relationship of the materials industry to the energy economy. Classification of fuels. Physical and chemical properties. Energy content and combustion temperature. Calculations of heat requirements for materials processes. Efficient use of fuels. Control of pollution. Choice of fuels and design for energy economy in the future.

**METL915 CORROSION OF MATERIALS**

Corrosion and deterioration of metals, alloys and non-metallic materials. Mechanical, environmental and design effects; protection and prevention.

**METL934 MANUFACTURING PROPERTIES OF MATERIALS**

Deformation and metal removal processes. Important properties in production processes and their determination. Effects of production processes on the performance of materials.

**METL962 MODELLING TECHNIQUES IN METALLURGY**

Application of digital and analogue computing techniques in the development and evaluation of mathematical and other models of physical systems in metallurgy.

**METL982 DEVELOPMENTS IN EXTRACTIVE METALLURGY**

Historical development of extractive processes. Current processes and reasons for change as an indication of future trends and developments. Changes in raw mat-



erials and energy. Detailed examination of selected industrial processes of metal extraction.

## CHEM327 CHEMISTRY AND THE ENVIRONMENT

See Description of Subjects - Chemistry

### MASTER OF METALLURGY

*Entry under Section 6(1) - Honours Graduates*

A candidate who enters under Section 6(1) of the Masters Degree Requirements (i.e. who has qualified for the degree of Bachelor of Metallurgy with honours or equivalent) will be required to undertake the subject METL990 Major Thesis by a programme either of full-time research for at least two academic sessions or of part-time research for at least four academic sessions and the submission of a thesis embodying the results of that research. The subject is valued at 48 credit points. Also, entry may be approved by the Academic Senate for candidates with the qualifications of Diploma in Metallurgy and who have successfully completed any additional work specified by the Chairman of the Department of Metallurgy.

*Entry under Section 6(2) - Pass graduates*

A candidate who enters under Section 6(2) of the Masters Degree requirements (i.e. who has qualified for the degree of Bachelor of Metallurgy at a standard below honours) will be required to undertake a programme of work normally for either four academic sessions full-time study or eight academic sessions part-time study. The programme comprises courses totalling 96 credit points made up as follows:

(i)	METL993 Metallurgy Project 3	16 credit points
(ii)	Four of the advanced topics in Metallurgy described below	32 credit points
(iii)	METL990 Major Thesis (as for Honours Entry)	48 credit points

*Advanced Topics in Metallurgy for the Masters Degree*

Each subject is presented in one session, has a value of 8 credit points and comprises a minimum of one lecture per week and associated tutorials, laboratory and assignments. Subjects are assessed by written examinations together with credit for assignments and laboratory and other work.

### METL901 METALLURGICAL RESOURCES 2

Metallurgical resources and their utilization. The influence of technological developments in metallurgical industries. Detailed consideration of particular industries, for example the iron and steel industry.

### METL921 ADVANCED DIFFRACTION TECHNIQUES

Advanced geometrical, kinematical and dynamical theories of electron and X-ray diffraction; reciprocal lattice, stereographic projection.

### METL931 MECHANICAL BEHAVIOUR OF MATERIALS

Generalised Hooke's law, yield surface for anisotropic materials, development of preferred orientations, elastic properties of dislocations, dislocation interactions and reactions, strain hardening.

### METL932 THERMOMECHANICAL PROCESSES

Hot deformation processes, creep, superplasticity, high temperature fracture, dynamic recovery and recrystallisation.

**METL933 FRACTURE OF MATERIALS**

Plastic constraint, fracture mechanics for conditions of plane stress and strain and of general yielding, C.O.D. testing, fatigue, stress corrosion, mechanisms of crack nucleation and propagation.

**METL935 METAL FORMABILITY**

Principles of sheet metal forming. Effects of forming conditions. Effects of material properties. Mechanical testing processes for ductile sheet metals.

**METL951 STRUCTURE AND PROPERTIES OF ALLOYS**

Strengthening of ferrous and non-ferrous alloys; relationships between strength, toughness and microstructure; thermomechanical treatments, ausforming, isoforming, austempering, martempering, maraging etc; high performance alloys.

**METL952 ADVANCED METALLOGRAPHIC METHODS**

Advanced theory and practice of light-optical and electron-optical techniques for the analysis of the fine structure of metals and other materials.

**METL961 PROCESS MODELLING 2**

Theory and application of computing techniques for process modelling and simulation.

**METL971 SOLIDIFICATION 3**

Nucleation, growth structures in pure metals, single and polyphase alloys, cast structure development and control, grain refinement and modification, segregation, thermodynamics and fluid flow in solidification, processing and properties.

**METL981 ADVANCED EXTRACTIVE METALLURGY**

Mixing and segregation, effect on yield, design for heterogeneous reacting systems, fluid-solid and fluid-fluid systems, rate expressions for various kinetic regimes, design strategy for single and multiple reactors, applications.

## CENTRE FOR MULTICULTURAL STUDIES

The Centre for Multicultural Studies was established by a resolution of the University Council in October 1975. It became fully operational in February 1979 at its first off-campus location in Keira Street, Wollongong. In September 1980, the Centre moved to Porter Street, North Wollongong.

The Charter of the Centre contains three major functions - action research, community education and community service. The Centre serves as a framework for the exploration of the problems and experiences of immigrant communities in the local region, and nationally. Centre staff and students are involved with a wide range of immigrant communities, on issues such as education, unemployment, occupational health and safety and community work.

