FACULTY OF APPLIED SCIENCE

1966 HANDBOOK

THE UNIVERSITY OF NEW SOUTH WALES

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THE UNIVERSITY OF NEW SOUTH WALES
P.O. Box 1, Kensington, N.S.W.
'Phone: 663 0351

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FOREWORD

The importance of the Applied Sciences in this University's development has always been recognised, and is especially referred to in our Act of Incorporation.

Undergraduate courses in the fields of Applied Geology, Chemical Engineering, Chemical Technology, Metallurgy, Mining Engineering, Textile Technology and Wool Technology are well established, and many of the Faculty's research contributions have achieved international recognition.

It is hoped that students who enter the Faculty will share the enthusiasm and the dedication of those who have taken part in its development. It is of the greatest importance that students should acquire, from the very beginning, the right approach to their studies, and that they should achieve a proper balance between their work and their extra-curricular activities.

In addition to this Handbook, pamphlets and brochures issued in conjunction with the enrolment period and Orientation Week are available. These should be consulted, together with the University Calendar, for further information on problems associated with courses.

It is hoped that this Handbook will be of value to present and prospective students in the Faculty and to employers.

M. CHAIKIN,
Dean,
Faculty of Applied Science.

CALENDAR OF DATES FOR 1966

Term 1 ..... March 7 to May 21
Term 2 ..... June 6 to August 13
Term 3 ..... September 5 to November 5

JANUARY—

Monday 24	Deferred examinations begin. Last day for acceptance of applications to enrol by new students and students repeating first year.
Monday 31	Australia Day—Public Holiday.

FEBRUARY—

Saturday 5	Deferred examinations end.
Monday 21	Enrolment week begins for first year students.
Monday 28	Enrolment week begins for students re-enrolling.

MARCH—

Monday 7	First term begins.
Friday 18	Last day for enrolment of first year students.
Thursday 31	Last day for enrolment of later year students.

APRIL—

Friday 8 to Monday 11	Easter.
Friday 15	Conferring of degrees — Wollongong University College.
Monday 25	Anzac Day — Public Holiday.

MAY—

Wednesday 4	Conferring of degrees—Faculty of Applied Science.
Saturday 21	First term ends.

JUNE—

Monday 6	Second term begins.
Monday 13	Queen's Birthday — Public Holiday.
Thursday 30	Last day for acceptance of applications for examinations — 24-week courses. Last day for acceptance of applications for re-admission after exclusion under rules governing re-enrolment.

JULY—

Tuesday 5	Foundation Day.

AUGUST—

Friday 12	Last day for acceptance of applications for examinations — 30-week courses.
Saturday 13	Second term ends.

SEPTEMBER—

Monday 5	Third term begins.
Saturday 24	Annual examinations begin — 24-week courses.

OCTOBER—

Monday 3	Six-Hour Day — Public Holiday.
Saturday 8	Annual examinations end — 24-week courses.
Sunday 9	Survey camp begins.
Saturday 15	Survey camp ends.
Monday 17	Industrial training begins for students attending survey camp.

NOVEMBER—

Saturday 5	Third term ends.
Saturday 12	Annual examinations begin — 30-week courses.

DECEMBER—

Saturday 3	Annual examinations end.

1967

JANUARY—

Monday 23 to Saturday, Feb. 4	Deferred examinations.

FEBRUARY—

Monday 20	Enrolment week begins for first year students.
Monday 27	Enrolment week begins for students re-enrolling.

MARCH—

Monday 6	First term begins.

FACULTY OF APPLIED SCIENCE

DEAN — Professor M. Chaikin

CHAIRMAN — Professor F. W. Ayscough

SCHOOL OF APPLIED GEOLOGY

Professor of Geology and Head of School

J. J. Frankel, MSc *Rhodes,* DSc *Cape T.,* FRSSAfr, FGS, MSAInstMM, MSocSigmaXi, AMIMM

Associate Professor

L. J. Lawrence, DSc, DipCom *Syd.,* PhD *N.S.W.,* DIC, AMAusIMM

Senior Lecturers

A. N. Carter, BSc, PhD *Melb.,* MSc *Adel.*
H. G. Golding, BSc *Lond.,* MSc *N.S.W.,* ARCS, AMAusIMM
L. V. Hawkins, MSc *Syd.,* FGS
L. E. Koch, DrPhilHabil *Cologne,* MSwissMin&PetSoc
F. C. Loughnan, BSc *Syd.,* PhD *N.S.W.,* AMAusIMM
C. T. McElroy, MSc, PhD *Syd.*
N. L. Markham, BSc *Adel.,* AM, PhD *Harv.*

