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."
The University of Wollongong, Northfields Avenue, Wollongong, N.S.W.
Postal Address: P.O. Box 1144, Wollongong, N.S.W. 2500
Telephone: (042) 297311
Telex: 29022
Cable: UNIOFWOL
All enquiries should be addressed to the University Secretary.

The University of Wollongong Calendar 1982

There are 5 volumes of the Calendar:

The University of Wollongong Calendar 1982 Volume I
Legislation

The University of Wollongong Calendar 1982 Volume II
Undergraduate Handbook

The University of Wollongong Calendar 1982 Volume III
Postgraduate Handbook

The University of Wollongong Calendar 1982 Volume IV
Annual Report - 1981

The University of Wollongong Calendar 1982 Volume V
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INFORMATION IN THIS CALENDAR IS CURRENT AT THE TIME OF PRINTING, BUT MAY BE AMENDED WITHOUT NOTICE BY THE UNIVERSITY COUNCIL.

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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 postgraduate degrees in Arts, Commerce, Education, Engineering, Mathematics, Management, Metallurgy and Science. Postgraduate diplomas in Accountancy, Applied Multicultural Studies, Coal Geology, Computing Science, Education, European Studies, Geography, History and Philosophy of Science, Industrial Relations, Management, Mathematics, Metallurgy, Philosophy, Public Works Engineering and Sociology are also offered.

Details of the University’s postgraduate courses, degree requirements and admission and enrolment procedures are provided in this volume. Students and intending students are advised to contact the Enquiries Office of the University for any further information they may require.
# CALENDAR OF DATES

## SESSION 1

- **March 1 to May 9**

## MAY RECESS

- **May 10 to May 16**
- **May 17 to June 13**

## STUDY RECESS

- **June 14 to June 20**

## EXAMINATIONS

- **June 21 to July 4**

## MID-YEAR RECESS

- **July 5 to July 18**

### January

- Friday 1: New Year's Day holiday

### February

- Monday 1: Australia Day holiday
- Thursday 4, Friday 5: Enrolment of new students
- Monday 22, Thursday 25: Re-enrolment
- Monday 22: Engineering, Metallurgy
- Tuesday 23: Commerce
- Wednesday 24: Arts A-O
- Thursday 25: Arts P-Z, Mathematics & Science

### March

- Monday 1: Session 1 lectures commence

### April

- Friday 9: Easter holidays commence
- Monday 12: Easter holidays end
- Monday 26: Anzac Day Holiday

### May

- Monday 10: May recess commences
- Sunday 16: May recess ends

### June

- Sunday 13: Session 1 ends
- Monday 14: Queen's Birthday holiday
- Monday 14: Study recess commences
- Sunday 20: Study recess ends
- Monday 21: Examinations commence

### July

- Monday 5: Mid-year recess commences
**SESSION 2**

July 19 to August 27

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THE DEGREES AND DIPLOMAS AWARDED

UNDERGRADUATE*

Bachelor of:

- ARTS
- ARTS (HONOURS)
- COMMERCE
- COMMERCE (HONOURS)
- ENGINEERING
- ENGINEERING (HONOURS)
- MATHEMATICS
- MATHEMATICS (HONOURS)
- MATHEMATICS/ENGINEERING
- MATHEMATICS/ENGINEERING (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
- MATHEMATICS
- METALLURGY
- PHILOSOPHY
- PUBLIC WORKS ENGINEERING
- SOCIOLOGY

Honours Master of:

- ARTS
- COMMERCE
- EDUCATION
- ENGINEERING
- METALLURGY
- SCIENCE

Master of Studies:

- ACCOUNTANCY
- EDUCATION
- GEOGRAPHY
- FRENCH
- ITALIAN
- FRENCH AND ITALIAN

Master of Management

Doctor of:

- PHILOSOPHY
- LETTERS
- SCIENCE

NOTES: For approved abbreviations - see the Degree and Diploma Regulations.
* For details of courses see Volume II.
** For details of courses see this volume.
6 THE UNIVERSITY

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

Dr. Kenneth Richard McKinnon, A.U.A. Adel., BA BEd Q'd., EdD Harv., F.A.C.E.

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 1st February, 1982

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

Three vacancies.

EX OFFICIO

The Chancellor
The Vice-Chancellor

ELECTED BY THE STUDENTS OF THE UNIVERSITY

Shirley Anne Nixon (to hold office until 7th August, 1983)
James Whitehead, BSc (to hold office until 7th August, 1982)

ELECTED BY CONVOCATION

Colin Patrick Hollis, BA Open, BSc(Econ), DIA Lond. (to hold office until 7th August, 1984)
James Wilmot Dombroski, BSc Syd. (to hold office until 7th August, 1983)
Murray James Robinson, BE (to hold office until 7th August, 1982)
8 THE UNIVERSITY

ELECTED BY THE FULL-TIME ACADEMIC STAFF OF THE UNIVERSITY

*Three Professorial members*

Professor Robert Barry Leal, MA DipEd Syd., PhD Qld. *(to hold office until 7th August, 1981)*
Professor Ron Johnston, BSc N.S.W., PhD Man. *(to hold office until 7th August, 1983)*
Professor Brian Hartley Smith, BE PhD Adel. MIEE, FIEAust *(to hold office until 7th August, 1982)*

*One member other than a Professor*

Robert Gordon Castle, MEc Syd *(to hold office until 7th August, 1984)*

ELECTED BY THE FULL-TIME GENERAL STAFF OF THE UNIVERSITY

*To hold office until 7th August, 1984*

Elisabeth Ann Hilton

ELECTED BY MEMBERS OF THE COUNCIL

*Three vacancies.*
THE ACADEMIC SENATE

EX OFFICIO MEMBERS

The Honourable Justice Robert M. Hope, Chancellor
Dr. Kenneth R. McKinnon, Vice-Chancellor
Professor Alexander M. Clarke, Deputy Vice-Chancellor
Mr. Jeffrey C. Hazell, University Librarian
Professor Peter D. Rousch, Director, Institute of Education

CHAIRMEN OF DEPARTMENTS

Professor Geoffrey Brinson, Department of Metallurgy, CHAIRMAN OF SENATE
Professor John B. Ryan, Department of Accountancy, DEPUTY CHAIRMAN OF SENATE
Professor John R. Blake, Department of Mathematics
Professor A. Duncan Brown, Department of Biology
Professor J. Lauchlan C. Chipman, Department of Philosophy
Professor Allan C. Cook, Department of Geology
Professor Ross Duncan, Department of History
Dr. John Ellis, Department of Chemistry
Professor Peter Fisher, Department of Physics
Professor Steven C. Hill, Department of Sociology
Professor Ron Johnston, Department of History and Philosophy of Science
Dorothy L. M. Jones, Department of English
Professor Ronald C. King, Department of Education
Professor R. Barry Leal, Department of European Languages
Professor Samuel A. Marshall, Department of Mechanical Engineering
Professor Juris Reinfelds, Department of Computing Science
Professor Brian H. Smith, Department of Electrical Engineering
John C. Steinke, Department of Economics
Associate Professor R. William Upfold, Department of Civil Engineering
Associate Professor Linda L. Viney, Department of Psychology
Professor Murray G. A. Wilson, Department of Geography

CHAIRMEN OF FACULTIES

Dr. Donald E. Lewis, Faculty of Social Sciences
Dr. Winifred Mitchell, Faculty of Humanities
Dr. Rodney V. Nillsen, Faculty of Mathematics
Associate Professor R. William Upfold, Faculty of Engineering
Dr. Anthony J. Wright, Faculty of Science
ELECTED MEMBERS

ACADEMIC STAFF ELECTED BY AND FROM THE MEMBERS OF EACH FACULTY

Dr. Robert T. Wheway, Faculty of Engineering (to hold office until 16th May, 1983)

To hold office until 24th May, 1983

A. John Anderson, Faculty of Social Sciences
William D. McGaw, Faculty of Humanities
Dr. Maxwell J. Lowrey, Faculty of Engineering
Dr. A. Grahame Morris, Faculty of Mathematics

STUDENT MEMBERS

Garry J. Imisides, Faculty of Science (to hold office until 23rd March, 1982)
Aden J. Steinke, Faculty of Social Sciences (to hold office until 24th May, 1983)
James Whitehead, Faculty of Mathematics (to hold office until 23rd March, 1982)
FULL TIME STAFF

Vice-Chancellor
Dr. Kenneth R. McKinnon, A.U.A. Adel., BA BEd Qld., EdD Harv., FACE

Deputy Vice-Chancellor
Professor Alexander M. Clarke, BA N.S.W., PhD A.N.U., ASTC, FAPsS

FACULTY OF ENGINEERING

CHAIRMAN OF FACULTY
R. William Upfold, ME PhD N.S.W., ASTC, CEng, MIEAust, MIMechE, AMAusIMM

Department of Civil and Mining Engineering

DEPARTMENTAL CHAIRMAN AND ASSOCIATE PROFESSOR
R. William Upfold, ME PhD N.S.W., ASTC, CEng, MIEAust, MIMechE, AMAusIMM

PROFESSOR
Vacant

READER
Robin N. Chowdhury, BSc(Eng) Ban., PGDip Roorkee, PhD Liv., CEng, MICE, MASCE, FGS, MEERI, MASEE

SENIOR LECTURERS
Michael J. Boyd, BSc (Tech) MEngSc PhD N.S.W., MIEAust, MASCE
Yew-Chaye Loo, BSc Cheng Kung, MEng A.I.T., PhD Dundee, CEng, MICE, MStructE, MIEAust. (on secondment)
Maxwell J. Lowrey, ME N.S.W., PhD, ASTC, MIEAust, MACS
Denis G. Montgomery, BSc (Eng) PhD Belfast, MIEAust, MASCE
Donald Pearson-Kirk, BSc St. And., MSc PhD Leeds, CEng, MICE, FGS, MASCE, MIHE, MIEAust, M.R.E.A.A.A.

LECTURERS
Peter F. Loveday, BSc Lond., DipTE Portsmouth, MIHE
Elmer B. Ramel, BSC (Surv.), BSc(Eng) Phill., MEng, A.I.T., PhD Dundee, MIE Aust, PACE, PSGE
Najdat I. Aziz, BSc PhD Wales

TUTOR
12 THE UNIVERSITY

HONORARY VISITING PROFESSORS

Barry Rawlings, BSc, MEngSc, PhD Syd., MStructE, MIE Aust,
Allan J. Hargreaves, BME Melb., PhD Syd., MAusIMM

Department of Electrical and Computer Engineering

DEPARTMENTAL CHAIRMAN AND PROFESSOR

Brian H. Smith, BE PhD Adel., MIEE, FIEAust

READER

Kenneth J. McLean, ME N.Z., BD Melb.Div.Coll., PhD N.S.W., MIEAust

SENIOR LECTURERS

Zlatko Herceg, DiplEng Zagreb, PhD N.S.W., MIEAust, MIREE
Geoffrey W. Trott, BSc BE Adel., PhD Alta., MIEE, MACS
Frank J. Paoloni, BSc PhD Syd., MIEEE, MAPS

LECTURER

Tony S. Ng, BSc H.K., MEngSc PhD N'cle (N.S.W.), MIEEE, AMIEE

TUTOR

Vacant

PROFESSIONAL OFFICER

Natarajan Kandasamy, BSc BE Madr., MIEAust

Department of Mechanical Engineering

DEPARTMENTAL CHAIRMAN AND PROFESSOR

Samuel A. Marshall, BSc Wales, PhD Camb.