### DIPLOMA IN APPLIED MULTICULTURAL STUDIES

The Centre for Multicultural Studies is also the "umbrella" for the teaching of the course of study leading to the award of the Diploma in Applied Multicultural Studies (formerly Diploma in Intercultural (Migrant) Education).

*Aims:* The Diploma in Applied Multicultural Studies programme has developed to meet the need for a graduate level course which will provide the student with both understanding and skills to work within a multicultural context. While it is not a formal teaching qualification, it provides through a programme of lectures, student-led seminars and practical projects, the opportunity to develop a critical awareness of the context of the migration process in relation to Australian society. The Diploma integrates language studies, social science and the practical opportunity for engaging in and reflecting on innovation and social change in intercultural contexts.

The Diploma in Applied Multicultural Studies programme is a two-year, part-time course: it contains 48 credit points, 24 of each must be taken in each year.

*Structure:* The programme is based on components which reflect the diversity of demands placed on workers in multicultural situations.

#### YEAR ONE

There are two core subjects.

#### EURO992 LANGUAGE

*Double session; 12 credit points (3 hrs per week)*

*Assessment:* Continuous assessment based on participation in class and regular testing

This subject, presented by the Department of European Languages, offers one of a rotating selection of community languages. The aims of the subject are to provide the student with:

- (a) the experience of having to learn a new language within a socio-cultural framework.
- (b) the opportunity of developing limited proficiency in one language other than English.

#### SOC992 THE MIGRATION PROCESS

*Double session; 12 credit points (3 hrs per week)*

*Assessment:* By major essay and project report, to be submitted at the end of Session I and Session II

This subject is offered by a team drawn from the Departments of Sociology, Psychology, Education, History and Centre staff. The subject provides the opp-

ortunity to investigate and assess the process of migration within an overall historical and cross-cultural framework.

First session will introduce psychological and sociological approaches to migration and intercultural differences. Second session will then concentrate on an intensive review of the historical experience of one "national" group, in its own country, and during the triggering process for migration, integrating the perspectives raised in the earlier part of the subject. The SOC992 subject will locate the theoretical and substantive areas of concern to be pursued in SOC993. The practical studies component will comprise a 20 hour programme in teaching English as a second language, or a community studies project.

#### **PRELIMINARY READING**

Berger, J. & Mohr, J. *A Seventh Man*. Penguin.

#### **TEXTBOOKS**

To be notified on enrolment.

#### **YEAR TWO**

The final year of the Diploma in Applied Multicultural Studies programme allows students to focus their interest in one of two areas: Culture, Thought and Education, or Community Work. Students will be required to pursue the core course of Migration and Social Policy, offered by the Departments of Sociology, Geography and Economics, and will also choose one of the two options offered. Both the core and the options are double session subjects of 12 credit points each.

### **SOC993 MIGRATION AND SOCIAL POLICY**

*Double session; 12 credit points (3 hrs per week)*

*Assessment:* By three essays, one of which should be a more intensive and longer study of a substantive area covered by the subject.

This subject provides an intensive examination of governmental programmes and their relation to the needs of ethnic minorities in Australia. The analysis will be set against an understanding of the role of the State in industrial societies and will involve an exploration of the demographic and territorial bases of inequality, the position of migrants in the Australian workforce, and the potential governmental programmes for interviewing in these areas. The subject will be integrated through discussion on substantive areas and particular issues, drawing on the theoretical introduction provided by SOC992.

It will encompass an analysis of the role of the State, the structural context (economic and territorial) of social policy in relation to migrants, and the establishment of a framework for the identification of impacts of social policies and their evaluation.

#### **PRELIMINARY READING**

Martin, J. *The Migrant Presence*. Allen & Unwin.

#### **TEXTBOOKS**

To be notified on enrolment.

### **EDUC992 CULTURE, THOUGHT AND EDUCATION (OPTION)**

*Double session; 12 credit points (3 hrs per week)*

*Session One:* (a) Intercultural Psychology and Education

*Assessment:* By seminar participation, project and practical work, and long essay.

An enquiry into perception and cognition across cultures, with special reference



to cross-cultural issues in Australia. Implications are examined for educational and other social processes. The unit will include integration, perception across cultures, cognitive differences, differentiation and ecological functionalism, language and the implications of cultural difference for education and compensatory education.

**TEXTBOOK**

De Lacey, P.R. & Poole, M. *Mosaic or Melting Pot: Cultural Evolution in Australia*. Harcourt Brace Jovanovich, 1979.

*Session Two:* (b) Counselling and Social Psychology

*Assessment:* By seminar participation, seminar papers, and research report (theoretical or empirical)

The unit will examine some of the social problems encountered by immigrants, particularly in the Wollongong sub-region and will review the counselling methods and resources available to assist with these problems. Theoretical rationales for current practices and the possibility for future interventions will be explored.

Special attention will be given to the family adjustment and assimilation of immigrants, and to the social problems of unattached single migrants.

**TEXTBOOKS**

To be notified.

**SOC994 COMMUNITY WORK (OPTIONAL)**

*Double session; 12 credit points*

*Assessment:* By seminar and workshop participation, practical work and project report.

Community work involves both paid and voluntary intervention in those areas of social life usually understood as being outside the workplace. The subject will allow students to:

- (a) develop an understanding of the limitations and potential of community work as a means of enabling people to take greater control over decisions that affect them;
- (b) explore the substantive issues involved in community work practice in the Illawarra, set against the international and national context;
- (c) develop their ability to use and transfer skills, techniques and strategies in community work, particularly with immigrant groups.