Lecturers

A. D. M. Bell, BSc *Lond.,* FGS, MAusIMM
J. C. Cameron, BSc, MA *Edin.,* DIC, AMAusIMM

Tutor Demonstrators

A. D. Albani, DrGeolSc *Florence,* MSc *N.S.W.*
Maren Krysko von Tryst, BSc *N.S.W.*

Tutor

Brenda J. Macara, BSc *Syd.,* MSc *N.S.W.*

Senior Demonstrators

D. C. Craig, BSc *Syd.,* MSc *N.S.W.*
J. C. Standard, BA *Colorado*

Technical Officer

G. T. See, BSc *N.S.W.,* ASTC

SCHOOL OF CHEMICAL ENGINEERING

Professor of Chemical Engineering and Head of School

R. T. Fowler, BSc *Wales,* PhD *Lond.,* BScEng *Syd.,* ARIC, MIChemE, MInstT, MIEAust, AIM

Professor of Chemical Engineering

J. S. Ratcliffe, MSc, PhD *N.S.W.,* ASTC, AMIEAust, AMIChemE

Administrative Assistant

G. Dusan, BEc.

Department of Chemical Engineering

Associate Professor

G. H. Roper, MSc, PhD *N.S.W.,* ASTC, MIEAust, ARACI, AMIChemE

Senior Lecturers

R. H. Buchanan, BSc *Corn.,* PhD *N.S.W.,* ARACI, AMIChemE

J. R. Norman, BSc, PhD *N.S.W.,* AMIChemE, ARACI, AMIEAust

R. G. Robins, MSc, PhD *N.S.W.,* ARACI, AMIChemE, AMAusIMM

Lecturers

J. E. Buchanan, ME *Syd.*

D. C. Dixon, BE, MEngSc *Syd.*

I. D. Doig, BSc(Eng) *Lond.,* AMIMechE, AMIChemE

F. O. Howard, BE *Syd.,* AMIEAust

C. H. Hunt, MSc *N.S.W.,* ASTC, ARIC, ARACI

Tutor

A. D. Farmer, BSc *N.S.W.*

Teaching Fellows

D. Royston, BSc *Durh.*

G. T. Wilkinson, BChemE *Melb.*

Technical Officer

C. T. Rosen, DipEng *U.T., Rumania*

Department of Fuel Technology

Associate Professor
N. Y. Kirov, MSc *Leeds,* FInstF, MIEAust, AMICE

Senior Lecturer
K. S. Basden, BSc, PhD *N.S.W.,* ASTC, ARACI, AMAusIMM, AMInstF

Lecturer
D. Barrett, MSc *Leeds,* MInstF

Senior Tutor
T. P. Maher, BSc *Syd.,* MSc *N.S.W.,* AMInstF

Technical Officer
C. D. Ezer, BSc *N.S.W.*

Department of Food Technology

Associate Professor of Food Technology
F. H. Reuter, DrPhil *Berl.,* FRIC, FRACI

Senior Lecturers
R. A. Edwards, BSc, PhD *N.S.W.,* ASTC
P. Linklater, BAgSc *Adel.,* MAgrSc *N.Z.,* PhD *Wisconsin*

Technical Officer
W. R. Day, BSc *N.S.W.,* ASTC

SCHOOL OF CHEMICAL TECHNOLOGY

Professor of Chemical Technology and Head of School
F. W. Ayscough, BSc *Syd.,* MSc *N.S.W.,* MIChemE, ARACI

Department of Ceramic Engineering

Associate Professor
E. R. McCartney, BSc *Syd.,* PhD *N.S.W.,* ARACI, AMIEAust

Lecturer
H. Fowler, MSc *N.S.W.,* ASTC, ARACI

Department of Industrial Chemistry

Lecturers
B. G. Madden, BSc, PhD *N.S.W.,* ASTC
B. J. Welch, MSc, PhD *N.Z.,* AMZIC

Department of Polymer Science

Senior Lecturers

F. L. Connors, MSc, PhD *N.S.W.*, ASTC, AMIEAust, APIA
G. W. Hastings, BSc, PhD *Birm.*, ARIC, MRSH

Lecturer

J. K. Haken, MSc *N.S.W.*, ASTC

Senior Instructor (School of Chemical Technology)

I. J. McMeekin

Administrative Officer (School of Chemical Technology)

J. R. Gatenby, ASTC

Technical Officers (School of Chemical Technology)

R. E. Brand, ASTC
W. W. Ching, BSc *N.S.W.*
O. Dworjanyn, MSc *N.S.W.*, ASTC
O. Korob, ARMIT
D. P. S. Kwok, DipME *H.K.Tech.Coll.*, BE *N.S.W.*
S. A. Prokopovich, BSc *N.S.W.*, ASTC
C. L. Samways, BSc *Syd.*

SCHOOL OF METALLURGY

Professor of Physical Metallurgy and Head of School

H. Muir, BMetE *Melb.*, ScD *M.I.T.*, AIM, AMAusIMM

Professor of Metallurgy

R. H. Myers, MSc, PhD *Melb.*, FIM, FRACI, MAusIMM

Research Professor of Physical Metallurgy

J. S. Bowles, MSc *Melb.*, FIM

Professor of Chemical and Extraction Metallurgy

A. E. Jenkins, BMetE, MEngSc, PhD *Melb.*, FIM, ARACI, AMAusIMM

Senior Adiministrative Officer

A. F. Sievers, ASTC

Department of Chemical and Process Metallurgy

Senior Lecturer

N. A. Warner, BSc, PhD *N.S.W.*, ARACI, AMAusIMM, AIME

Lecturers

B. Harris, BSc *Syd.*, MSc *N.S.W.*

Department of Materials

Senior Lecturers

A. J. Anderson, MSc *N.S.W.*, ASTC, FIM
L. H. Keys, MSc *N.S.W.*, ASTC, AIM
W. W. Krysko, DrIng *Berl.*, AIME

Department of Physical and Industrial Metallurgy

Associate Professor

M. Hatherly, MSc, PhD *N.S.W.*, ASTC, FIM

Senior Lecturer

G. R. Wallwork, BSc, PhD *N.S.W.*, ASTC, FIM, AMAusIMM

Lecturers

B. W. Armstrong, ASTC, ARACI
D. J. H. Corderoy, BSc *N.S.W.*, PhD *Sheff.*
P. G. McDougall, BSc *N.S.W.*, ASTC, AIM
M. B. McGirr, BSc *Syd.*

Project Scientist (School of Metallurgy)

A. S. Malin, MSc *N.S.W.*

Post-Doctoral Research Fellow

R. J. Hussey, BSc, PhD *Exe.*

Teaching Fellow (School of Metallurgy)

A. Abel, DiplEng *Bud.*, MSc *McM.*, AIM

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P. J. Brockhurst, BTech *Adel.*, MSc *N.S.W.*
Mrs. Edda Filson, ASTC
R. W. Gilmour, BSc *N.S.W.*, ASTC
U. Joasoo, BSc *N.S.W.*
J. M. Newburn, MSc *N.S.W.*, ASTC
J. A. Taylor, ASTC