ASSOCIATE PROFESSOR

Stanley E. Bonamy, BE Syd., MSc Birm., PhD N.S.W., ASTC, CEng, FIMechE, FIEAust

READER

Peter C. Arnold, BE PhD N.S.W., CEng, MIEAust, MIEMechE

SENIOR LECTURER

Robert T. Wheway, BE PhD N.S.W., MIEAust, MAWWA

LECTURERS

Animesh Basu, MSc Calif., MSc PhD NY State, MIEAust
F. Brian Howard, BSc(Eng) Lond., PhD S'ton., MI MechE
Arnold G. McLean, BE N.S.W., PhD MIEAust
G. John Montagner, BE N.S.W., PhD, MIEAust, AACS, FAIEA, MIEEE
Wee-King Soh, BSc BE Syd., MEngSc PhD N.S.W., MIEAust
PROFESSIONAL OFFICERS

Ian J. Kirby, BSc(Eng) N.S.W., GradIEAust
Lorick Lachin, MSc Poly-Inst., N.Y.
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Peter Wypych, BE, GradIEAust

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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 are also available to the staff and 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:

- Amateur Radio Club
- Camera Club
- Drama Society
- French Club
- Film Group
- Geographical Society
- Geological Society
- Historical Society
- Il Circolo Italiano
- Metallurgical Society
- Musical 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
Muslim Association  Society

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, through casual and class usage as well as intra-mural and inter-departmental sport. Learn to play activities and beginners coaching courses are held at various times throughout the year to cater for the novice as well as the expert. 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 intervarsity 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          Sub Aqua
Judo                     
Motor Cycle              
Netball                  
Outdoors                 
Table Tennis             

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 University Secretary.

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 2B-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'c/e(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 203 single study bedrooms, which include 13 large study bedrooms, six of which have ensuites. 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.

Disadvantaged students and eligible pensioners not privately insured sign Commonwealth Benefit 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 one hour 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. The Centre opens until 6.30 p.m. on days when there is demand for this time slot, however children under 2 years of age will not be cared for after 5.30 p.m. Kids' Uni care for children in the 0-6 year old age group. After school care is also available for older children. The supervisor is a qualified Early Childhood Education teacher and nurses are in attendance for children under two years of age. Preference for enrolment goes to children who are enrolled at Kids' Uni in the previous calendar year. Only a limited number of places are available. Permanent booking must be made to include sessional weeks, May and August vacations, study break and one weeks hours during examinations. This totals 17 weeks in session 1 and 18 weeks in session 2.
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 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, the N.S.W. Department of Education in addition to other agencies, for the benefit of students.
POSTGRADUATE ENROLMENT AND RE-ENROLMENT

Research Degrees

Application forms for registration are obtainable from the 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 Enquiries Office.

No enrolments will be accepted after 31st March without the express approval of the University Secretary or the Assistant Registrar (Student Placement), 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 University Secretary or from the Enquiries Office, Ground Floor, Administration Building. Application forms should be received by the University Secretary by 31st January, 1982.
34 GENERAL INFORMATION

STUDENT CHARGES*

According to Government regulations, students, both undergraduate and postgraduate, 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 † - entrance charge ......... $25
Sports Association † - entrance charge .......... $ 6
Student Activities charges:
   University Union † - annual subscription ............. $62
   Sports Association † - annual subscription .......... $17
   Students' Representative Council - annual subscription .... $19

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 University Secretary or the Assistant Registrar (Student Placement.)

Withdrawal

1. Students withdrawing from a course are required to notify the University Secretary in writing.

2. Where notice of withdrawal from a course is received by the University Secretary 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 University Secretary 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 University Secretary 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 University Secretary 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).
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 available to graduates of Australian Universities as well as graduates from overseas. 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 Honours 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. The closing date for applications is 31st October.

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 Honours 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 Honours 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 $4,620 per annum, with dependants' allowance at the rate of $2,220.40 for dependent wife and $520 for each child. There is also provision for Establishment, Travel, Incidental and Thesis Allowances. All allowances except travelling and establishment allowances are taxable.

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 Honours 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.

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 University Secretary 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 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 University Secretary 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 University Secretary in writing of any change in their address as soon as possible. Forms for this purpose are available from the 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 University Secretary 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 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 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. Application forms are available from the 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 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 University Secretary as soon as possible.

All students will be issued with an 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 Enquiries Office should be advised.
Lost Property

Enquiries concerning lost property should be made to the 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 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 termin-
ating 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 University Secretary by 1st September. All applicants should ensure that they have completed all requirements for the degree or diploma, including industrial training where necessary.
POSTGRADUATE STUDY

In 1982 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, Geography, History & Philosophy of Science, Industrial Relations, Management, 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 Regulations of the University. The Departments' current research interests, the postgraduate degree and diploma Regulations, 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 degree courses in Accountancy are described under "ACCOUNTANCY."

Students requiring further information are advised to contact the Department concerned or the 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.
Auditing.
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.
Company Law.
Computer aided instruction in accounting.
Corporate Social Responsibility Accounting.
External reporting in the extractive industries.
Funds statements.
History and development of accounting thought.
Industrial law.
Interfirm comparisons.
Institutional arrangements for setting accounting standards.
International accounting.
Joint ventures.
Learning curve.
Price control.
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

Area of research will be changed in 1982.

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.

Computer-aided instruction techniques in Chemistry.

Investigation of the role of ozone and its metastable cyclic conformer in atmospheric phenomena.

Spectroscopy of molecules and molecular ions of interstellar Chemistry.

Quantum chemical computation of molecular potential surfaces.

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.

Development of sensitive new analytical methods for air and water pollutants.

Analytical studies on Australian shale oils and retort waters.

Isolation and structure elucidation of alkaloids from a New Guinean plant.

Synthetic modification of tylocrebrine, an antileukaemia agent.

Synthetic approaches to brain-active drugs.

Natural products chemistry.

in vivo Biochemical imaging using nuclear magnetic resonance.

Trace analysis especially related to electrochemical techniques.

Solvent effects in acid-base studies.

Thermodynamics of non-reacting systems involving high temperature calorimetry.

Absorption studies on supported metal catalyst systems.

Exchange reactions on heterogeneous catalysts.

Detector systems based on specificity of heterogeneous catalysed reactions.
46 RESEARCH AREAS

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 AND MINING ENGINEERING

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 hydromodelling.
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.

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.

COMPUTING SCIENCE

Portable operating systems.
Performance evaluation of software systems.
Interactive languages.
Text processing techniques.
Software tools.
Computer-aided learning.
Artificial intelligence.
Software science.

ECONOMICS

Aboriginals in the work force.
Agricultural co-operatives in Papua-New Guinea.
Analysis of safety statistics and procedures at Australian Iron and Steel.
An Australian social contract.
An econometric model to predict world demand for sugar.
Australia-Japan sugar trade.
Decentralisation in Australia.
Designing unemployment statistics in New Zealand.
History of political arithmetic.
Industrial relations aspects of the Myers recommendations.
Labour market implications of changing patterns of work and education.
Manpower management for the individual organisation.
Medical insurance.
Methodology of estimating regional input/output tables.
New technology and union bargaining procedures.
Occupational segregation of women.
Optimal decisions through programming of flood mitigation.
Overseas investment in Fiji.
Productivity in Indian agriculture.
Some key methodological issues in the design and use of statistics.
Tax progressivity in Australia.
The choice between bus and car in the Wollongong region.
The economics of parole.
The effect of the tax system on the capital intensity of new investment.
Theory and measurement in labour hoarding.
Turnpike optimality in input/output systems.

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 AND COMPUTER ENGINEERING

Automatic control.
Plant identification.
Electrostatic precipitation.
Static converters.
Electrical machines.
Computer systems.
Large-scale systems.
Communications.
Microwave antennas.
Microwave holography.
Image processing.
Computer-aided analysis and design.
Transportation.

ENGLISH

Old English language and literature.
Middle English language and literature.
RESEARCH AREAS

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.
Italian-Australian studies.
Ethnic broadcasting.
Renaissance Humanism in Italian.
Historiography.

GEOGRAPHY

Agricultural geography.
Coastal geomorphology.
Fluvial geomorphology.
Urban studies.
Biogeography.
Population studies.
Regional development and planning.
Transport planning.
Maritime transport systems.
Port development.
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 rocks 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 sociopolitical 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.
Ethical, Social and Political issues arising from rDNA research.
Historical, philosophical and sociological factors in theory research.
Scientific controversy and the sociology of knowledge.
Early 19th Century British philosophy of science.
History of 19th Century and 20th Century Politics.
The impact of genetics in agriculture and medicine.
The Political Economy of Electrification.
The Social impact of micro-electronics.
Mutagens and risk assessment.
Politics of nuclear power.
Political and technical constraints on energy policy.
Social impact of energy intensive technology.
Philosophy and Sociology of Scientific Change.
History of Physical Science - 17th and 18th Centuries.
Structure of Scientific Discourses - 'Systems of Nature', and Doctrines of 'Method'.

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.
50 RESEARCH AREAS

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.

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 Culture

The idea of social culture.
Pluralism and multiculturalism.

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 causal 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.
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.
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.
52 RESEARCH AREAS

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 an Honours 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 an Honours 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 University Secretary 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 University Secretary 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 University Secretary 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 Coal Geology (DipCoalGeol)
- Diploma in Computing Science (DipCompSci)
- Diploma in Education (DipEd)
- Diploma in European Studies (DipEur)
- Diploma in Geography (DipGeog)
- Diploma in History and Philosophy of Science (DipHPS)
- Diploma in Industrial Relations (DipIndRel)
- Diploma in Management (DipMgt)
- Diploma in Mathematics (DipMath)
- Diploma in Metallurgy (DipMet)
- Diploma in Philosophy (DipPhil)
- Diploma in Public Works Engineering (DipPubWksEng)
- Diploma in Sociology (DipSoc)

* For the purposes of Regulation 3(ii), the evidence submitted shall be of academic attainments at tertiary level as well as professional attainments.
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 University Secretary 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.