The practical element of the subject will be located within the work of the Centre for Multicultural Studies or other community based projects and will involve work with Australian and immigrant communities.

**TEXTBOOKS**

To be notified.

**SOC995 SPECIAL TOPIC IN MULTICULTURAL STUDIES**

*Double session; 12 credit points (3 hrs per week: tutorials)*

*Assessment:* Project report.

*Pre-requisite:* EURO992, SOC992, and demonstrated expertise in a special area of Applied Multicultural Studies as determined by the Director of the Centre for Multicultural Studies.



The special topic exists to enable advanced students and students with interests not adequately catered for in the EDUC992 and SOC994 subjects to undertake advanced study.

### MASTER OF ARTS

Students entering the programme with a pass degree in an appropriate discipline (Category A) will be required to complete subjects with a value of at least 96 credit points. Those with an Honours Degree in an appropriate discipline or with a pass degrees plus a Diploma in Applied Multicultural Studies or its equivalent (Category B) will be required to complete subjects with a minimum value of 48 credit points.

#### *Category A:*

Students are required to take their first 48 credit points from the following subjects:

EDUC992	Culture, Thought and Education
SOC992	The Migration Process
SOC993	Migration and Social Policy
SOC994	Community Work
SOC995	Special Topic

or such other 900 level subjects offered in the Schedule of Graduate Subjects relevant to the student's proposed course of study, and approved by the Centre Director, the Chairman of Department, the Graduate Studies Committee and Academic Senate.

#### *Category B:*

Category B students and Category A students who have successfully completed the first 48 credit points of the programme will select, as their final subject:

SOC998	Major Thesis
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**GRADUATE DIPLOMA IN PHILOSOPHY**

The purpose of the graduate Diploma in Philosophy is to provide in a recognised University course a means for graduates with limited acquaintance with logic and philosophy to acquire competence in these subjects at a reasonably advanced level. The Diploma shall be subject to the University requirements for the award of graduate Diplomas together with the following conditions.

1. Candidates are required to complete subjects totalling 48 credit points from those listed in Schedule A under 'Philosophy'. Of these at least 24 must be from 300-level subjects and the remainder from 200-level subjects. Provided that, subject to the joint approval of the Chairmen of the Departments of Philosophy and Education, or of Philosophy and History and Philosophy of Science, up to 24 credit points at 200-level and/or 300-level may be taken from subjects listed in Schedule A under 'Education' and/or 'History and Philosophy of Science'. Under no circumstances may the total number of subjects credited towards the graduate Diploma in Philosophy taken from subjects other than those listed under 'Philosophy' total more than 24 credit points.
2. A candidate may not include in his or her diploma programme any course component which substantially duplicates a subject or part of a subject previously passed by the candidate as part of any degree or diploma already held or previously attempted.
3. The selection of courses and the programme of study shall be approved by the Departmental Chairman.
4. A full-time candidate shall normally complete the diploma in one academic year, a part-time candidate in no less than two and no more than three academic years.
5. Admission to candidature for the Diploma is on the recommendation of the Chairman of the Philosophy Department who shall assess the applicant's aptitude for sustained philosophical study at a reasonably advanced level.

**MASTER OF ARTS****1. MASTER OF ARTS BY RESEARCH**

The purpose of the Master of Arts by research is to enable suitably qualified graduates to make a significant independent contribution to Philosophy. Graduates who hold an Honours Bachelor degree (with a minimum of Hons. 2.2) or equivalent may, if recommended for candidature, undertake PHIL999 Major Thesis (48 credit points). All other candidates must if recommended for admission, normally satisfactorily complete PHIL913 Advanced Philosophical Topics (48 credit points) prior to enrolling in PHIL999.

**PHIL913 ADVANCED PHILOSOPHICAL TOPICS 913**

*Double session subject; 48 credit points*

*Variable combination of seminars, lectures and lecture/discussions*

*Pre-requisites:* Entry is restricted to students seeking admission to the Master's degree under section 6(2) of the requirements for the Master's degree

*Assessment:* Essays and three hour written examinations as laid down in the requirements for such components as are approved or prescribed

An approved or prescribed selection of courses provided by the Department under other designations deemed by the Departmental Chairman to be appropriate as a foundation for postgraduate studies, given the background and intended pursuits of the individual student.

**TEXTBOOKS**

As laid down in the requirements for the component courses.

**PHIL999 MAJOR THESIS**

*Double session subject; 48 credit points*

**2. MASTER OF ARTS BY COURSE WORK***Introduction*

The purpose of the Master of Arts by Course Work in Philosophy is to enable suitably qualified graduates (i.e. graduates with Second Class Honours or its equivalent or who have satisfactorily completed PHIL913) to undertake at advanced level course work in areas which were not included at the appropriate level, in their undergraduate programme, while pursuing a minor research project. Candidates must take subjects to the total value of 24 credit points from the schedule of graduate subjects in Philosophy, together with PHIL923 Minor Thesis.

*Subjects***PHIL933 ADVANCED LOGIC**

*Double session subject; 6 credit points. Variable combination of seminars, lectures and lecture-discussions.*

*Assessment:* One three-hour examination.

A study of issues in philosophical, inductive and/or formal logic.

**PHIL943 ADVANCED POLITICAL PHILOSOPHY**

*Double session subject; 6 credit points. Variable combination of seminars, lectures and lecture-discussions.*

*Assessment:* One three-hour examination.