SCHOOL OF MINING ENGINEERING

Professor of Mining Engineering and Head of School

J. P. Morgan, BE *Adel*, FSASM, ASTC, MAusIMM, MIEAust, CertMineManager

Department of Mining Engineering

Lecturer

D. Rowlands, BSc, DipMetMin *Wales,* AMIMinE, AMAusIMM, CertColl'yManager

Senior Project Scientist

H. E. J. Symes DSc(Eng) *Rand.*, AMIEE, M(SA)IEE, AMICM&EE(SA)

Technical Officer

G. E. Adkins, DipAppSc *N.S.W., ASTC,* AMAusIMM, AMIEAust

Department of Mineral Processing

Senior Lecturer

R. G. Burdon, ME, PhD *N.S.W.*, ASASM, AMAusIMM, AMIMM(Lond), MAIME

Lecturer

J. M. W. Mackenzie, ME *N.Z.*, AMAusIMM

Senior Demonstrator

G. W. Parsons, BE *N.S.W.*, ASTC

SCHOOL OF TEXTILE TECHNOLOGY

Professor of Textile Technology and Head of School

M. Chaikin, BSc, PhD *Leeds,* DipEng *L.I.T., Shanghai,* FTI

Associate Professors

A. Datyner, BSc, PhD *Lond.*, FTI, FRIC, FSDC

C. H. Nicholls, BSc *Adel.*, PhD *Leeds,* ARACI, FTI

Senior Lecturer

A. Johnson, MSc *Leeds,* FTI, CGIA, FRSA

Lecturers

A. D. Dircks, BE *Syd.*, MSc *N.S.W.*, DipTextInd *Leeds*

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T. S. Hickie, BSc *N.S.W.*, ASTC

A. Samson, DipEng *L.I.T., Shanghai,* BE *N.S.W.*, ASTC, AMIEAust

Post-Doctoral Research Fellows

J. D. Collins, BSc, PhD *N.S.W.*

G. P. Norton, BSc *Syd.*, MSc, PhD *N.S.W.*

Teaching Fellow

R. L. Orwell, BSc *N.S.W.*

Project Scientist

M. S. Nossar, DipEng *Harbin*

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J. Gerstel, DipTextInd *Leeds*
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SCHOOL OF WOOL TECHNOLOGY

Professor of Wool Technology and Head of School

P. R. McMahon, MAgrSc *N.Z.,* PhD *Leeds,* ARIC, ARACI, MAIAS

Associate Professor of Wool Technology

I. L. Johnstone, BVSc *Syd.,* MAIAS

Administrative Assistant

J. Brain, BA *Syd.*

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R. W. McManus, BScAgr *Syd.,* PhD *N.S.W.,* MAIAS
E. M. Roberts, MAgrSc *N.Z.,* PhD *N.S.W.,* MAIAS
K. J. Whiteley, BSc *N.S.W.,* PhD *Leeds,* MAIAS

Lecturers

C. L. Goldstone, BAgrSc *N.Z., RCA (N.Z.),* MAIAS
J. W. James, BA *Qld.*
J. P. Kennedy, MSc *N.S.W.,* BSc *Oxon,* MAIAS
J. D. McFarlane, BScAgr, DipEd *Syd.,* MSc *N.S.W.,* MAIAS

Demonstrator

Merrianne J. Vickery, BScAgr *Syd.,* MSc *Iowa*

Senior Instructor

J. R. Paynter

Technical Officers

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D. Charlton, BSc *N.S.W.*
D. J. Heaton-Harris, BSc(Agric) *R'dg.*

WOLLONGONG UNIVERSITY COLLEGE

DEPARTMENT OF METALLURGY

Senior Lecturer

G. Brinson, MSc *Melb.*, PhD *Sheff.*, FIM, AMAusIMM

Lecturers

T. W. Barnes, ASTC, AIM, AMAusIMM

A. C. Cook, MA *Cantab.*, AMAusIMM, FGS—*Geology*

N. F. Kennon, MSc *N.S.W.*, FRMTC, AIM

S. J. Merrick, BSc *Alberta*, MApplSc *Br.Col.*—*Geology*

N. Salasoo, BSc *N.S.W.*, ASTC

BROKEN HILL DIVISION

SCHOOL OF GEOLOGY

Lecturers

W. E. Baker, BSc *Tas.*, MSc *N.S.W.*, ARACI

S. E. Shaw, BSc *W. Aust.*, PhD *N.E.*, FGAA

SCHOOL OF MINING ENGINEERING

Senior Lecturer

D. R. Cooley, BE *N.S.W.*, AMAusIMM, AMIEAust

SCHOOL OF PHYSICS

Lecturer

J. N. Stephens, MA *Cantab.*, AMInstF

GENERAL INFORMATION

ADMISSIONS OFFICE

The Admissions Office provides intending students (both local and overseas) with information regarding courses, admission requirements, and enrolment.

Applications for special admission or admission with advanced standing to courses should be made at the Admissions Office. Local residents should apply prior to 31st December of the year preceding that in which admission is sought. Where applicable, documentary evidence should be tendered with the application and copies should accompany original documents, as this will allow the immediate return of the latter. Students applying from overseas for admission to undergraduate courses and to those postgraduate courses which require completion of formal lecture courses should lodge their applications prior to 1st October of the year preceding that in which admission is sought.

Applications for admission to undergraduate courses from students who do not satisfy the requirements for admission (see section on "requirements for admission") from students seeking admission with advanced standing, and from students who have had a record of failure at another university, are referred by the Admissions Office to the Admissions Committee of the Professorial Board.

Students seeking to register as higher degree candidates should discuss their proposals initially with the Head of the School in which they wish to register. An application is then lodged on a standard form and the Admissions Office, after obtaining a recommendation from the Head of the School, refers the application to the appropriate Faculty or Board of Studies Higher Degree Committee.

The Admissions Office also receives applications from students who wish to transfer from one course to another, or seek any concession in relation to a course in which they are enrolled. These applications should, wherever possible, be lodged before

the commencement of the academic year in which the concession is to apply.

Students wishing to resume their studies after an absence of twelve months or more are required to apply to the Admissions Office for permission to re-enrol. It should be noted that, unless permission has been given to defer their studies for a specified period which will not normally exceed twelve months, students will be required to re-enter the course under the regulations prevailing at the time of resumption. This condition will apply also to students who have been re-admitted to a course after exclusion under the rules restricting students re-enrolling.

The Admissions Office operates an Enrolment Bureau for undergraduate students enrolling in the University for the first time. Details of the procedure to be followed by such students will be published in the preamble to the New South Wales Leaving Certificate results or may be obtained on application to the Admissions Office.

The Admissions Office is located in the Main Building at Kensington, telephone 663.0351. Office hours are from 9 a.m. to 1 p.m., and 1.45 p.m. to 5 p.m., Monday to Friday, although an evening service is provided during the enrolment period.

As from March, 1966, the office will be located on the upper campus in the Chancellery.