FEES

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

*These regulations are currently being reviewed. The revised regulations will have provision for the degrees of:

- Master of Studies in French
- Master of Studies in Italian
- Master of Studies in French and Italian
- Master of Studies in Geography
- Master of Management

Further details will be available from the Enquiry Office during 1982.
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 University Secretary 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 of a standard at least equivalent to Honours Class II, Division 2 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 by the Council on the recommendation of the Chairman of the Department;

* 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 where first enrolment in the degree of Bachelor of Science in Engineering took place in 1974 or earlier.
DEGREE REGULATIONS 61

(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 admitted 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.
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 thesis reaches a satisfactory standard subject to minor revisions or corrections; or

(3) that the candidate be required to re-submit his thesis in revised form after a further period of study and/or research; or

(4) that an oral examination be held to determine whether the candidate has reached a satisfactory standard; or

(5) 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 University Secretary 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;
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 University Secretary 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 if 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 an Honours 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 University Secretary 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 University Secretary 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 (D Litt)
   (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 University Secretary 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.
DEGREE REGULATIONS

PREPARATION AND SUBMISSION OF THESES FOR HIGHER DEGREES

1. (a) Every candidate required to submit a thesis for the Honours Masters degree shall submit to the University Secretary 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 University Secretary 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
1976

(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 University Secretary 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 University Secretary.

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 University Secretary) 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).
72 DEGREE REGULATIONS

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

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**DIPLOMA IN MANAGEMENT**

*Compulsory subjects*

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*(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)*

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**NOTES:**

1) A combination of Economics and Accountancy subjects may be approved by the Chairman 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 Honours Masters Degree Regulations and for additional specific conditions applying to Accountancy see Description of Postgraduate Courses - Accountancy.

3) For details of these subjects, refer to the subject description of the similar subjects at 400-level, Department of Accountancy.
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**HISTORY AND PHILOSOPHY OF SCIENCE**

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*Strongly recommended for each candidate unless otherwise recommended by Supervisor.

** Entry to this subject may depend upon 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.
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<td>Advanced Topics in Physical Chemistry A</td>
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<td>CHEM932</td>
<td>Advanced Topics in Physical Chemistry B</td>
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<tr>
<td>CHEM941</td>
<td>Advanced Topics in Analytical Chemistry A</td>
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<td>Advanced Topics in Analytical Chemistry B</td>
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<td>CHEM951</td>
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<tr>
<td>CHEM961</td>
<td>Advanced Topics in Spectroscopy A</td>
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<td>Advanced Topics in Spectroscopy B</td>
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<td>CHEM971</td>
<td>Advanced Topics in Inorganic Chemistry A</td>
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<td>CHEM972</td>
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<td></td>
<td>COMPUTING SCIENCE</td>
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<tr>
<td>CSCI911</td>
<td>Computer Methods</td>
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<td>Information Processing Systems</td>
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<td>Advanced Topics in Computing Science C</td>
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<td>Advanced Topics in Computing Science D</td>
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<td>CSCI991</td>
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<td>CSCI992</td>
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<tr>
<td>CSCI993</td>
<td>Thesis</td>
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## 94 Schedule of Graduate Subjects

<table>
<thead>
<tr>
<th>Number</th>
<th>Subject</th>
<th>Credit Points</th>
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<tbody>
<tr>
<td>GEOG999</td>
<td>Major Thesis</td>
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<tr>
<td>GEOLOGY</td>
<td></td>
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<tr>
<td>GEOL901</td>
<td>History of Geological Thought</td>
<td>6</td>
</tr>
<tr>
<td>GEOL902</td>
<td>Recent Advances in Geology</td>
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</tr>
<tr>
<td>GEOL903</td>
<td>Biostratigraphy</td>
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</tr>
<tr>
<td>GEOL904</td>
<td>Aspects of Coal and Petroleum Geology</td>
<td>6</td>
</tr>
<tr>
<td>GEOL905</td>
<td>Mathematical Geology</td>
<td>6</td>
</tr>
<tr>
<td>GEOL906</td>
<td>Mineral Paragenesis</td>
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<tr>
<td>GEOL907</td>
<td>Rock Magnetism</td>
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<tr>
<td>GEOL908</td>
<td>Sedimentology</td>
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<td>GEOL950</td>
<td>Thesis</td>
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<tr>
<td>GEOL981</td>
<td>Coal in the Energy Pattern</td>
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<tr>
<td>GEOL982</td>
<td>The Conditions of Peat Formation</td>
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<tr>
<td>GEOL983</td>
<td>Coalification, Coal and Mineral Analysis</td>
<td>6</td>
</tr>
<tr>
<td>GEOL984</td>
<td>Coal Basin Setting and Analysis</td>
<td>6</td>
</tr>
<tr>
<td>GEOL985</td>
<td>Geological and Geophysical Exploration</td>
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<tr>
<td>GEOL986</td>
<td>Mining Coal</td>
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<tr>
<td>GEOL987</td>
<td>Coal Utilisation</td>
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<td>GEOL988</td>
<td>Environmental Aspects</td>
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<td>GEOL989</td>
<td>Thesis</td>
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<td>GEOL990</td>
<td>Advanced Topics in Geology</td>
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<tr>
<td>GEOL999</td>
<td>Major Thesis</td>
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<td></td>
<td><strong>MATHEMATICS</strong></td>
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<tr>
<td>MATH911</td>
<td>Advanced Mathematics Methods</td>
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<tr>
<td>MATH912</td>
<td>Continuum Mechanics</td>
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<tr>
<td>MATH913</td>
<td>Non-Linear Partial Differential Equations</td>
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<tr>
<td>MATH914</td>
<td>Viscous Fluids</td>
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<tr>
<td>MATH915</td>
<td>Biological Fluid Mechanics</td>
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<tr>
<td>MATH916</td>
<td>Eigenvalue Theory of Ordinary Differential Equations</td>
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* The Department now offers an MA by coursework - See Master of Arts Schedule.
<table>
<thead>
<tr>
<th>Number</th>
<th>Subject</th>
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<tr>
<td>MATH917</td>
<td>Integral Equations</td>
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<td>MATII918</td>
<td>Mean Periodic Functions</td>
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<tr>
<td>MATH931</td>
<td>Advanced Numerical Analysis</td>
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<tr>
<td>MATH932</td>
<td>Numerical Linear Algebra</td>
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<tr>
<td>MATH933</td>
<td>Sparse Matric Techniques</td>
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<tr>
<td>MATH941</td>
<td>Times Series</td>
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<tr>
<td>MATH942</td>
<td>Replacement Theory and Populations</td>
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<tr>
<td>MATH943</td>
<td>Optimisation Techniques</td>
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<tr>
<td>MATH944</td>
<td>Regression Analysis</td>
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<tr>
<td>MATH945</td>
<td>Decision Theory</td>
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<tr>
<td>MATH951</td>
<td>Coastal Dynamics</td>
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<tr>
<td>MATH946</td>
<td>Multivariate Analysis</td>
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<tr>
<td>MATH947</td>
<td>Inference</td>
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<tr>
<td>MATH961</td>
<td>Functional Analysis</td>
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<td>MATH962</td>
<td>Harmonic Analysis</td>
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<tr>
<td>MATH963</td>
<td>Integration Theory and its Applications</td>
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<tr>
<td>MATH964</td>
<td>Distributions</td>
<td>6</td>
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<tr>
<td>MATH965</td>
<td>Topics in Algebra</td>
<td>6</td>
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<tr>
<td>MATH966</td>
<td>Logic and Set Theory</td>
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<tr>
<td>MATH967</td>
<td>Combinatory Logic</td>
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<tr>
<td>MATH971</td>
<td>Advanced Topics in Applied Mathematics A</td>
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<tr>
<td>MATH972</td>
<td>Advanced Topics in Applied Mathematics B</td>
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<tr>
<td>MATH973</td>
<td>Advanced Topics in Pure Mathematics A</td>
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<td>MATH974</td>
<td>Advanced Topics in Pure Mathematics B</td>
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<tr>
<td>MATH975</td>
<td>Advanced Topics in Statistics</td>
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<tr>
<td>MATH976</td>
<td>Advanced Topics in Probability and Operations Research</td>
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<tr>
<td>MATH991</td>
<td>Project</td>
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<td>PHYS905</td>
<td>Mathematical Methods for Physicists A</td>
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<tr>
<td>Number</td>
<td>Subject</td>
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<td>PHYS910</td>
<td>Advanced Project in Physics A</td>
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<td>PHYS942</td>
<td>Elementary Particle Physics</td>
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<td>PHYS944</td>
<td>Advanced Quantum Mechanics</td>
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<td>PHYS946</td>
<td>Advanced Solid State Physics</td>
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<td>PHYS947</td>
<td>Special Topics in Physics A</td>
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<td>PHYS948</td>
<td>Astrophysics Seminars</td>
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<td>PHYS955</td>
<td>Mathematical Methods for Physicists B</td>
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<td>PHYS960</td>
<td>Advanced Project in Physics B</td>
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<tr>
<td>PHYS970</td>
<td>The Physics of Measurements</td>
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<td>PHYS990</td>
<td>Plasma Physics</td>
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<td>PHYS997</td>
<td>Special Topic in Physics B</td>
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<td>PHYS998</td>
<td>Cosmology</td>
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<tr>
<td>PHYS999</td>
<td>Major Thesis</td>
<td>48</td>
</tr>
</tbody>
</table>
DESCRIPTIONS OF POSTGRADUATE COURSES

NOTE: The following Departments include only research thesis subjects in the Schedule of Graduate Subjects for a Masters degree:

- BIOLOGY
- ENGLISH
- HISTORY
- SOCIOLOGY

MAJOR THESIS

Requirements for Honours Masters degree students in these Departments are as follows:

1. Students entering under section 6(1) of the Honours Masters Degree Requirements (i.e. from a degree of Bachelor with Honours at a standard of Class II, Division 2 or higher) are required to complete the Major Thesis (48 credit points).

2. Students entering under section 6(2) of the Honours Masters Degree Requirements (i.e. from a degree of Bachelor of a standard below Honours Class II, Division 2) 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 regulations 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. In special circumstances a professional person holding a tertiary qualification (for example, an experienced accountant with the Commerce (Accounting Procedures) Certificate) may be permitted to enrol. The main requirement is that subjects aggregating not less than 30 credit points of the 48 necessary for the Diploma are to be obtained from 200- and/or 300-level subjects offered by the Accountancy Department.

The Diploma requires one year full-time study or part-time equivalent.