A study of issues in political and/or social philosophy.

**PHIL953 ADVANCED PHILOSOPHY OF VALUE**

*Double session subject; 6 credit points. Variable combination of seminars, lectures and lecture-discussions.*

*Assessment:* One three-hour examination.

A study of issues in moral philosophy, and/or aesthetics.

**PHIL963 ADVANCED EPISTEMOLOGY AND PHILOSOPHY OF SCIENCE**

*Double session subject; 6 credit points. Variable combination of seminars, lectures and lecture-discussions.*

*Assessment:* One three-hour examination.

A study of issues to do with the theory of knowledge.

**PHIL973 PHILOSOPHICAL PROBLEMS**

*Double session subject; 6 credit points. Variable combination of seminars, lectures and lecture-discussions.*

*Assessment:* One three-hour examination.

A study of a selection of traditional philosophical problems.

**PHIL983 CONTEMPORARY ISSUES IN PHILOSOPHY**

*Double session subject; 6 credit points. Variable combination of seminars, lectures and lecture-discussions.*

*Assessment:* One three-hour examination.

A study of current controversies within one selected field of contemporary philosophy.

**PHIL923 MINOR THESIS**

*Double session; 24 credit points.*

**PHYSICS****MASTER OF SCIENCE**

The degree of Master of Science (MSc) by coursework in the Department of Physics shall be subject to the University requirements for the award of the degree of Master together with the following conditions:

1. Entry to the degree programme will normally be from an Honours degree in Physics or from a pass degree with an appropriate three year sequence in physics.
2. Where entry to the degree programme is from an Honours degree, it will normally occupy two sessions of full-time study or four sessions of part-time study. It will require the successful completion of 48 credit points taken from the Schedule of Graduate Subjects in Physics. If either PHYS905 Mathematical Methods for Physicists A, or PHYS955 Mathematical Methods for Physicists B, or both, are included in the 48 credit points, then the contents of these subjects must differ from those of other subjects previously taken and credited towards another degree of the University.
3. Where entry to the degree programme is from a pass degree, it will normally occupy four sessions of full-time study or eight sessions of part-time study. It will require the successful completion of 96 credit points. Of these:
  - (i) a minimum of 36 credit points shall be compiled from 400-level Physics subjects excluding PHYS410;
  - (ii) a maximum of 12 credit points of 300-level compiled from Schedules E and F excluding any subjects previously taken and credited towards another degree of the University;
  - (iii) the remaining credit points are to be taken from the Schedule of Graduate Subjects in Physics with the same constraint on PHYS905 and PHYS955 specified in 2 above.

*Course Objectives*

After completion of an undergraduate degree in physics, an individual is equipped to work as a professional physicist in research and industry under the direction of more highly qualified staff. In order to achieve some measure of independence, he/she requires advanced training. Additionally, a teacher needs to keep abreast of current developments (and exercise independent judgement of their importance) to be fully effective; this requires broader and more advanced training in the discipline. The objectives of the present programme are to provide an offering necessary to accomplish the above and to give supplementation to the candidate's mathematical background sufficient for coherence and comprehension of the course.

*Details of Subjects***PHYS905 MATHEMATICAL METHODS FOR PHYSICISTS A**

*42 hrs lectures; 6 credit points*

*Pre-requisite, Co-requisite and Assessment:* to be determined by the Department Chairman.

Ordinary Differential Equations; Partial Differential Equations; Non-linear Partial Differential Equations.

**TEXTBOOK**

To be determined after consultation with the Departmental Chairman.



**PHYS910 ADVANCED PROJECT IN PHYSICS A**

*First sessions subject; 6 credit points*

*42 hrs laboratory*

*Assessment:* This will be based on the satisfactory operation of the completed experiments and the adequacy of the written descriptions of the experiments.

The student will be required to design and construct several self-contained experiments at the level of those encountered in PHYS309 Advanced Experimental Physics. The number and type shall be determined by two members of the academic staff of the Department of Physics.

**PHYS942 ELEMENTARY PARTICLE PHYSICS**

*Double sessions subject; 6 credit points*

*42 hrs lectures*

*Pre-requisite:* PHYS321 Solid State, Nuclear and Astro-Physics (or PHYS322 Astro-, High Energy, Nuclear and Solid State Physics) and PHYS443 Quantum Mechanics and Statistical Mechanics

*Assessment:* Based on assigned problems, tests and sessional examinations

Properties of Elementary Particles; Interaction of Elementary Particles with Matter; Strong Interactions; Feynman Diagrams; Electromagnetic Interactions; Weak Interactions; The  $K^0$ - $\bar{K}^0$  System and CP Violation; The Eight-fold Way, Quarks and SU(3) Symmetry.

**TEXTBOOK**

Longo, M.J. *Fundamentals of Elementary Partical Physics*. McGraw-Hill, 1973.

**PHYS944 ADVANCED QUANTUM MECHANICS**

*Double sessions subject; 6 credit points*

*42 hrs lectures*

*Pre-requisite:* PHYS443 Quantum Mechanics and Statistical Mechanics

*Assessment:* As for PHYS942

Review of Non-Relativistic Quantum Mechanics; Klein-Gordon Equation; Dirac Equation; Free Electron and Positron States; Electrons and Positrons in a Coulomb Field; Spin; Spin-Orbit Interaction; Foldy-Wouthuysen Transformation; Dirac-Hartree-Fock Theory for Many-Electron Atoms; Second Quantization, Quantization of the Electromagnetic Field; The Hanbury-Brown Twiss Experiment; Glauber States; Uncertainty in Phase and Photon Number.