REQUIREMENTS FOR ADMISSION

Introductory Information

Candidates may qualify for entry to undergraduate courses by complying with the matriculation requirements set out hereunder at the New South Wales Leaving Certificate Examination, or the University of Sydney Matriculation Examination.

The New South Wales Leaving Certificate Examination is usually held in November and entries must be lodged with the Department of Education during August.

The Matriculation Examination is held in February, and applications must be lodged at the University of Sydney during the first ten days of January except by candidates who have taken the Leaving Certificate Examination in the previous November. The closing date for such candidates will be announced when the Leaving Certificate results are published.

Matriculation Requirements (To operate from 1st January, 1961)*

1. (i) A candidate for any first degree of the University must satisfy the conditions for admission set out hereunder before entering upon the prescribed course for a degree. Compliance with these conditions does not in itself entitle a student to enter upon a course.

(ii) A candidate who has satisfactorily met the conditions for admission and has been accepted by the University shall be classed as a "matriculated student" of the University after enrolment.

(iii) A person who has satisfactorily met the conditions for admission may be provided with a statement to that effect on the payment of the prescribed matriculation fee.

2. (i) For the purpose of matriculation approved subjects† are grouped as follows:

A. English.

B. Latin, Greek, French, German, Italian, Hebrew, Chinese, Japanese, Russian, Dutch, Geography, Ancient History, Modern History, Economics.

C. Mathematics I, Mathematics II, Mathematics III.

D. Agriculture, Applied Mathematics, General Mathematics, Biology, Botany, Chemistry, Physics, Geology, Physics and Chemistry, Physiology, Zoology.

E. Accountancy, Art, Descriptive Geometry and Drawing, Music, Theory and Practice of Music.

(ii) In order to satisfy the conditions for admission to undergraduate courses leading to a degree, candidates must pass the New South Wales Leaving Certificate Examination conducted by the Department of Education, or the University of Sydney Matriculation Examination, in at least five approved subjects at the one examination; provided that:

* With the introduction of the Higher School Certificate Examination in November, 1967, the matriculation requirements will be amended. Details of the amended requirements for admission in 1968 and subsequent years may be secured on application to the Registrar.

† It should be noted that certain subjects taken for the Leaving Certificate are not approved subjects for admission to the University of New South Wales.

I. either (a) the five subjects include English and at least one subject from each of Groups B and C, but do not include more than one subject from Group E, except that candidates may qualify for admission to the Faculty of Arts only, by passing in one subject from Group D in lieu of the subject from Group C.

or (b) the five subjects include English, and at least one subject from either Group B or Group C, but do not include more than one subject from Group E, and provided further that the five passes include either one first class Honours and two A's or two Honours of which one is first class.

and further provided that:

II. (a) neither Physics nor Chemistry is offered with the combined subjects Physics and Chemistry;

(b) neither Botany nor Zoology is offered with Biology;

(c) neither Botany nor Zoology nor Biology is offered with Physiology;

(d) neither Mathematics I, Mathematics II nor Mathematics III is offered with General Mathematics;

(e) neither Mathematics I nor Mathematics II is offered with Mathematics III;

(f) Mathematics I or Mathematics II may be counted as an approved subject only if the candidate presented himself for examination in both Mathematics I and Mathematics II;

(g) Theory and Practice of Music is accepted only in cases where the pass was obtained at an examination in 1946 or subsequent years;

(h) Ancient History is accepted only in cases where the pass was obtained at an examination held in 1945 or subsequent years; and further both Modern History and Ancient History may be offered as qualifying subjects at the examinations held at the end of 1951 and subsequent years;

(i) Agriculture is accepted only in cases where the pass was obtained at an examination held in 1945 or subsequent years;

(j) Economics is accepted only in cases where the pass was obtained at an examination held in 1947 or subsequent years;

(k) Descriptive Geometry and Drawing is accepted only in cases where the pass was obtained at an examination held in 1954 or subsequent years.

(iii) Candidates who have satisfactorily met the matriculation requirements of the University of Sydney, but who have not obtained the requisite pass in Mathematics where prescribed for entrance to the University of New South Wales, will be permitted to complete their qualifications to enter the University of New South Wales by passing only in a Mathematics subject from Group C, at a subsequent Leaving Certificate Examination or University of Sydney Matriculation Examination.

ENROLMENT PROCEDURE FOR UNDERGRADUATE COURSES

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

First Enrolments. Application for enrolment in first year must wherever possible be made in person to the Student Enrolment Bureau, Kensington, as soon as the results of the Leaving Certificate Examination are published, but in any event not later than 24th January.

Country residents who wish to enrol with the University should write to the Registrar, P.O. Box 1, Kensington, for a form on which to make their preliminary application. This form must be returned not later than 24th January.

New students complete their enrolment at a specified appointment time in the second week before the start of First Term. Fees must be paid on the day of the appointment. However, in special circumstances and provided class places are still available students may be accepted for enrolment after the prescribed week subject to the payment of a late fee.

Applicants for enrolment with advanced standing or applicants relying on overseas examinations for matriculation should lodge an application with the Admissions Officer prior to 1st October of the year preceding that in which admission is sought.

First Year Repeats. First Year students who fail all subjects at the annual examinations and who are not granted any deferred examinations must apply for re-enrolment to the Student Enrolment Bureau at the time set out above for First Enrolments. Other first year repeat students follow the procedure set out below for Later Year Enrolments.

Later Year Enrolments. All students enrolling other than for the first time should enrol through the appropriate School and bring with them their notification of examination results for the previous year. This enrolment must be effected before or during the week before the commencement of First Term in accordance with the special arrangements made by the individual schools. However, Medical students in the third and later years of their course, enrol earlier since their academic year commences in advance of the normal commencement date.

Miscellaneous Subject Enrolments. Students may be permitted to enrol for miscellaneous subjects (i.e., as students not proceeding to a degree or diploma) provided the Head of the School offering the subject considers it will be of benefit to the student and there is accommodation available. Under no circumstances will subjects taken in this way count towards a degree or diploma.

Students who have completed the final examinations but have a thesis still outstanding are required to enrol for the period necessary to complete the thesis and to pay the requisite fees.

Course details must be completed during the prescribed Enrolment Week. For details of fee requirements, including late fee provisions, see under Fees.