The Diploma serves a wide variety of interests. On the one hand Science or Engineering graduates may study first the second year accounting or take, say, Management Accounting to third year, and on the other hand, Accountancy students may specialise further for professional purposes. For example, inclusion of appropriate 400-level subjects is accepted by the Australian Society of Accountants for advancement to Senior Associate.

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.
DESCRIPTION OF SUBJECTS - ACCOUNTANCY

DIPLOMA IN MANAGEMENT

In accordance with the general regulations for graduate diplomas, candidates for the Diploma in Management 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 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.

MASTER OF MANAGEMENT

The objective of this degree is to enable graduates over a period of three years part-time study, undertaken whilst working, to be introduced to the main functional areas of management and to the concepts needed by management in order to be able to manage effectively and efficiently. For this purpose, certain key factors need to be studied in depth.

This is achieved in ten compulsory subjects of six credit points each, plus two optional subjects. The compulsory subjects embrace the main areas. Because of the wide coverage required by the "generalist" thrust of the degree there is only a limited opportunity for the selection of optional subjects. Candidates will be encouraged to select complementary subjects like, for example, Personnel Management and Industrial Relations or Production and Operations Management and Management of Technology. The purpose of the two "special topics" is to enable expertise of visiting staff, including that of other departments, to be drawn on in offering relevant optional subjects. For example, the subject Selected Legal Topics in Management would enable administrative law, consumer law, taxation law or any other areas of law of significance to management to be studied at greater depth.

Specific requirements for the Master of Management

Entry: University degree or equivalent.

Length: Three years part-time, 72 credit points.
Subjects for the first year correspond to those compulsory for the Diploma in Management (i.e. 24 credit points) plus additional compulsory and optional subjects aggregating a further 48 credit points. No credit from previous study is permitted.

Course approval: The programme of study for each student is to be approved by the Chairman, Department of Accountancy. Students who have substantially covered the content of any of the compulsory subjects, may be exempted by the Departmental Chairman from any such subject, but will be required to substitute an optional subject for each subject for which exemption is granted.

Course content: Subjects are selected from the Schedule of Graduate Subjects
MASTER OF STUDIES IN ACCOUNTANCY

The purpose of this pass degree is to provide graduate students, who have completed the accountancy specialisation from the BCom degree, with the opportunity of further in-depth study of advanced topics in accounting and commercial law. This degree should be particularly suitable for students wishing to specialise in professional areas, and also for those seeking advancement to Senior Associate with the Australian Society of Accountants.

The degree of 48 credit points may be studied full-time over one year, or may be studied part-time. Subjects are to be selected from the Schedule of Graduate Subjects. Entry requires a BCom degree with a specialisation in Accountancy, or equivalent degree.

THE HONOURS 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 at a standard of Class II, Division 2 or higher, or an equivalent degree, may qualify for the award of the MCom(Hons) 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 at a standard less than Honours Class II, Division 2, or equivalent degree, may, subject to the attainment of a satisfactory standard in that degree, be permitted to register as candidates for the MCom(Hons) 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 HONOURS 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 at a standard of Class II, Division 2 or higher, or an equivalent degree, may qualify for the award of the MA(Hons) 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 at a standard less than Class II, Division 2, or equivalent degree, may, subject to the attainment of a satisfactory standard in that degree, be permitted to register as candidates for the MA(Hons) 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.

(Note: Textbook references, unless otherwise specified, refer to the latest available editions).

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.
DESCRIPTION OF SUBJECTS - ACCOUNTANCY 101

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.

TEXTBOOKS


ACCY910 ORGANISATIONAL BEHAVIOUR

First Session; 6 credit points (2 lectures/seminars per week)
Assessment: seminars, case studies, essays and examinations

A study of the behaviour of individuals in organisations, groups and group processes, leadership and communication, organisation design and job design, appraisal of performance, processes of organisational change and development.

TEXTBOOK


ACCY911 MANAGEMENT CONTROL SYSTEMS

Second Session; 6 credit points (2 lectures/seminars per week)
Assessment: seminars, case studies, essays and examinations


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.

ACCY913 STRATEGIC PLANNING AND POLICY

Session to be determined; 6 credit points (2 lectures/seminars per week)
Assessment: assignments, essay(s) and examination(s).

Pre-requisite: Compulsory first and second year subjects.

The formulation of unified, comprehensive and integrated plans designed to ensure that the basic objectives of enterprises are achieved. Primary emphasis will be on the dynamics of the interaction of policies, the external environment, strategy and organisational design; and the integration of functional activities into a unified effort. The course will encompass both conceptual issues and case studies.
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.

ACCY925 SPECIAL TOPIC IN MANAGEMENT

Session to be determined; 6 credit points (2 lectures/seminars per week)
Assessment: seminars, case studies, essay(s) and examination(s).

A special topic selected from any area of management. (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).

ACCY926 SPECIAL TOPIC IN MANAGEMENT

Session to be determined; 6 credit points (2 lectures/seminars per week)
Assessment: seminars, case studies, essay(s) and examination(s).

A special topic selected from any area of management. (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).

ACCY930 PERSONNEL MANAGEMENT

Session to be determined; 6 credit points (2 lectures/seminars per week)
Assessment: seminars, case studies, essays and examinations.

Managing people at work, including examination of employment policies and selection, performance appraisal, training and development, financial compensation and welfare, health and safety, and related legal aspects.

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.

ACCY931 MANAGEMENT AND INFORMATION SYSTEMS

Session to be determined; 6 credit points (2 lectures/seminars per week)
Assessment: assignments, essay(s) and examination(s)

The effective use and control of information systems, particularly computer-based information systems, and the likely impact of developments in this area on management functions and how managers carry out those functions.

TEXTBOOK


ACCY940 MARKETING

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.

**ACCY951 TAXATION POLICY AND PRACTICE**

*Session 1 or 2; 6 credit points (2 seminars plus 1 tutorial)*

*Assessment: seminar paper, essay(s) and examination(s)*

An examination of the revenue laws including income tax, sales tax, property tax, stamp duty and payroll tax. (N.B. This subject is not to count with ACCY352 Advanced Taxation Law).

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.

**TEXTBOOKS**


**ACCY961 SELECTED LEGAL TOPICS IN MANAGEMENT**

*Session to be determined; 6 credit points (2 lectures/seminars per week)*

*Assessment: seminars, case studies, essays and examinations*

Selected legal topics in management. (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.

**ACCY968 INSOLVENCIES**

*Session 1 or 2; 6 credit points (2 seminars, 1 tutorial per week)*

*Assessment: seminars, essay(s) and examination(s)*

Accounting and legal aspects of corporate and non-corporate insolvencies including bankruptcies, liquidations, receivership; alteration of capital, reconstruction, amalgamation and takeovers. (N.B. A student who has passed ACCY368 Insolvencies may not enrol in this subject).

No prescribed textbooks.

**ACCY990 CASE STUDY**

*6 credit points*

An analysis of a particular managerial problem encountered in practice.
HONOURS 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 Honours Masters Degree Regulations.

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 degree below Honours Class II, Division 2 standard 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; Biological 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 -, mass -, laser -, 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 the role of metals 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.
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.

CIVL481 ENGINEERING MANAGEMENT 1
MECH491 PROFESSIONAL ORIENTATION
+CIVL487 TOWN PLANNING
+CIVL493 PUBLIC HEALTH ENGINEERING
+CIVL496 ROADS ENGINEERING

+Refer to calendar entry under Description of subjects - civil engineering, mechanical engineering.

CIVL481 and MECH491 together count as 8 credit points.

HONOURS MASTER OF ENGINEERING - CIVIL ENGINEERING
The Department of Civil and Mining Engineering offers the following opportunities for graduates to conduct research or pursue an advanced course of study:

1. Honours Master of Engineering Degree by coursework.
2. Honours Master of Engineering Degree by research thesis.
3. Honours Master of Engineering Degree by combinations of coursework and research thesis.

1. The Honours Master of Engineering Degree by Coursework
The Honours 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 interests of those taking part.

2. The Honours Master of Engineering Degree by Research Thesis
The Honours Master of Engineering Degree by research thesis is intended for those engineers qualified and interested in specific problems.

3. The Honours 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
Master of Engineering Research Thesis Topics

The following subject areas are available for graduates wishing to conduct research for the Honours 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.


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.


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 Honours Master of Engineering Degree offered by the Department of Civil and Mining 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 Class II, Division 2 or higher. Applicants possessing a Bachelor degree of a standard less than Honours Class II, Division 2 will have their programme approved by the Academic Senate after consultation with the Chairman of the Department of Civil and Mining Engineering.

Credit Points

Each subject listed below, except where otherwise stated, has a credit point value of 5.
CIVL901 PROJECT

First stage of a comprehensive study concerning a specific topic; formulation of problem and literature study, critical examination of current work; planning of solution methods; discussion of results of initial work.

With the approval of the Departmental Chairman this subject may be taken by students who intended to enrol in an 8 credit point thesis. It will not be available to those students who enrol in a 28 credit point thesis.

CIVL902 RELIABILITY IN GEOTECHNICAL ENGINEERING

Conventional safety factor and its limitations in representing safety or reliability; geotechnical predictions and associated degree of confidence; variability of soil and rock deposits; uncertainties in material parameters, geotechnical models and failure mechanisms; statistical data and probabilistic approaches; failure probability and reliability; different probability distributions; deterministic and probabilistic approaches compared; reliability of geotechnical systems; recent developments probability of failure propagation and initiation, most probable extent of embankment or slope failure.

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

Transport Problems; Urban Travel Demands; the Transport Planning Process; Travel-Demand Forecasting; Trip Generation Analysis; Model Split Analysis; Trip Distribution Analysis; Route Assignment Analysis; Economic; Employment and Population Forecasts; Evaluation of Transport Plans; Airport engineering: classification, design standards, layout and development, terminal facilities, city-airport transport systems; urban transportation; railroad engineering; 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, ICETRAN.

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 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


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


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.

CIVL 950 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

Computer aided analysis and design; computer methods; concrete design; civil engineering materials; finite element techniques; hydrology; hydraulics; numerical techniques; reliability; rock mechanics; soil mechanics; simulation; structural analysis and design; structural topology; town planning; traffic planning; traffic engineering; transportation; highway engineering; urban investigations; structural dynamics; continuum mechanics.

HONOURS MASTER OF ENGINEERING - MINING ENGINEERING

The Department of Civil and Mining Engineering offers graduates the following opportunities to conduct research or pursue an advanced course of study in Mining Engineering:

1. Honours Master of Engineering Degree by coursework.
2. Honours Master of Engineering Degree by research thesis.

3. Honours Master of Engineering Degree by combination of coursework and research thesis.

1. The Honours Master of Engineering Degree by Coursework.

The Honours 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 Honours Master of Engineering Degree by Research Thesis.