**TEXTBOOK**

Das, T.P. *Relativistic Quantum Mechanics of Electrons*. Harper & Row.

Klauder, J. R. & Sudarshan, E.C.G. *Fundamentals of Quantum Optics*. Benjamin.

**PHYS946 ADVANCED SOLID STATE PHYSICS**

*Double session subject; 6 credit points*

*42 hrs lectures*

*Pre-requisite:* PHYS401 Theoretical Mechanics and Electromagnetism, PHYS443 Quantum Mechanics and Statistical Mechanics, and PHYS446 Solid State Physics

*Co-requisite:* PHYS944 Advanced Quantum Mechanics

*Assessment:* As for PHYS942

Crystal Symmetries; Groups of Linear Transformations; Abstract Groups; Theory of Group Representations; Group of the Schrödinger Equation; Selection Rule Theorem; Groups of Physical Interest; Rotation Operations; Double Valued Representations; Direct Products; Crystal Fields; Adiabatic Approximation; Bloch's Theorem; The Effective Mass Expansion; Spin-Orbit Interaction; Time-

Reversal Symmetry; Symmetry Properties of Wave Vectors; Band Theory; Impurities in Semi-conductors.

### TEXTBOOK

Heine, V. *Group Theory in Quantum Mechanics*. Pergamon, 1960.

## PHYS947 SPECIAL TOPIC IN PHYSICS A

*First session subject; 6 credit points  
(14 hrs seminars and 14 hrs tutorials)*

A special topic to be selected from any area of physics. The selection to be made by the Departmental Chairman in consultation with the Departmental Assessment Committee.

## PHYS948 ASTROPHYSICS SEMINARS

*First Session subject; 6 credit points (28 hrs seminars)*

*Pre-requisite:* PHYS319 or PHYS321 or PHYS322 or PHYS329, together with either PHYS441 or PHYS465.

*Co-requisite:* None.

*Assessment:* Participation in, and presentation of seminars

Library projects and seminars aimed at ascertaining the frontiers of knowledge in currently active fields, e.g. formation of the solar system; solar research; star formation; late stages of stellar evolution; neutron stars; black holes; supernovae; infrared astronomy; interstellar medium; evolution of galaxies; intergalactic matter; cosmology.

### TEXTBOOK

Avrett, Eugene, H. ed. *Frontiers of Astrophysics*. Harvard University Press, 1976.

## PHYS955 MATHEMATICAL METHODS FOR PHYSICISTS

*42 hrs lectures; 6 credit points*

*Pre-requisite, Co-requisite and Assessment:* To be determined by the Departmental Chairman

Special functions; Green's functions; co-variant and contravariant tensors, Hilbert space; integral equations.

### TEXTBOOK

To be determined after consultation with the Departmental Chairman.

## PHYS960 ADVANCED PROJECT IN PHYSICS B

*Second session subject; 6 credit points*

*42 hrs laboratory*

*Assessment:* This will be based on the satisfactory operation of the completed experiments and the adequacy of the written descriptions of the experiments.

The student will be required to design and construct several self-contained experiments at the level of those encountered in PHYS309 Advanced Experimental Physics. The number and type shall be determined by two members of the academic staff of the Department of Physics.

## PHYS970 THE PHYSICS OF MEASUREMENTS

*Double session subject; 6 credit points*

*42 hrs lectures*

*Pre-requisite:* PHYS309 Advanced Experimental Physics

*Assessment:* As for PHYS942

A course dealing with the design of experiments and the physical principles underlying the techniques of measurement for specific physical quantities and the general principles of instrument design.

Aims of good design; replication; randomization; blocking, Latin squares; instrumental profile; optical transfer function; noise limitations; integrator; the phase sensitive detector; the box car detector; the correlator; the matched filter; resistors; galvanometers; electrometers; Q-meters; mass measurement; volume measurement; density measurement; pressure measurement; time interval measurement, measurement of small displacements; measurement of large displacements; measurements of angles; coherence; classification of interferometers; light sources; commonly used interferometers; Fourier spectrometry; detection of interference patterns; interference filters.

## PHYS990 PLASMA PHYSICS

*Double session subject; 6 credit points*

*42 hrs lectures*

*Pre-requisite:* Statistical Mechanics part of PHYS311; PHYS401 Theoretical Mechanics and Electromagnetism

*Assessment:* As for PHYS942

Review of Maxwell's equations; Fourier analysis of Maxwell's equations; motion of a charged particle in electromagnetic fields; dynamics of many-particle systems; the Boltzmann-Vlasov equation; magnetohydrodynamics; Alfen waves; Chew, Goldberger, low approximation; plasma oscillations.

### TEXTBOOK

Gartenhaus, S. *Elements of Plasma Physics*. Holt, Rinehart & Winston, 1964.

## PHYS997 SPECIAL TOPIC IN PHYSICS B

*Second session subject, 6 credit points (14 hrs seminars and 14 hrs tutorials)*

*Pre-requisite, Co-requisites and Assessment:* Same as for PHYS947

A special topic to be selected from any area of physics. The selection to be made by the Departmental Chairman in consultation with the Departmental Assessment Committee.