Final Dates for Enrolment. No enrolments will be accepted from *new students* after the end of the second week of term (18th March, 1966) except with the express approval of the Registrar and the Head of the School concerned; no *later year enrolments* will be accepted after 31st March without the express approval of the Registrar which will be given in exceptional circumstances only.

University Union Card

All students other than miscellaneous students are issued with a University Union membership card. This card must be carried during attendance at the University and shown on request.

The number appearing on the front of the card in the space at the top right-hand corner 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 borrowing from the University libraries, when applying for travel concessions and when notifying a change of address. It must also be presented when paying fees on re-enrolment each year when it will be made valid for the year and returned. Failure to present the card could result in some inconvenience in completing re-enrolment.

A student who loses a Union card must notify the University Union as soon as possible.

New students will be issued with University Union cards by mail to their term address as soon as possible after fee payment. In the meantime, the fees receipt form should be carried during attendance at the University and shown on request. If the Union card is not received within three weeks of fee payment the University Union should be notified.

UNDERGRADUATE COURSE FEES*

Where course fees are assessed on the basis of term hours of attendance the hours of each subject for purposes of fee assessment shall be those prescribed in the Calendar, irrespective of any variation from the prescribed hours which may be necessary in conducting the subject.

Fee determination for courses in the Faculty of Applied Science is on a term basis.

A full-time course fee will be charged for any term where more than 15 hours' per week instruction, etc., is involved.

(i) Full-time Course Fee (more than 15 hours' attendance per week)—$96 (£48) per term. In courses in which the Third Term is limited to three weeks of formal studies the fee for this term is $48 (£24).

(ii) Part-time Course Fee—over 6 hours' and up to 15 hours' attendance per week—$48 (£24) per term.

(iii) Part-time Course Fee—6 hours' or less attendance per week—$24 (£12) per term.

* Fees quoted in this schedule are current at the time of publication and may be amended by the Council without notice.

(iv) Course Continuation Fee—A fee of $20 (£10) per annum (no term payment) is payable by:

(a) students who have once been enrolled for a thesis and have only that requirement outstanding, *or*

(b) students given special permission to take annual examinations without attendance at the University. (Students in this category are not required to pay the subscriptions to the University Union, the Students' Union, the Sports Association and the Library Fee.)

Miscellaneous Subjects

Undergraduate subjects taken as "miscellaneous subjects" (i.e., not for a degree or diploma) or to qualify for registration as a candidate for a higher degree are assessed on an hourly basis in accordance with the schedule above.

Students given approval to enrol in a miscellaneous subject or subjects in addition to being enrolled in a course are assessed according to the total hours of attendance as if the additional subject formed part of the course.

OTHER FEES

In addition to the course fees set out above all registered undergraduates will be required to pay—

Matriculation Fee—$6 (£3)—payable at the beginning of first year.

Library Fee—annual fee—$10 (£5).

Student Activities Fees

University Union*—$12 (£6)—annual subscription.
Sports Association*—$2 (£1)—annual subscription.
Students' Union*—$4 (£2)—annual subscription.
Miscellaneous—$6 (£3)—annual fee.
Total—$24 (£12).

Graduation or Diploma Fee—$6 (£3)—payable at the completion of the course.

Depending on the course being taken, students may also be required to pay—

* Life members of these bodies are exempt from the appropriate fee or fees.

Biochemistry Kit Hiring Charge—$4 (£2) per kit. Additional charge for breakages and losses in excess of $1 (10/-) may be required.

Chemistry Kit Hiring Charge—$4 (£2) per kit. Additional charge for breakages and losses in excess of $1 (10/-) may be required.

Excursion Fee—$2 (£1) per subject (biology, botany, zoology, entomology).†

Anatomy Dissection Manual and Histology Slides deposit—$10 (£5). (Refundable on return in satisfactory condition.)

Pathology Instrument Kit—$10 (£5). (Refundable on return in satisfactory condition.)

Special Examination Fees

Deferred examination—$4 (£2) for each subject.

Examinations conducted under special circumstances—$6 (£3) for each subject.

Review of examination result—$6 (£3) for each subject.

LATE FEES

First Enrolments

Fees paid on the late enrolment session and before the commencement of term	$5 (£2/10/–)
Fees paid during the first and second weeks of term	$10 (£5)
Fees paid after the commencement of the third week of term with the express approval of the Registrar and Head of the School concerned	$20 (£10)

Re-Enrolments

First Term

Failure to attend enrolment centre during enrolment week	$5 (£2/10/–)
Fees paid after the commencement of the third week of term to 31st March	$10 (£5)
Fees paid after 31st March where accepted with the express approval of the Registrar	$20 (£10)

† Students in the original Applied Biology degree course pay an excursion fee of $1 (10/-) per subject for botany, zoology and entomology.

Second and Third Terms

Fees paid in third and fourth weeks of term	$10 (£5)
Fees paid thereafter	$20 (£10)
Late lodgement of Application for Admission to Examinations (late applications will be accepted for three weeks only after the prescribed dates)	$4 (£2)

WITHDRAWAL FROM COURSE

Students withdrawing from a course are required to notify the Registrar in writing. Fees for the course accrue until a written notification is received.

PAYMENT OF FEES

Completion of Enrolment

All students are required to attend the appropriate enrolment centre during the prescribed enrolment period* for authorisation of course programme. Failure to do so will incur a late fee of $5 (£2/10/-).

First year students (including students repeating first year) must complete enrolment (including fee payment) before they are issued with class timetables or permitted to attend classes. A first year student who has been offered a place in a course to which entry is restricted and fails to complete enrolment (including fee payment) at the appointed time may lose the place allocated.

Fees should be paid during the prescribed enrolment period but will be accepted without incurring a late fee during the first two weeks of First Term. (For late fees see below.) No student is regarded as having completed an enrolment until fees have been paid. Fees will not be accepted (i.e., enrolment cannot be completed) from new students after the end of the second week of term (i.e., 18th March, 1966), and after 31st March from students who are re-enrolling, except with the express approval of the Registrar, which will be given in exceptional circumstances only.

* The enrolment periods for Sydney students are prescribed annually in the leaflets "Enrolment Procedure for New Students" and "Enrolment Procedure for Students Re-enrolling".