The Honours Master of Engineering Degree by research thesis is intended for those engineers qualified and interested in specific problems.

3. The Honours 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.

Honours Master of Engineering Research Thesis Topics.

The following subject areas are available for graduates wishing to conduct research for the Honours Master of Engineering Degree.

1. Transportation: Transport of minerals and personnel, Safety, Environmental considerations, Regulations.


3. Economic: Economic policies as affected by demand and Governments, Industrial relations and social problems, Mechanisation.


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 Honours 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 postgraduate 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 at Class II, Division 2 or higher. Applicants possessing a Bachelor degree of a standard less than Honours Class II, Division 2 will have their programme approved by the Academic Senate after consultation with the Chairman of the Department of Civil and Mining 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


MINE905 ENVIRONMENTAL CONTROL IN MINES

Energy considerations in mine ventilation; sources of heat in mines; control of atmospheric conditions in deep mines; fan design, installation, operation and safety; ventilation planning; computer applications.

MINE906 MINING ENGINEERING TECHNIQUES

A selection of advanced laboratory and field exercises in: mine support, temporary and long term; in situ testing, laboratory testing, rock properties and parameters; mine design and plant related to extraction areas.

MINE907 GASES IN MINES

Natural occurrence and prediction of rock bursts; collection of mine gases; mine atmospheres, gases, dusts; fires, rescue and recover; computer analysis.

MINE950 THESIS

Double session; 8 credit points

MINE951 THESIS

Double session; 28 credit points
Double session; 48 credit points

MINE952 MAJOR THESIS

Double session; 48 credit points

MINE999 ADVANCED TOPICS IN ENGINEERING

Computer aided analysis and design; computer methods; concrete design; civil engineering materials; finite element techniques; hydrology; hydraulics; numerical techniques; reliability; rock mechanics; simulation; structural analysis and design; structural topology; town planning; traffic engineering; transportation; highway engineering; urban investigations; structural dynamics; continuum mechanics.
DESCRIPTION OF SUBJECTS - COMPUTING SCIENCE

COMPUTING SCIENCE

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 regulations 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 Graduate Subjects for the Honours Master of Science Degree (Computing Science) to the value of 12 credit points; and

   (iii) further subjects chosen from the Schedule of Graduate Subjects for the Honours Master of Science Degree (Computing Science), and/or the Schedule of Graduate Subjects for the Honours 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.

HONOURS MASTER OF SCIENCE

The degree of Honours Master of Science (MSc(Hons)) in the Department of Computing Science shall be subject to the University regulations for the award of the degree of Honours 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; 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 at a standard of Class II, Division 2 or higher 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 Graduate Subjects for the Honours Master of Science Degree (Computing Science) to the value of 12 credit points; and

(ii) further subjects chosen from the Schedule of Graduate Subjects for the Honours Master of Science Degree (Computing Science), and/or the Schedule of Graduate Subjects for the Honours 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 Graduate Subjects for the Honours Master of Science Degree (Computing Science) to the value of 12 credit points; and

(ii) further subjects chosen from the Schedule of Graduate Subjects for the Honours Master of Science Degree (Computing Science), and/or the Schedule of Graduate Subjects for the Honours Master of Science Degree (Mathematics) to the value of 24 credit points.

4. Where entry to the degree programme has been approved from a degree at a standard below Honours Class II, Division 2, 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 Graduate Subjects for the Honours Master of Science Degree (Computing Science), to the value of 12 credit points; and

(ii) further subjects chosen from the Schedule of Graduate Subjects for the Honours Master of Science Degree (Computing Science), and/or the Schedule of Graduate Subjects for the Honours 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 investigation 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 Graduate Subjects for the Honours Master of Science Degree (Computing Science) to the value of 12 credit points; and

(ii) further subjects chosen from the Schedule of Graduate Subjects for the Honours Master of Science Degree (Computing Science), and/or the Schedule of Graduate Subjects for the Honours Master of Science Degree (Mathematics) to the value of 24 credit points; and

(iii) further subjects chosen from the Schedule of Graduate Subjects for the Honours Master of Science Degree (Computing Science), and/or the Schedule of Graduate Subjects for the Honours 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 Graduate Subjects for the Honours Master of Science Degree (Computing Science) to the value of 12 credit points; and

(ii) further subjects chosen from the Schedule of Graduate Subjects for the Honours Master of Science Degree (Computing Science), and/or the Schedule of Graduate Subjects for the Honours Master of Science Degree (Mathematics) to the value of 24 credit points; and

(iii) further subjects chosen from the Schedule of Graduate Subjects for the Honours Master of Science Degree (Computing Science), and/or the Schedule of Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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 Honours 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 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


CSCI921 INFORMATION PROCESSING SYSTEMS

6 credit points


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


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.
CSCI943 ADVANCED TOPICS IN COMPUTING SCIENCE C

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.

CSCI944 ADVANCED TOPICS IN COMPUTING SCIENCE D

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.

CSCI991 PROJECT

12 credit points

CSCI992 MINOR THESIS

24 credit points

CSCI993 THESIS

48 credit points
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:

   - ECON102  Industrial Relations A: Wage Determination in Australia - 6
   - ECON240  Trade Unions, Employer Organisations & their Environment - 8
   - ECON340  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 the 200- or 300-level subjects.

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.

HONOURS MASTER OF COMMERCE AND HONOURS MASTER OF ARTS DEGREES, ACCOUNTANCY OR ECONOMICS

See entry under Department of Accountancy.

HONOURS MASTER OF COMMERCE, INDUSTRIAL RELATIONS

A. 1. Candidates who have completed the requirements for the award of a bachelor's degree with honours in Economics or Psychology at a standard of Class II, Division 2 or higher, or who have an equivalent qualification may fulfil the requirements for an MCom (Hons) 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 coursework 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 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 at a standard less than Class II, Division 2, or who have an equivalent qualification, may be permitted to register as candidates for the MCom (Hons) 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 ECON952, ECON953, ECON954, ECON991, ECON992 and ECON993.

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

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
DESCRIPTION OF SUBJECTS - ECONOMICS

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

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 THE ECONOMIC FRAMEWORK FOR DECISION MAKING
6 credit points
An introduction to the economic framework for decision making. Topics include: industrial market structures; the budget and its effect on demand, money supply and interest rates; and the influence of international trade on the domestic economic framework.

ECON953 STATISTICAL TECHNIQUES FOR DECISION MAKING
6 credit points
A survey of quantitative tools commonly used by managers. Topics will include descriptive and inferential statistics, regression and correlation analysis, and linear programming. The techniques will be used to empirically estimate demand schedules and to analyse production decisions.

ECON954 INDUSTRIAL RELATIONS IN AUSTRALIA
6 credit points
Topics include: the structure and nature of Trade Unions; the structure and nature of Employer Organisations; Issues in Industrial Relations; Strategies and tactics in Industrial Relations; the role of the state in Industrial Relations.

ECON991 PROJECT
16 credit points
ECON992 RESEARCH REPORT

24 credit points

ECON993 THESIS

48 credit points
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 1982. 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.
DESCRIPTION OF SUBJECTS - EDUCATION

TEXTBOOKS
To be advised.

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

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
To be advised.

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
To be advised.

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
To be advised.

EDUC916 AN INTRODUCTION TO CURRICULUM PLANNING AND INSTRUCTIONAL DESIGN

4 credit points
DESCRIPTION OF SUBJECTS - EDUCATION

This subject is designed to introduce teacher trainees to fundamentals of curriculum planning and design for instruction.

TEXTBOOKS

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.

**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.

**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;


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.

EDUC928 GERMAN METHOD

3 credit points;

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.

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.

**MASTER OF STUDIES IN EDUCATION**

Please refer to the Master of Studies Regulations and note the following additions:

1. A person holding an approved Diploma in Education or equivalent qualification shall be deemed to meet the 24 credit point requirements at the 300-level specified in Regulation 3(a).

2. A candidate for the Master of Studies in Education degree, may, with the approval of the Chairman of the Department of Education, include in his programme subjects not exceeding 16 credit points in aggregate selected from the Schedule of Graduate Subjects offered by other departments, provided, however, that the Chairman of the other department approves such selection.

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**


**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**


**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.
The social class and education.
The economy and education.

**TEXTBOOKS**

To be advised.

**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

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

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

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


**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


**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.
DESCRIPTION OF SUBJECTS - EDUCATION

TEXTBOOKS


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


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)
DESCRIPTION OF SUBJECTS - EDUCATION

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.

HONOURS MASTER OF EDUCATION

The degree of Honours Master of Education (MEd(Hons)) in the Department of Education shall be subject to the University’s requirements for the award of the degree of Honours 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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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(a) or 3(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(a) or 3(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 focus 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
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


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.

EDUC985 SPECIAL TOPIC IN EDUCATION C

Single or double session; 8 credit points (3 hrs per week on a single session basis: tutorials and seminars)
Pre-requisite: Demonstrated expertise in an area of educational practice or theory.
Assessment: Project

The special topic subjects 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
DESCRIPTION OF SUBJECTS - ELECT. & COMP. ENGINEERING 141

ELECTRICAL AND COMPUTER ENGINEERING

HONOURS MASTER OF ENGINEERING

Under the Regulations for the degree of Honours 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 Honours 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 Honours Masters Degree Regulations, while those in sections (i) and (ii) must seek entry under Section 6(2).

Entry Under Section 6(1) - Graduates with an Honours Degree at a standard of Class II, Division 2 or higher

Under Section 6(1) of the Honours Masters Degree Regulations, 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 a Degree below a standard of Class II, Division 2

Under Section 6(2) of the Honours Masters Degree Regulations, 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 Regulations. 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 Honours 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,
DESCRIPTION OF SUBJECTS - ELECT. & COMP. ENGINEERING

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**


**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**


**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.
DESCRIPTION OF SUBJECTS - ELECT. & COMP. ENGINEERING 143

**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
DESCRIPTION OF SUBJECTS - EUROPEAN LANGUAGES 145

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 regulations 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 EDUC215; HIST103, HIST222, HIST311, HIST231, HIST232, HIST242, HIST243, HIST321, HIST326, HIST335 and HIST 336; HPS130, HPS230; SOC223.

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.