## PHYS998 COSMOLOGY

*Second session subject, 6 credit points (14 hrs lectures and 14 hrs seminars)*

*Pre-requisite:* PHYS319 or PHYS321 or PHYS322 or PHYS329

*Co-requisite:* None

*Assessment:* Same as for PHYS942

History; homogeneity and isotropy of the universe; Hubble's constant and the cosmic time scale; mean mass density of the universe; microwave background and the primeval fireball hypothesis; cosmological models.

### TEXTBOOK

Peebles, P.J.E. *Physical Cosmology*. Princeton University Press, 1971.

## PHYS999 MAJOR THESIS

*Double session subject, 48 credit points*

## PSYCHOLOGY

## MASTER OF ARTS

With the increasing application of psychology to a wide variety of human problems comes the need for psychologists who are knowledgeable about psychology in general and skilled in its application in the community. Much of that knowledge can be acquired in an undergraduate degree, and it is after that educational experience that application skills can best be gained. This Master of Arts programme in Applied Psychology provided this opportunity. It is structured so as to give students a general professional education dealing with basic issues and generalizable skills in company with others whose special areas of application differ. Psychologists emerging from the programme will be able to work in a variety of fields, showing the versatility which will be required by the changing community needs and different job roles psychologists will experience.

The educational objectives of the programme are as follows. Graduates of this Master of Arts programme in Applied Psychology will develop a sound knowledge of human problems and a variety of approaches to them. They will become able to facilitate the functioning of others and to intervene effectively. Also they will develop as people, with increasing self-awareness and ability to relate to others. They will come to possess a range of methodologies for evaluation of their work and that of others in their research and evaluation skills. They will have a variety of practicum experiences.

The degree of Master of Arts (MA) by course work in the field of Applied Psychology will be subject to the University requirements for the award of the degree of Master together with the following conditions:

1. Entry to the degree programme will normally be from an Honours degree in psychology or from a pass degree with a three year (or its part-time equivalent) sequence in psychology.

2. Where entry to the degree programme is from an Honours degree, the programme will normally involve two sessions of full-time study or four sessions of part-time study. Applicants with Honours in Psychology will be eligible for entry to the programme only if some portion of their Honours work is considered by the Chairman of the Department of Psychology to be in the field of applied psychology and if they are also found, by the Head of that Department, to have had the equivalent of one year's full-time experience in an appropriate field. The programme for such candidates will require the successful completion of 48 credit points from the Schedule of Graduate Subjects in Psychology as follows:

- (i) 24 credit points in subjects: PSYC911 Principles of Applied Psychology; PSYC912 Interpersonal Skills for Applied Psychologists; and PSYC913 Assessment and Appraisal in Applied Psychology;
- (ii) 16 credit points in two areas of specialization, that is two of PSYC921 Counselling Psychology; PSYC922 Psychology in the Schools; PSYC923 Clinical Psychology; PSYC924 Industrial and Organizational Psychology; or any PSYC92X subject; and
- (iii) 8 credit points in a Supervised Practicum in keeping with choices made under (ii) above, that is, one of PSYC931 Practicum: Counselling Specialization; PSYC932 Practicum: School Specialization; PSYC933 Practicum: Clinical Specialization; PSYC934 Practicum: Industrial and Organizational Specialization; or any PSYC93X subject.

3. Where entry to the degree programme is from a pass degree, it will normally involve four sessions of full-time study or 8 sessions of part-time study. It will require the successful completion of 96 credit points from the schedule of Graduate Courses in Psychology as follows:



- (i) 24 credit points of core subjects; PSYC911 Principles of Applied Psychology; PSYC912 Interpersonal Skills for Applied Psychologists; and PSYC913 Assessment and Appraisal of Applied Psychology;
- (ii) 16 credit points in two areas of specialization, that is, two of PSYC921 Counselling Psychology; PSYC922 Psychology in the Schools; PSYC923 Clinical Psychology; PSYC924 Industrial and Organizational Psychology or any PSYC93X subject.
- (iii) at least 16 credit points in Supervised Practicums in keeping with choices made under (ii) above, that is, one of PSYC931 Practicum: Counselling Specialization; PSYC932 Practicum: School Specialization; PSYC933 Practicum: Clinical Specialization; PSYC934 Industrial and Organizational Specialization or any PSYC93X subject;
- (iv) 24 credit points in the subject PSYC989 Research Project;  
and
- (v) the remaining 16 credit points to be made up from 300-level, 400-level or graduate subjects in psychology or related disciplines and/or more practicum experience in other practicum areas or in PSYC939: other Practicum Work and/or individual work in PSYC901 Psychology Report.

*Details of Subjects*

**PSYC901 PSYCHOLOGY REPORT**

*6 credit points*

Refer to Department for details

**PSYC911 PRINCIPLES OF APPLIED PSYCHOLOGY**

*Double session; 52 hours lectures and seminars; 8 credit points*

*Assessment:* Class participation and assignments.

A comparative study of different approaches to applied psychology including the basic premises and philosophical roots of different orientations (for example, behavioural, Gestalt, psychoanalytic, rational-emotive, symbolic interactionist); relations between applied psychology and other disciplines; multi-disciplinary approaches; codes of ethics for psychologists; the legal responsibilities of applied psychologists working with adults and children. No text will be set but students will be referred to different source materials, especially journals.

**PSYC912 INTERPERSONAL SKILLS FOR  
APPLIED PSYCHOLOGISTS**

*Double session; 52 hours of supervised practical work; 8 credit points*

*Assessment:* Continual Assessment.