Payment of Fees by Term

Students who are unable to pay their fees by the year may pay by the term, in which case they are required to pay First Term course fees and other fees for the year, within the first two weeks of First Term. Students paying under this arrangement will receive accounts from the University for Second and Third Term fees. These fees must be paid within the first two weeks of each term.

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 fees. A refund of fees will be made when the enrolment voucher or letter of authority is subsequently lodged with the Cashier.

Extension of Time

Any student who is unable to pay fees by the due date may apply in writing to the Registrar for an extension of time. Such application must give year or stage, whether full-time or part-time, and the course in which the applicant wishes to enrol, 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 the payment of fees is until 31st March for fees due in First Term and for one month from the date on which a late fee becomes payable in Second and Third Terms.

Where an extension of time is granted to a first year student in First Term, such student is not permitted to attend classes until fees are paid, and if seeking to enrol in a restricted faculty may risk losing the place allocated.

Failure to Pay Fees

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 term, 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 course fees for the year is outstanding after the end of the fourth week of Third Term (30th September, 1966).

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

Cashier's Hours

The Cashier's office is open for the payment of fees from 9.30 a.m. to 1.00 p.m. and from 2.00 p.m. to 4.30 p.m. Monday to Friday. It is open for additional periods during the first three weeks of each term.

RULES RELATING TO STUDENTS

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.

In addition, students are expected to conduct themselves at all times in a seemly fashion. Smoking is not permitted during lectures, in examination rooms or in the University Library. Gambling is also forbidden.

Attendance at Classes

Students are expected to be regular and punctual in attendance at all classes in the course or subject in which they are enrolled. All applications for exemption from attendance at lectures or practical classes must be made in writing to the Registrar.

Where a student has failed a subject at the annual examinations in any year and re-enrols in the same course in the following year, he must include in his programme of studies for that year the subject in which he has failed. This requirement will not be applicable if the subject is not offered the following year; is not a compulsory component of a particular course; or if there is some other cause, which is acceptable to the Professorial Board, for not immediately repeating the failed subject.

Course Transfers

Students wishing to transfer from one course to another (including transfer from full-time to part-time study or vice versa) must make application to the Admissions Office as soon as possible and preferably before Enrolment Week. The Admissions Office will give each applicant an acknowledgement of his application to transfer.

Having made application to the Admissions Office students transferring are required to attend the School Enrolment Centre at the time set down for the year/stage of the new course in which they expect to enrol. They must present the letter granting approval of the transfer to the enrolling officer.

Students who have not received a letter granting approval to the transfer before the date on which they are required to enrol must present their acknowledgement to the enrolling officer who will decide whether to permit them to attend classes provisionally in the new course. Students who are permitted to attend classes provisionally should not pay fees until they have received their letter granting formal approval to transfer.

Changes in Course Programmes and Withdrawal from Subjects

Students seeking approval of a change in their course programme or seeking to withdraw from subjects must make application to the Head of the School responsible for the course on a form available from School offices. The Registrar will inform students of the decision. Approval of withdrawal from subjects is not automatic, each application being determined after considering the circumstances advanced as justifying withdrawal. It should be noted that a student is regarded as having failed in a subject if he enrolled in it in any year and did not pass the annual examination—not sitting for the examination is regarded as not passing the examination.

(Unless there are special circumstances, withdrawal from a subject after Term I will not be approved; students withdrawing after this date will therefore be held to have failed to satisfy the examiners.)

Resumption of Courses

Students wishing to resume their studies after an absence of 12 months or more are required to apply to the Admissions Office for permission to re-enrol. Students re-enrolling in this way will normally be required to satisfy conditions pertaining to the course at the time of re-enrolment. This condition applies also to students who have been re-admitted to a course after exclusion under the rules restricting students re-enrolling.

Annual Examinations

The annual examinations take place in November-December for students in 30-week courses, and in September for students in 24-week courses. Timetables showing time and place at which

individual examinations will be held are posted on the central notice boards. Misreading of the timetable will not under any circumstances be accepted as an excuse for failure to attend an examination. Examination results are posted to the term addresses of students. No results will be given by telephone.

All students (including students enrolled for a thesis only) must lodge an application for admission to examinations by the prescribed dates which are:

(a) Annual examinations for 24-week courses—30th June.

(b) Annual examinations for three-term courses—last Friday of Second Term (12th August, 1966).

(c) Annual examinations for Third, Fourth and Fifth Year Medicine—31st May, 1966.

(d) Annual examinations for other courses—14 weeks prior to date of first examination.

The Accountant is authorized to receive application forms during the three weeks immediately following the prescribed closing dates if they are accompanied by a late fee of $4 (£2). Applications forwarded more than three weeks after the closing date will not be accepted except in very exceptional circumstances and with the approval of the Registrar. Where an application is not accepted the student concerned is not eligible to sit for the examination.

Applications lodged prior to the due date will be acknowledged by postcard. Students who do not receive an acknowledgement within 10 days of lodging the application should contact the Examinations Branch or the office of the college attended.

As a result of the application of machine methods to the processing of examination results, all students in Sydney, Wollongong and Broken Hill receive a pro-forma application for admission to examinations listing the subjects for which the student has formally enrolled. The return of this pro-forma duly completed constitutes the application for admission to examinations. Pro-forma applications will be posted to students in 24-week courses by the end of May and to students in 30-week courses by the end of June. Any student who does not receive a pro-forma application must contact the Examinations Branch prior to the date prescribed for the return of applications.

Deferred Examinations

Deferred examinations may be granted in the following cases:

(i) When a student through illness or some other acceptable circumstance has been prevented from taking the annual examination or has been placed at a serious disadvantage during the annual examinations.

(ii) To help resolve a doubt as to whether a student has reached the required standard in a subject.

Applications for deferred examinations in the first category must be lodged with the Registrar with appropriate evidence of the circumstances (e.g., medical certificate) not later than seven days after the examination concerned.

A student eligible to sit for a deferred examination must lodge with the Accountant an application accompanied by the fee of $4 (£2) per subject, by the date indicated on the notification of results.

Application For Admission to Degree or Diploma

Applications for admission to a degree or diploma of the University must be made on the appropriate form by 31st January. Applications for the award of a diploma of Associateship of Sydney Technical College (A.S.T.C.) awarded by the N.S.W. Department of Technical Education must be made on the appropriate form by 31st March. Applicants should ensure that they have completed all requirements for the degree or diploma, including industrial training where necessary.