HONOURS MASTER OF ARTS

Structure

Students entering the programme with a degree in French and/or Italian at a standard below Honours Class II, Division 2 will be required to complete one of the following subjects:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EURO913</td>
<td>Advanced Topics in French</td>
<td>48 pts</td>
</tr>
<tr>
<td>EURO923</td>
<td>Advanced Topics in French and Italian</td>
<td>48 pts</td>
</tr>
<tr>
<td>EURO953</td>
<td>Advanced Topics in Italian</td>
<td>48 pts</td>
</tr>
</tbody>
</table>

They then proceed to:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EURO903</td>
<td>Major thesis</td>
<td>48 pts</td>
</tr>
</tbody>
</table>

Students entering the programme with an honours degree at a standard of Class II, Division 2 will be required to complete only:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>EURO903</td>
<td>Major thesis</td>
<td>48 pts</td>
</tr>
</tbody>
</table>

Details of the content of the following subjects are available from the Chairman of the Department of European Languages:
146 DESCRIPTION OF SUBJECTS - EUROPEAN LANGUAGES

EURO913
EURO923
EURO953

MASTER OF STUDIES IN FRENCH

1) An applicant for registration for the degree shall have qualified for:
   a) a degree of bachelor in the University which includes at least 24 credit points at 300-level in French; OR
   b) a degree of bachelor in the University together with at least 24 credit points at 300-level in French; OR
   c) an equivalent qualification from another tertiary institution.

2) A candidate may be considered for the award of the degree after successfully completing two academic sessions of full-time study (or its equivalent) of subject number EURO913: Advanced topics in French.

3) For details refer to the regulations for the Master of Studies degree.

MASTER OF STUDIES IN ITALIAN

1) An applicant for registration for the degree shall have qualified for:
   a) a degree of bachelor in the University which includes at least 24 credit points at 300-level in Italian; OR
   b) a degree of bachelor in the University together with at least 24 credit points at 300-level in Italian; OR
   c) an equivalent qualification from another tertiary institution.

2) A candidate may be considered for the award of the degree after successfully completing two academic sessions of full-time study (or its equivalent) of subject number EURO953: Advanced topics in Italian.

3) For further details refer to the regulations for the Master of Studies degree.

MASTER OF STUDIES IN FRENCH AND ITALIAN

1) An applicant for registration for the degree shall have qualified for:
   a) a degree of bachelor in the University which includes at least 24 credit points at 300-level in French and Italian; OR
   b) a degree of bachelor in the University together with at least 24 credit points at 300-level in French and Italian; OR
   c) an equivalent qualification from another tertiary institution.

2) A candidate may be considered for the award of the degree after successfully completing two academic sessions of full-time study (or its equivalent) of subject number EURO923: Advanced topics in French and Italian.

3) For further details refer to the regulations for the Master of Studies degree.
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.

HONOURS 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 MA(Hons) 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 degree in Geography or some other appropriate discipline (Category A) at a standard less than Honours Class II, Division 2 will be required to complete subjects with a value of at least 96 credit points. Those with an Honours degree at a standard of Class II, Division 2 or higher 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.)
DESCRIPTION OF SUBJECTS - GEOGRAPHY

*plus either* GEOG903 Special Project in Geography (24 cr. pts.) or GEOG904 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  
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 the Masters’ Degree Regulations.

GEOG999 MAJOR THESIS  

48 credit points

MASTER OF STUDIES IN GEOGRAPHY  

The Department of Geography offers a programme of postgraduate level subjects which leads to the degree of Master of Studies in Geography. This programme has been devised to meet the needs of students who wish to proceed beyond the 3 year pass degree but for whom the research component of the Honours degree and the scale of the Honours Master of Arts degree are inappropriate.
Students entering the programme with a pass degree in Geography or some other appropriate discipline will be required to complete subjects with a value of 48 credit points. Entry to the course will be dependent upon approval by the Departmental Chairman.

Subjects must be selected from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG951</td>
<td>The Nature and Development of Geography</td>
<td>12</td>
</tr>
<tr>
<td>GEOG952</td>
<td>Economic Geography</td>
<td>12</td>
</tr>
<tr>
<td>GEOG953</td>
<td>Social Geography</td>
<td>12</td>
</tr>
<tr>
<td>GEOG954</td>
<td>Urban Geography</td>
<td>12</td>
</tr>
<tr>
<td>GEOG955</td>
<td>Fluvial Geomorphology</td>
<td>12</td>
</tr>
<tr>
<td>GEOG956</td>
<td>Coastal Geomorphology</td>
<td>12</td>
</tr>
<tr>
<td>GEOG957</td>
<td>Resource and Environmental Management</td>
<td>12</td>
</tr>
<tr>
<td>GEOG958</td>
<td>Biogeography</td>
<td>12</td>
</tr>
</tbody>
</table>

All subjects involve up to 4 contact hours per week. Topics to be considered will vary from year to year according to staff involvement.

**GEOG951 THE NATURE AND DEVELOPMENT OF GEOGRAPHY**

- **12 credit points**
- **Contact hrs per week:** up to 4
- **Assessment:** Assignments

Topics to be considered will vary from year to year according to staff involvement.

**GEOG952 ECONOMIC GEOGRAPHY**

- **12 credit points**
- **Contact hrs per week:** up to 4
- **Assessment:** Assignments

Topics to be considered will vary from year to year according to staff involvement.

**GEOG953 SOCIAL GEOGRAPHY**

- **12 credit points**
- **Contact hrs per week:** up to 4
- **Assessment:** Assignments

Topics to be considered will vary from year to year according to staff involvement.

**GEOG954 URBAN GEOGRAPHY**

- **12 credit points**
- **Contact hrs per week:** up to 4
- **Assessment:** Assignments

Topics to be considered will vary from year to year according to staff involvement.

**GEOG955 FLUVIAL GEOMORPHOLOGY**

- **12 credit points**
- **Contact hrs per week:** up to 4
- **Assessment:** Assignments

Topics to be considered will vary from year to year according to staff involvement.

**GEOG956 COASTAL GEOMORPHOLOGY**

- **12 credit points**
- **Contact hrs per week:** up to 4
- **Assessment:** Assignments
Topics to be considered will vary from year to year according to staff involvement.

**GEOG957 RESOURCE AND ENVIRONMENTAL MANAGEMENT**

12 credit points  
Contact hrs per week: up to 4  
Assessment: Assignments

Topics to be considered will vary from year to year according to staff involvement.

**GEOG958 BIOGEOGRAPHY**

12 credit points  
Contact hrs per week: up to 4  
Assessment: Assignments

Topics to be considered will vary from year to year according to staff involvement.
DIPLOMA IN COAL GEOLOGY

This course will provide

(a) a mechanism which permits practising geologists within the industry to acquire the knowledge necessary to improve their performance, and

(b) holders of a general geology degree to specialize in an expanding field of employment.

The course will be an inservice or "sandwich-type" course aimed at upgrading and updating professional expertise in areas of rapid development.

Students will be required to spend a total of approximately ten weeks on campus in the two years, generally two and a half weeks in January-February and two and a half weeks in June-July each year.

Admission Requirements

Applicants for admission are required to-

(a) have a degree with a major in Geology from the University of Wollongong, or an approved degree from another tertiary institution; or

(b) have other appropriate qualifications and professional experience.

Course Structure

The basic structure of the course will be part-time extending over two academic years.

It will consist of two parts-

Part A Lectures, tutorial, practical and formal field work which will involve not less than a total of nine weeks but not more than fifteen weeks of full-time instruction during the course, the periods of such instructions being when possible in the University vacations. (These subjects are GEOL981 to GEOL988 inclusive).

Part B Two projects, one of which must be field-oriented. Presentation of the results will be in the form of two reports. (GEOL950 and GEOL989).

For assessment purposes the weighting of Parts A and B will be equal.

Teaching in the course will emphasize the use of the "case history" approach utilizing the extensive experience of the staff of the University and that of invited lecturers.

HONOURS MASTER OF SCIENCE IN COAL GEOLOGY

Students will be required to complete a programme of study with a total value of at least 96 credit points. The formal coursework is equivalent to 48 credit points and the remaining 48 credit points will consist of thesis work.

The assessment of the student's performance in the course shall be made by the Graduate Studies Committee on the recommendation of the Departmental Assessment Committee.

Students will be required to spend a total of approximately five weeks at the University over a period of two years. Two and a half weeks will be in January-February and two and a half weeks in June-July each year.
A University hall of residence is available during the periods of the course for accommodation.

Course Outline

The course consists of two parts:

Part A The subjects GEOL981 to GEOL988 inclusive.

Part B GEOL950 and GEOL 989.

Part A Formal Coursework - 48 credit points (for GEOL981 to 988 inclusive).

The syllabus for the formal coursework comprises eight subjects each of which will be covered in forty-eight hours of lectures/tutorials and associated laboratory/field work. Each subject counts as 6 credit points. Assessment is on the basis of written assignments set during the formal coursework.

Part B Thesis - 48 credit points (GEOL950, GEOL989)

This will be in two sections. The first will be predominantly a literature survey. The second and more major study will involve a field or laboratory study (or both) of a problem in coal geology. Students employed in the coal industry will be encouraged to choose topics which are relevant to their employment. The division of the thesis into two sections is to assist supervision of thesis work, since the course is designed essentially for part-time students.

HONOURS 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 Honours Masters Degree Regulations.

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.

**GEOL902 RECENT ADVANCES IN GEOLOGY**

*Single Session Subject; 6 credit points (14 hrs lectures and 14 hrs tutorials)*

Assessments, and written examination at the end of session.

Topics of current interest and significance.

**GEOL903 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.

**GEOL904 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.
GEOL905 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.

GEOL906 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

GEOL981 COAL IN THE ENERGY PATTERN

6 credit points
Keywords: Coal resources, reserves, demand, assessment, feasibility, Hubbert's pimple, estimation, modelling.

The historical pattern of energy use and the probable changes in the pattern form a basis for understanding the implications of the radical changes which are likely to occur in the medium term. System costs and man-power deployment for the coal industry are very different from those in the oil industry and present difficulties in changing from an oil-based to a coal-based world energy budget. The lower calorific value and relatively high content of impurities in coal, together with the difficulties of handling solids mean that substitution by coal involves increased handling problems.

Resources can only be considered as reserves if the probability of their existence has been established at an acceptable level of certainty and the coal can be extracted economically. With increasing maturity of exploration, reserves increase,
but can then decrease if additional "hazards" are discovered. Reserves calculation methods need to be understood in both geological and a commercial context.

The historical patterns of exponential growth in energy use can lead, with a finite resource, to a production pattern which has been described by Hubbert. Modelling techniques are useful in establishing possible future use and production patterns. The fate of past predictions will be examined.

**GEOL982 THE CONDITIONS OF PEAT FORMATION**

6 credit points

*Keywords*: Vegetable matter, plant nutrition, peat accretion, moor ecology, bio-chemical co·ification, macerals, microlithotypes, lithotypes, syn-depositional subsidence, seam-splitting, coal-measure lithology.