Opportunities will be provided for the development of personal and interpersonal skills including self-awareness, deployment of self as a tool, interpersonal work in dyads and triads as well as in groups as group members and leaders. Such work will include the use of fantasy, dreamwork, interpersonal encounters, psychodrama and other kinds of group work. While much of this work will be supervised by staff, emphasis will also be placed on the development of peer supervision skills.

**PSYC913 ASSESSMENT AND APPRAISAL  
IN APPLIED PSYCHOLOGY**

*Double session; 52 hours of lectures, seminars and practical work; 8 credit points.*



*Assessment:* Administration and evaluation of assessment techniques; test construction and written examination.

Some knowledge of the theory of testing and measurement is assumed in this subject. Students will study assessment and appraisal techniques used with both adults and children and common to many applied psychologists, but they will also study others which relate to their area of professional specialization. A textbook will be recommended.

ALL OF THE ABOVE SUBJECTS ARE CORE SUBJECTS REQUIRED OF EVERY STUDENT IN THE PROGRAMME. NOW FOLLOW A NUMBER OF SPECIALIST SUBJECTS WHICH DEAL WITH THE SPECIAL PROBLEMS OF SPECIFIC CLIENTS IN SPECIFIC CONTEXTS AND THE SPECIAL METHODS OF INTERVENTION EMPLOYED WITH THEM.

### PSYC921 COUNSELLING PSYCHOLOGY

*First session; 52 hours of lectures, seminars and practical work; 8 credit points.*  
*Assessment:* Practical work and assignments and/or written examination.

The major elements of this subject are the counselling client and his or her context, a study of contemporary approaches to counselling, the development of metatheory in counselling psychology, the development and teaching of counselling skills. Readings to be recommended.

### PSYC922 PSYCHOLOGY IN THE SCHOOLS

*Second session; 52 hours of lectures, seminars and practical work; 8 credit points.*  
*Assessment:* Practical work and assignments and/or written examination.

The major elements of this subject are the cognitive, emotional and social problems of the child in the school; deviancy, sex roles and cultural differences; intervention techniques such as remedial work, behaviour modification and play therapy; schools as social systems, the role of the school psychologist and psychological consultation in the school. Readings will be recommended, especially in such journals as *Child Development*, *Adolescence*, *Journal of Learning Disabilities*, *Elementary School Guidance and Counselling Psychology in the School*.

### PSYC923 CLINICAL PSYCHOLOGY

*Second session; 52 hours of lectures, seminars and practical work; 8 credit points.*  
*Assessment:* Practical work and assignments and/or written examination.

The major elements of this subject are human psychopathology, neuroanatomical and neurophysiological pathology, some appraisal techniques specific to clinical psychology, and therapeutic psychology which provides a study of some systems of psychotherapy applied with adults and children and some methods of case management and intervention. A reading programme will be recommended.

### PSYC924 INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

*First session; 52 hours of lectures, seminars and practical work, 8 credit points.*  
*Assessment:* Practical work and assignments and/or written examination.

The major elements of this subject are the areas in which a psychologist practicing in industry as a consultant or working in personnel management may be involved. Topics to be dealt with may include action research and organizational development, communication within organizations, job satisfaction and employee motivation, demoralization and worker participation in management, problems of personnel selection and training and the role of the psychologist in industrial relations. A textbook and other readings will be recommended.

## **PSYC931 PRACTICUM: COUNSELLING SPECIALIZATION**

*Double session; 52 hours of seminars; 8 credit points.*

*Assessment:* Seminar (case conference) presentations, field notebooks and assessment by university and field supervisors.

This subject, like the other practicum subjects, is intended to provide supervised experience in a variety of settings in which psychology is applied. Each specialist course, while requiring concentration in the area of specialization, will also give students the opportunity to become involved in one area of professional practice.

## **PSYC932 PRACTICUM: SCHOOL SPECIALIZATION**

*Double session; 52 hours of seminars; 8 credit points.*

*Assessment:* Seminar (case conference) presentations, field notebooks and assessment by university and field supervisors.

This subject, while differing from PSYC931 in content and placements, has similar goals.

## **PSYC933 PRACTICUM: CLINICAL SPECIALIZATION**

*Double session; 52 hours of seminars; 8 credit points.*

*Assessment:* Seminar (case conference) presentations, field notebooks and assessment by university and field supervisors.

This subject, while differing from PSYC931 in content and placements, has similar goals.

## **PSYC934 PRACTICUM: INDUSTRIAL AND ORGANIZATION SPECIALIZATION**

*Double session; 52 hours of seminars; 8 credit points.*

*Assessment:* Seminar (case conference) presentations, field notebooks and assessments by university and field supervisors.

This subject while differing from PSYC931 in content and placements, has similar goals.

## **PSYC939 OTHER PRACTICUM WORK**

*Single session; 26 hours of seminars; 6 credit points.*

*Assessment:* Seminar (case conference) presentations, field notebooks and assessment by university and field supervisors.

An extra amount of supervised practicum experience is to be selected by students or recommended by staff.

## **PSYC989 RESEARCH PROJECT**

*24 credit points.*

All applied psychologists should know how to answer psychological questions by recourse of raw data. All students entering with a pass degree or without the major empirical project of the Honours year, therefore, will be required to design and carry out a small research project under supervision. This research will be in the general field of applied psychology and normally in one of the students' areas of specialization. Students will show that they are able to:

1. define their problem,
2. devise a method by which to collect data relevant to it,

3. collect, analyse and interpret those data,

and

4. report their findings in the form of an article suitable for a refereed journal of their choice.