Restriction Upon Students Re-enrolling

The University Council has adopted the following rules governing re-enrolment with the object of requiring students with a record of failure to show cause why they should be allowed to re-enrol and retain valuable class places. These rules will be applied retrospectively from January, 1962.

(i) As from 1st January, 1962, a student shall show cause why he should be allowed to repeat a subject in which he has failed more than once. (Failure in a deferred examination as well as in the annual examination counts, for the purpose of this regulation, as one failure.) Where such subject is prescribed as a part of the student's course he shall be required to show cause why he should be allowed to continue the course. A student in the medical course shall

show cause why he should be allowed to repeat the second year of the course if he has failed more than once to qualify for entry to the third year.

(ii) Notwithstanding the provisions of clause (i), a student shall be required to show cause why he should be allowed to continue a course which he will not be able to complete in the time set down in the following schedule:

Number of years in course	Total time allowed from first enrolment to completion (years)
3	5
4	6
5	8
6	9
7	11
8	12

*(iii) No full-time student shall, without showing cause, be permitted to continue a course unless all subjects of the first year of his course are completed by the end of his second year of attendance. No student in the Faculty of Arts shall, without showing cause, be permitted to continue a course unless he completes four subjects, one of which must be from Group VII, by the end of his second year of attendance.

No part-time student shall, without showing cause, be permitted to continue a course unless all subjects of the first two stages of his course are completed by the end of his fourth year of attendance and all subjects of the third and fourth stages of his course by the end of his seventh year of attendance.

(iv) A student who has a record of failure in a course at another University shall be required to show cause why he should be admitted to this University. A student admitted to a course at this University following a record of failure at another University shall be required to show cause, notwithstanding any other provisions in these rules, why he should be

* Rule (iii) in so far as it relates to students in the Faculty of Arts will apply retrospectively as from the 1st January, 1967.

permitted to continue in that course if he is unsuccessful in the annual examinations in his first year of attendance at this University.

(v) Any student excluded under any of the clauses (i)-(iii) may apply for re-admission after two academic years and such application shall be considered in the light of any evidence submitted by him.

(vi) A student wishing "to show cause" under these provisions shall do so in writing to the Registrar. Any such application shall be considered by the Professorial Board, which shall determine whether the cause shown is adequate to justify his being permitted to continue his course or re-enrol as the case may be.

(vii) The Vice-Chancellor may on the recommendation of the Professorial Board exclude from attendance in a course or courses any student who has been excluded from attendance in any other course under the rules governing re-enrolment and whose record at the University demonstrates, in the opinion of the Board and the Vice-Chancellor, the student's lack of fitness to pursue the course nominated.

(viii) A student who has failed, under the provisions of Clause (vi) of these rules, to show cause acceptable to the Professorial Board why he should be permitted to continue in his course, and who has subsequently been permitted to re-enrol in that course or to transfer to another course, shall also be required to show cause, notwithstanding any other provisions in these rules, why he should be permitted to continue in that course if he is unsuccessful in the annual examinations immediately following the first year of resumption or transfer of enrolment as the case may be.

(ix) A student may appeal to an Appeals Committee constituted by Council for this purpose, against his exclusion by the Professorial Board from any subject or course.

Re-admission After Exclusion

Applications for re-admission must be made on the standard form and lodged with the Registrar not later than 30th June of

the year prior to that for which re-admission is sought. An application should include evidence of appropriate study in the subjects (or equivalents) on account of which the applicant was excluded. In addition, evidence that the circumstances which were deemed to operate against satisfactory performance at the time of exclusion are no longer operative or are reduced in intensity, should be furnished. An applicant may be required to take the annual examinations in the relevant subjects as qualifying examinations in which case re-admission does not imply exemption from the subject.

It should be noted that a person under exclusion may not be enrolled in miscellaneous subjects unless he has received the approval of the Professorial Board.

Persons who intend applying for re-admission to the University at a future date may seek advice as to ways in which they may enhance their prospects of qualifying for re-admission. Enquiries should be made on a form obtainable from the Examinations Branch, and lodged with the Registrar.

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.

Change of Address

Students are requested to notify the Registrar in writing of any change in their address as soon as possible. Failure to do this could lead to important correspondence 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 Registrar of a change of address.

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.

Lost Property

All enquiries concerning lost property should be made to the Chief Steward on Extension 2502 or to the Lost Property Office at the Union.

Parking Within the University Grounds

Because of the limited amount of parking space available, only full-time final year undergraduates, Stage 5 part-time and post-graduate students may apply for parking permits. Applications should be made to the Property Section (Bursar's Division). It should be noted that increasing demand for parking space may require the imposition of further restrictions.

Application of Rules

General

Any student who requires information on the application of these rules or any service which the University offers, may make enquiries from the Admissions Office, the Student Counselling Centre or the Registrar.

Appeals

Section 5(c) of Chapter III of the By-laws provides that "Any person affected by a decision of any member of the Professorial Board (other than the Vice-Chancellor) in respect of breach of discipline or misconduct may appeal to the Vice-Chancellor, and in the case of disciplinary action by the Vice-Chancellor, whether on appeal or otherwise, to the Council".

STUDENT SERVICES

The Library

The University Library is on the upper campus and adjacent to the Chancellery and the Arts and Commerce buildings. The Bio-Medical Library is in the Biological Sciences building with a branch at Prince Henry Hospital ('phone: 661-0111). There are also branches at Broken Hill and Wollongong.

The University Union

The University Union is a common meeting ground for all students. Eating and general recreational facilities are available, as well as a shop for stationery and other student requisites, branches of several banks, a pharmacy, a branch of Anthony Horderns, and hairdressing facilities. Membership is compulsory for all registered students.

Student Accommodation

Residential Colleges

Accommodation for students is provided within the complex of the Residential Colleges of the University which comprise

Basser College, Phillip Goldstein Hall, Post-Graduate Hall, and a new college which is at present under construction and which will accept students for the first time in 1966. The College complex houses 500 men and women students, as well as staff members. Tutors in residence provide tutorial assistance in a wide range of subjects.