This subject of the course is designed to convey conceptual parameters of coal formation as a basis for an understanding of exploratory and analytical methods. It begins with a discussion of the influence of vegetable matter, as source material, on peat formation. Emphasis is put on the relationship between plant types and the resulting peat. A consideration of the source material serves also to delineate the stratigraphic range within which coal deposits can be expected to occur. Plant nutritional aspects lead to an appreciation of moor types and various biotopes within the latter. Intimately linked with this aspect is the breakdown of vegetable matter into peat and later coal components, i.e. the development of the organo-petrographic constituents of coal. The concept of coal type (in contrast to coal rank) is discussed in conjunction with an introduction to coal petrographic nomenclature and classification systems. The course is concluded with a discussion of peat and coal as integrated parts of a number of lithofacies models.

**GEOL983 COALIFICATION, COAL AND MINERAL ANALYSIS**

6 credit points

*Keywords*: Coal rank and type, rank evaluation parameters, coking potential, liquid/gas yields, inherent, adventitious, syngenetic and epigenetic mineral matter, mineral origins, coal and mineral analytical methods.

The second or physico-chemical stage of coalification leads to major changes in the physical and chemical properties of the macerals. These changes are rank dependent. Methods of assessing rank are related to their use in problem solving in geological and fuel technology studies. Rank change may be modelled mathematically and the results of modelling studies used to improve the understanding of basin history.

This subject is designed to cover also the types, compositions, origins and depositional controls of the mineral matter in coal. The concepts of inherent, adventitious, syngenetic and epigenetic mineral matter in coal and its depositional controls will be related to their economic significances. The various analytical methods applied to the analysis and characterisation of organic and inorganic constituents of coal either separately or collectively, and coke, are discussed in relation to their principles of operation and the type, application and value of the analytical data which result.

The analytical methods involved are as follows:

**For coal:**

Proximate and ultimate analysis, reflectance and fluorescence measurement, apparent density, sizing and washability tests, ash fusion-point determinations (and mineral caused variations), plastometer and dilatometer tests, swelling index determinations, Gray King assays, Raga index and coking quality tests and photometry.
For minerals:

Reflected light microscopy, point counting and use of various optical graticules, X-ray radiography, radio frequency and conventional mineral concentration techniques, thermal analysis (DTA and DTG), X-ray diffraction, X-ray fluorescence, infra-red and atomic absorption spectroscopy, electron microprobe analysis, scanning electron microscopy and staining techniques.

GEOL984 COAL-BASIN SETTING AND ANALYSIS

6 credit points

Keywords: Tectonic setting, plate tectonics, foredeep, intradeep, pericratonic coalfields, intracratonic coalfields, nontectonic coalfields, palaeo-current analysis, lithofacies maps, structural analysis.

This subject is divided into two parts - conceptual and analytical. In the first part of the geotectonic environment of coal formation is dealt with. Concepts of plate tectonics are stressed by relating coal basins to settings near:

1. converging plate margins;
2. diverging plate margins; and
3. in midplate positions.

In the second part analytical procedures are discussed and applied in the field as well as in the laboratory. Both methods of structural and sedimentary geology are used in order to unravel the history of a coal basin. Case histories are discussed and extensive use is made of the geological environment found in the vicinity of both centres of instruction.

GEOL985 GEOLOGICAL AND GEOPHYSICAL EXPLORATION

6 credit points

Keywords: Field geology, sampling, field geophysics, drilling, logging, downhole logging, quality, feasibility, mine planning, mine exploration.

An outline will be made of regional and detailed mapping and sampling of coal-bearing basins and the structures within such basins. Geophysical techniques used in coal-bearing basins will be described, including such methods as seismic, gravity, magnetic, electrical and thermal methods - advantages and disadvantages of the techniques. A description will be made of various drilling techniques and interpretation of drilling products, and downhole techniques in coal assessment studies. Quality assessment and feasibility studies will be discussed. The role of geological and geophysical exploration results as a guide to the planning of underground and open cut mines and mine layouts will be discussed. A description will be made of the application of some geological and geophysical techniques in monitoring developments during mining.

GEOL986 MINING COAL

6 credit points

Keywords: Mine layout, data collection, analysis, interpretation, stress history, strain analysis, design and planning, rock mechanics, structural analysis, strata control, gas emanations, geological hazards.

The control of sedimentary and structural features on mine planning and layout will be described. A description will be made of the collection, analysis and interpretation of data useful in coal mining. The influence and sedimentation, subsidence, lithification, folding, faulting and igneous intrusions on stress in coal-bearing sequences will be discussed. Types of stress and strain likely to be encountered in a coal-mining program will be described. The measurement of strain in rocks and its analysis and interpretation in coal mining will be described. Discussion of the design and planning of underground coal mine layout and extraction procedures will be complemented by discussion of the design and planning of open cut coal mines. Rock mechanics measurements will be
described, as well as other structural studies during coal mining, and the analysis of such data in the control and monitoring of coal-mining development. Recognition of geological hazards will be discussed, as will strata control and mine-gas control.

**GEOL987 COAL UTILIZATION**

*6 credit points*

**Keywords:** Preparation, grindability, washing, liberation, gasification, pyrolysis, solvent extraction, hydrogenation, carbonization, mesophase, coke structure, coke strength, combustion, ash properties.

Coal Preparation. Coal, as mined, typically contains mineral matter which can be removed by washing processes which depend upon specific gravity differences or upon differing flotation behaviour. Grindability is primarily related to coal type and rank, with the tectonic history of the coal having some effects. Liberation at any given size is controlled by the form of the association of the mineral matter and the coal macerals. Liberation can be predicted from a knowledge of the forms of occurrence of the mineral matter.

Reforming of coal into liquid or gaseous fuels presents a means of removing impurities in coal (minerals and sulphur in particular) and at the same time converting it into a state which is more easily handled. The processes of conversion involves a loss in energy. which ranges from about 30% to about 70%. Gasification processes are relatively insensitive to the properties of the coal and may be followed by the Fischer-Tropsch synthesis process to make liquid hydrocarbons. Pyrolysis techniques can be modified to increase the yield of liquids but require coals of a restricted range of rank and type. Further they yield a char residue which is difficult to handle and to use. Solvent extraction and hydrogenation both require coals of a restricted range of type and rank, and present problems related to autocatalysis and the poisoning of introduced catalysts.

Coals of suitable rank and type to through a plastic phase, when heated, which allows the development of a coke structure with vesicles and mesophase development. The performance of a coke in a blast furnace is related to physical strength and to chemical reactivity. Blending of coals is used to improve the physical and chemical properties of coke. The concepts of rank and type are of great importance in the design of blends and in the calculation of the effects which are likely to result from a given programme of blending.

Combustion of coal to provide electric power is the fastest growing use for coal. The burning process of coal in a pulverized fuel burner is related to its petrographic composition. The nature and properties of the residual ash are related to the composition and associations of the inorganic constituents of the coal. Boiler fouling affects efficiency and is related to the petrology and chemistry of the coal. The disposal of ash is a major problem, but presents a challenge in terms of the potential use of the ash as a construction material. Sulphur and heavy metal emissions are subject to regulatory controls in many parts of the world.

**GEOL 988 ENVIRONMENTAL ASPECTS**

*6 credit points*

**Keywords:** Pollution, dusts, gas emissions, reclamation, mine subsidence, waste products, environmental impacts, alienation of resources and conflicts of interest.

The relationship of mining operations to communities, downstream pollution problems, mineralogical composition and types of associated dusts, the composition of mine waters and stack emissions, the reclamation of mine sites, the effects of mine subsidence, the composition, uses and disposal of waste residues, environmental impact studies. Alienation of resources and conflicts of interest will be studied within the overall framework of coal mining and utilization.
GEOL989 THESIS

30 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 Department of Geology and will be subject to their availability in any given year.

Topics from:


GFOL999 MAJOR THESIS

48 credit points
The aim of this course is to enable graduates with a limited acquaintance with the history and philosophy 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 Regulations 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.

HONOURS MASTER OF ARTS

The Department of History and Philosophy of Science offers two separate Honours 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

Structure

Students entering the programme with a degree in History and Philosophy of Science or a degree in another appropriate discipline at a standard below Honours Class II, Division 2 (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 at a standard of Class II, Division 2 or higher (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

HONOURS 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 Honours 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 degree in History and Philosophy of Science or a degree in another appropriate discipline at a standard below Honours Class II, Division 2 (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 at a standard below Class II, Division 2 (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 Politics of Technological Change 12 cr. pts.
HPS923 Technology and the State 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.
HPS937 The Management of Technology 12 cr. pts.
**HPS938 Science, Technics and Technology** 12 cr. pts.

**Category B**

Category B students are required to take 48 credit points from the following subjects:

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**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 POLITICS OF TECHNOLOGICAL CHANGE

Single Session subject; 12 credit points (7 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 TECHNOLOGY AND THE STATE

Single Session subject; 12 credit points (2 lectures, 1 tutorial, 1 seminar per week)

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.

HPS937 MANAGEMENT OF TECHNOLOGY

Single session; 6 credit points (3 contact hours per week)

The nature and process of technological innovation; strategies for research and development; technological forecasting; project selection and evaluation; financial evaluation of R & D; R & D programme planning and control; the effects of technological change; government incentives and regulations.

TEXTBOOKS


(This subject is available only to Master of Management students).

HPS938 SCIENCE, TECHNICS AND TECHNOLOGY

Single session; 12 credit points (3 contact hours per week)

This subject deals with several historical case-studies in the interrelations between science and practical knowledge (technology or traditional crafts). Topics will be selected from among the following: craft knowledges in mythopoeic cultures; early astronomy as technique and as theory; the ideology of technical progress in the Scientific Revolution; print technology as an agent in the growth of modern science; Renaissance engineering and the birth of classical mechanics; the natural magician and the experimental scientist in the Scientific Revolution; practical knowledge and the formation of sciences (algebra and analytical geometry 1550-1630; steam technology and the science of heat 1770-1850; pneumatic techniques and the chemical revolution of the 18th century); the historical philosophy of technology (experimental science as knowledge of the artificial; scientific instruments - objects of inquiry, tools of inquiry, objectivised theories).

TEXTBOOKS

No single suitable text.
DESCRIPTION OF SUBJECTS - MATHEMATICS

MATHEMATICS

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:
   

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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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.

HONOURS MASTER OF SCIENCE

The degree of Honours Master of Science (MSc(Hons)) in the Department of Mathematics shall be subject to the University Honours Masters Degree Regulations 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:


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 at a standard of Class II, Division 2 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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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 degree at a standard below Honours Class II, Division 2, 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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours Master of Science Degree
DESCRIPTION OF SUBJECTS - MATHEMATICS 169

(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 Graduate Subjects for the Honours 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 Graduate Subjects for the Honours 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 regulations relating to the limitation of time for the degree of Honours 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. K. Tognetti.
MATH911 ADVANCED MATHEMATICS METHODS

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


MATH913 NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS


TEXTBOOKS


MATH914 VISCOUS FLUIDS

Equations of motion of a viscous fluid, exact solutions, low Reynolds number flows, boundary layers, matched asymptotic expansions.