### **PSYC999 MAJOR THESIS**

#### *48 credit points*

For students who have an appropriate honours degree in Psychology. Refer to Department for details.

**NOTE:** Provision exists for students who do not have an honours degree to complete a Master of Arts by Coursework and Major Thesis (a total of 96 credit points) as provided under section 6(2) of the Masters Degree Requirements.

**GRADUATE DIPLOMA IN SOCIOLOGY**

The purpose of the graduate Diploma in Sociology is to provide graduates who have a limited knowledge of Sociology a means of acquiring a sociological competence at a reasonably advanced level. Courses available will allow students to focus their sociological coursework either towards vocational interests, e.g., community development, management of technological change, organisation and personnel, or towards a more general understanding of the social world. The Chairman of the Department will advise intending students on which course structure is most appropriate to their interests. The Diploma will be subject to the University requirements for the award of graduate Diplomas together with the following conditions:

1. Candidates are required to complete subjects totalling 48 credit points from those listed in Schedule A under 'Sociology'. Of these, at least 24 must be from 300-level subjects and the remainder from 200-level subjects.
2. A candidate may not include in his or her diploma programme any course component which substantially duplicates a subject or part of a subject perviously passed by the candidate as part of any degree or diploma already held or previously attempted.
3. The selection of courses and the programme of study shall be approved by the Departmental Chairman.
4. A full-time candidate shall normally complete the diploma in one academic year, a part-time candidate in no less than two and no more than three academic years.
5. Admission to candidature for the Diploma is on recommendation of the Chairman of the Sociology Department who shall assess the applicant's aptitude for sustained sociological study at a reasonably advanced level.

## APPENDIX

## REQUIREMENTS FOR WITHDRAWAL FROM SUBJECTS

With effect from 1st January, 1981, the following requirements will obtain:

## 1) Withdrawal from single session subjects:

- a) Where a student notifies the Academic Registrar of withdrawal from a sessional subject within the first eight (8) weeks of the session in which it is taught, the subject will be deleted from the student's record. *That is, the student will be deemed not to have enrolled in that subject during that session.*
- b) Where a student notifies the Academic Registrar of withdrawal from a sessional subject after the end of the eighth (8th) week of the session in which it is taught, the student's record will:
  - (i) note that the subject was discontinued on the date the variation form was submitted to the Student Enquiry Office; *and*
  - (ii) show a grade of "FAIL" for that subject, unless the Academic Senate determines that the subject was withdrawn after the eighth (8th) week of session on medical, compassionate or other acceptable reason, in which case, the record will show the date of discontinuation only.

## 2) Withdrawal from annual subjects:

- a) Where a student notifies the Academic Registrar of withdrawal from an annual subject before the end of the first (1st) week of Session Two, the subject will be deleted from the student's record. *That is, the student will be deemed not to have enrolled in that subject during that year.*
- b) Where a student notifies the Academic Registrar of withdrawal from an annual subject after the end of the first (1st) week of Session Two, the student's record will:
  - (i) note that the subject was discontinued on the date the variation form was submitted to the Student Enquiry Office; *and*
  - (ii) show a grade of "FAIL" for that subject, unless the Academic Senate determines that the subject was withdrawn after the end of the first (1st) week of Session Two on medical, compassionate or other acceptable reason, in which case, the record will show the date of discontinuation only.

## DEFINITIONS:

- A "sessional subject" is a subject which has a duration of one (1) session.
- An "annual subject" is a subject which has a duration of the whole year.

## CONFIRMATION OF ENROLMENT

The University will send each student, for careful checking, Confirmation of Enrolment forms which list all subjects for which the student is officially enrolled according to the University's records.



## DEPARTMENTAL ACADEMIC CALENDARS

The formal Academic Calendar for 1981 approved by the Academic Senate is based on a 28 week teaching year, but individual departments have been given the option of adopting a shorter teaching year.

The formal 28 week Academic Calendar is:

- Session 1:   February 23 - May 10  
                   May 18 - June 7 (14 weeks)
- Session 2:   July 13 - August 23  
                   September 7 - November 1 (14 weeks)

The following departments have indicated that they will be offering the 28 teaching weeks:

Biology	Geography
Civil Engineering	Geology
Computing Science	Mathematics
Economics	Mechanical Engineering
Electrical Engineering	Metallurgy
European Languages	Physics
General Studies *	Sociology

The Department of Education will be offering 27 weeks as follows:

- Session 1:   2nd March - 10th May & 18th May - 7th June.  
 Session 2:   13th July - 23rd August & 7th September - 1st November.

The Department of Chemistry will be offering 26 weeks as follows:

- Session 1:   23rd February - 10th May & 18th May - 31st May.  
 Session 2:   20th July - 23rd August & 7th September - 1st November.

The six departments listed below will be offering 26 weeks as follows:

- Session 1:   23rd February - 10th May & 18th May - 31st May.  
 Session 2:   13th July - 23rd August & 7th September - 25th October.

Accountancy	History and Philosophy of Science
English	Philosophy
History	Psychology

\*NOTE: Although General Studies is offering 28 weeks for most subjects, the following single-session subjects will be offered on a 13 week basis:

GENE221	Science, Technology & Social Progress
GENE225	Computers in Society
GENE250	The Art of Chemistry.