MATH915 BIOLOGICAL FLUIDS MECHANICS

External flows; micro-organism locomotion, swimming of fish, flight of birds and insects. Internal flows; airflow in lung, blood flow, mucociliary transport.

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.
DESCRIPTION OF SUBJECTS - MATHEMATICS 171

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.

MATH931 ADVANCED NUMERICAL ANALYSIS

MATH932 NUMERICAL LINEAR ALGEBRA
Modern methods of solving the algebraic eigenvalue problem including the generalized problem $Ax = \lambda Bx$.

MATH941 TIME SERIES
Prediction Theory; Linear models - identification, estimation, diagnostic checking; multivariate models.

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 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.

MATH944 REGRESSION ANALYSIS
Multiple and Polynomial Regression, Stepwise and Stagewise regression, Model Building, Regression models of not full rank, Relationship between regression analysis and analysis of variance models, Non-linear models, Detection of outliers.

MATH945 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.

MATH946 MULTIVARIATE ANALYSIS
Regression; the multivariate normal and Wishart distributions; Hotelling’s $T^2$ and Wilks$A$; multivariate analysis of variance.

MATH947 INFERENCE
Transformations; distribution of quadratic forms; estimation techniques; hypothesis testing; sufficiency; asymptotic theory.
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.

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 Lebesque 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 $p$th power, geometrical properties of $L^p$ and other Banach spaces, applications to analysis and the measure theoretic formulation of probability theory.

MATH964 DISTRIBUTIONS

Mikusinskas 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 TOPICS IN ALGEBRA

Partially ordered sets, lattices, modular lattices, Boolean Algebras and Boolean rings, orthomodular lattices.

MATH966 LOGIC AND SET THEORY

Primitive Recursive and recursive functions. Arithmetization, Godel's Theorem, Recursive undecidability, Axioms for set theory, ordinal numbers, equinumerocity, Hartog's theorem, the Axiom of Choice.

MATH967 COMBINATORY LOGIC

Introduction to Pure and Illative combinatory logic, relation to lambda-conversion, functionality, application to propositional and predicate calculus.

MATH971 ADVANCED TOPICS IN APPLIED MATHEMATICS A

Topics will be selected from the areas of interest of staff members or visiting staff members of the department.

MATH972 ADVANCED TOPICS IN APPLIED MATHEMATICS B

Topics will be selected from the areas of interest of staff members or visiting staff members of the department.
MATH973 ADVANCED TOPICS IN PURE MATHEMATICS A

Topics will be selected from the areas of interest of staff members or visiting staff members of the department. These may include topics in Analysis, Algebra, Logic or Number Theory.

MATH974 ADVANCED TOPICS IN PURE MATHEMATICS B

Topics will be selected from the areas of interest of staff members or visiting staff members of the department. These may include topics in Analysis, Algebra, Logic or Number Theory.

MATH975 ADVANCED TOPICS IN STATISTICS

Selection of topics from one or more of the following areas: Multivariate Statistics, Sequential Analysis, Selecting and Ordering of Populations, Statistical Inference, Experimental Design, and Non Parametric Statistics.

MATH976 ADVANCED TOPICS IN PROBABILITY AND OPERATIONS RESEARCH

Selection of topics from one or more of the following areas: Advanced Probability Theory, Branching Processes, Queueing Theory, Inventory Control, Dynamic and Stochastic Programming.

MATH991 PROJECT

12 credit points

MATH992 MINOR THESIS

24 credit points

MATH993 THESIS

48 credit points
MECHANICAL ENGINEERING

HONOURS MASTER OF ENGINEERING

Entry under Section 6(1) - Graduates with an Honours Degree at a standard of Class II, Division 2 or higher

Students entering the course under Section 6(1) of the Honours Masters Degree Regulations 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 5(2) - Graduates with a Degree below a standard of Honours Class II, Division 2

Students entering the course under Section 6(2) of the Honours Masters Degree Regulations 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


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; Schrodinger wave equation and applications; 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**


**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; chemic 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-
LOCATION 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.

MECH922 COAL ENERGY TECHNOLOGY I

Coal formation, constituents, properties, extraction, gas and dust explosions, transportation, preparation and beneficiation, storage, stockpiling, spontaneous combustion, blending and reclaiming; coal utilization, coke production, by products, steam generation, combustion products, properties, ash collection and disposal, coal utilization economics.

MECH923 COAL ENERGY TECHNOLOGY II

Fluidized bed combustion, hybrid generation plants; generation plant simulation, coal conversion, pyrolysis, hydrogenation, gasification, liquefaction, by-products; MHD generation, economics of new coal technology.

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.

8 credit points

MECH950 DISSERTATION

28 credit points

MECH951 DISSERTATION

48 credit points

MECH952 DISSERTATION

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.
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 THE MATERIALS INDUSTRIES 3

Advanced consideration of factors influencing development in the materials industries and criteria for complex technological decisions; consideration of examples chosen with special reference to the energy economy.

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.

METL915 CORROSION OF MATERIALS

Corrosion and deterioration of metals, alloys and non-metallic materials. Mechanical, environmental and design effects; protection and prevention.

MECH934 MANUFACTURING PROPERTIES 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


CHEM327 CHEMISTRY AND THE ENVIRONMENT

Refer Undergraduate Handbook - Description of Subjects - Chemistry

METL 992 METALLURGY PROJECT 4

24 Credit Points
HONOURS MASTER OF METALLURGY

**Entry under Section 6(1)** - Graduates with an Honours degree at a standard of Honours Class II, Division 2 or higher

A candidate who enters under Section 6(1) of the Honours Masters Degree Regulations (i.e. who has qualified for the degree of Bachelor of Metallurgy with Honours at Class II, Division 2 or higher 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)** - Graduates with a degree at a standard below Honours Class II, Division 2

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 Class II, Division 2) 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**

(ii) Four of the advanced topics in Metallurgy described below

(iii) **METL990 Major Thesis (as for Honours Entry)**

**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.

**METL902 THE MATERIALS INDUSTRIES 3**

Advanced consideration of factors influencing development in the materials industries and criteria for complex technological decisions; consideration of examples chosen with special reference to the energy economy.

**METL921 ADVANCED DIFFRACTION TECHNIQUES**

Advanced geometrical, kinematical and dynamical theories of electron and X-ray diffraction; reciprocal lattice, stereographical 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.
180 DESCRIPTION OF SUBJECTS - METALLURGY

METL935 METAL FORMABILITY

METL951 STRUCTURE AND PROPERTIES OF ALLOYS
Strengthening of ferrous and non-ferrous alloys; relationships between strength, toughness and microstructure; thermomechanical treatments, ausforming, isofoming, 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, gain 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.

METL990 MAJOR THESIS
48 credit points

METL993 METALLURGY PROJECT 3
16 credit points
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.


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**


**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.

HONOURS MASTER OF ARTS

Students may enrol in 900-level subjects offered by the Centre for the Diploma in Applied Multicultural Studies, as part of an Honours Master of Arts programme under Regulation 6(ii), subject to the approval of

(i) the Chairman of the Department in which the student is enrolled;
(ii) the Director of the Centre for Multicultural Studies;
(iii) Academic Senate.
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 regulations 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.

HONOURS MASTER OF ARTS

1. HONOURS MASTER OF ARTS BY RESEARCH

The purpose of the Honours 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 Honours Class II, Division 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 Honours Masters degree under section 6 (2) of the Honours Masters Degree Regulations
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.
2. HONOURS MASTER OF ARTS BY COURSE WORK

Introduction

The purpose of the Honours 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.
HONOURS MASTER OF SCIENCE

The degree of Honours Master of Science (MSc(Hons)) by coursework in the Department of Physics shall be subject to the Honours Masters Degree Regulations 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 at a standard of Class II, Division 2 or higher, 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 degree at a standard below Honours Class II, Division 2, 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 A 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 Master; Strong Interactions; Feynman Diagrams; Electromagnetic Interactions; Weak Interactions; The $K^+$ - $K^0$ System and CP Violation; The Eight-fold Way, Quarks and SU(3) Symmetry.

TEXTBOOK

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.

TEXTBOOKS

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 Schrodinger 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-
DESCRIPTION OF SUBJECTS - PHYSICS

Reversal Symmetry; Symmetry Properties of Wave Vectors; Band Theory; Impurities in Semi-conductors.

TEXTBOOK


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


PHYS955 MATHEMATICAL METHODS FOR PHYSICISTS B

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


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


PHYS999 MAJOR THESIS

Double session subject, 48 credit points
HONOURS 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 Honours 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 Honours 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 Honours Master of Arts (MA(Hons)) by course work in the field of Applied Psychology will be subject to the Honours Masters Degree Regulations 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 at a standard of Class II, Division 2, 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 Chairman 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 degree at a standard below Honours Class II, Division 2, 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 Subjects in Psychology as follows:
DESCRIPTION OF SUBJECTS - PSYCHOLOGY

(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 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.
DESCRIPTION OF SUBJECTS - PSYCHOLOGY

PSYC925 CHILD CLINICAL PSYCHOLOGY

8 credit points; (4 class hours per week for 1 session)
Chairperson: Linda L. Viney
Assessment: Practical work and assignments and/or written examination.

This subject will deal with child psychopathology and its special forms of assessment, including observation, interviewing, testing and the use of projective techniques (those not dealt with in the core course PSYC913 Assessment and Appraisal). Related interventions such as behaviour modification, counselling and psychotherapy, play therapy, art work, psychodrama and other forms of group work, family therapy and environmental manipulations will be explored. Prevention of psychological problems in childhood will also be in focus. Mental retardation and other results of psychoneurological difficulties will receive attention, as well as the management of children with special problems such as physical handicaps, delinquency, depression and aggressive behaviour. Ethical and professional issues considered will be those involved in work with minors.

No set text.

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: ORGANIZATIONAL 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.

PSYC935 PRACTICUM: CHILD CLINICAL SPECIALIZATION

Double session; 8 credit points (field work plus 52 hours of seminars)
Chairperson: Linda L. Viney and John deWet
Assessment: Reports by Field and University Supervisors; field notebooks; seminar (case conference) presentations.

This subject, while differing from other practicum subjects in content and placement(s), has similar goals. Its focus will be on the diagnosis, treatment, management and prevention of children's psychological problems.

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,
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.
SOCIOLOGY

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 Regulations 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 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 recommendation of the Chairman of the Sociology Department who shall assess the applicant’s aptitude for sustained sociological study at a reasonably advanced level.

HONOURS MASTER OF ARTS

SOC999 MAJOR THESIS

48 credit points