Board and residence fees, which are payable on a term basis, amount to $18.50 (£9/5/-) per week. Intending students should apply in writing to the Master, Box 24, Post Office, Kensington, N.S.W., from whom further information is available.

Other Accommodation

Students requiring other than Residential College accommodation may make application to the Student Amenities Service where current lists are kept of accommodation available at recognised boarding houses, private homes, and in serviced and unserviced apartments.

Student Amenities Service

The Amenities Service, working in close liaison with the Sports Association and the University authorities, assists various recognised clubs by arranging and providing facilities essential to their general development, and by handling on their behalf all inquiries and applications for membership.

Concession Fares

Application forms for travelling concessions may be obtained at the Inquiry Office, Main Building, Kensington, or at the Amenities Service Offices, Kensington.

Omnibus: Concessions are available to:

(a) Students under 18 years of age irrespective of whether they are employed or receive income or remuneration;

(b) students between 18 and 30 years of age who are not in employment or in receipt of any income or remuneration.

NOTE. Income or remuneration includes allowances paid to Colombo Plan students, Public Service trainees, etc., but does not include allowances paid to holders of Commonwealth Scholarships or Scholarships granted by the State Bursary Endowment Board.

Train:

(a) Periodical tickets are available during term time to full-time students not in employment or in receipt of any remuneration.

(b) Vacation travel concessions are available to students qualifying under (a) above.

Ferry: Concession fares are available for travel on ferries controlled by the Port Jackson & Manly Steamship Co. Ltd. and Sydney Harbour Ferries Pty. Ltd. All applicants must be registered full-time students under the age of 21 years.

Aircraft: Concession fares for travel overseas, inter-state and intra-state are available under the conditions ruling for the various operating companies.

Location:

The Student Amenities Service at Kensington is located opposite the Basser College end of the new Electrical Engineering Building. (Tel. 663-0351, Ext. 2235.)

Student Employment Service

Assistance is offered in finding vacation employment, continuous part-time employment, casual employment and odd jobs, full-time employment for evening students, and permanent employment after graduation. The Service is located in the Main Building, Kensington, just near the main entrance.

Chaplaincy Service

This Service is provided for the benefit of students and staff by six Christian Churches (Anglican, Roman Catholic, Methodist, Presbyterian, Baptist, Churches of Christ) and by the Jewish congregation. Chaplains are in attendance at the University at regular times.

Student Health Service

Director: M. A. Napthali, MB, BS (*Syd.*)

A student health and first aid centre is situated within the University, staffed by a qualified medical practitioner, a nursing sister and secretary.

The centre is located in hut "E" on the northern side of the campus, adjacent to Basser College, and is open between 9 a.m. and 5 p.m. Monday to Friday, and 6 p.m. to 8 p.m. Tuesdays and Thursdays during term.

The medical service is diagnostic and therapeutic but is not intended to replace the students' private doctor or the community health services. Thus, where chronic or continuing conditions are revealed or suspected, the student will be advised and referred to his own doctor or to an appropriate hospital for specialist service and treatment. The health service is not responsible for fees incurred in these instances.

Students are encouraged to attend the centre for advice on all matters pertaining to health.

Appointments may be arranged by calling at the centre or by telephoning 663-0351, extension 2679.

Student Counselling and Research Unit

Prospective students seeking advice or guidance regarding the selection and planning of courses (particularly in relation to a career), or advice regarding their suitability for a particular course, are invited to consult the University's Student Counselling and Research Unit. Appointments may be made by telephone (663-0351, extensions 2600 to 2605).

In addition to its counselling service, the Unit provides a variety of study skills programmes throughout the year, on a group or individual basis. Programmes offered in the past have included Reading Improvement, Study Methods, Written Expression, Note Taking, Studying Mathematics, Improving Listening, Preparing for Statistics.

Student Loan Fund

The Students' Union and the University have co-operated to provide assistance to students who are in financial difficulties which are considered likely to prejudice their progress with their studies.

Two forms of assistance are available. In the first, the University considers, in certain circumstances, deferment of the payment of fees; this scheme is not intended to replace the

established procedure for granting deferment for short periods but rather to supplement it by making deferment over longer periods possible. Secondly, students in need may receive a cash loan not exceeding $200 (£100) from the Student Loan Fund established from contributions made by the Students' Union and the University.

In both cases assistance is limited to students with reasonable academic records and whose financial circumstances warrant loans. Students granted assistance of either kind are required to give an undertaking to repay the loan under the conditions agreed upon.

Applications are made personally to Mr. J. B. Rowe, Deputy Registrar (Student Services).

University Co-operative Bookshop Ltd.

Membership is open to all students, on payment of a fee of $2 (£1), refundable when membership is terminated. Members receive an annual rebate on purchases of books.

UNDERGRADUATE SCHOLARSHIPS

Students undertaking courses in the Faculty of Applied Science are eligible to apply for the following scholarships.

Except where otherwise specified, applications on the forms obtainable from the Admissions Office ('phone: 663-0351, ext. 2485) must be lodged with the Registrar, the University of New South Wales, P.O. Box 1, Kensington, within seven days of the publication of the results of the N.S.W. Leaving Certificate Examination.

A separate application must be lodged for each category of scholarship, except that applicants for scholarships in Textile Technology and Wool Technology will automatically be considered for the scholarships which are offered in the same field by the Wool Research Trust Fund.

In addition to those scholarships made available by the University and other bodies as set out below, cadetships are offered by the Commonwealth Service, the New South Wales Public Service Board, the Department of Railways and a number of private industrial organizations. Cadets generally have their University fees paid by the employer, and are employed at cadet rates of pay during their course.

Commonwealth Scholarships

There are three types: *Open Entrance Scholarships,* which are awarded on the results of the Leaving Certificate examination to students who are under 25 years of age on 1st January of the year in which they begin their course and who, with their parents, are permanent residents of Australia; *Second or Later Year Scholarships,* which are available to students who have completed at least one year of a full-time or two years of a part-time course without failure (age and residential qualifications are the same as for Open Entrance); and *Mature Age Scholarships,* which are available to students who are over 25 and under 30 years of age at the beginning of their course and who have been residents

of Australia for at least two years immediately preceding the award of the scholarship. Benefits include payment of all tuition fees and other compulsory fees and living allowances (these latter being subject to a means test) up to $520 (£260) per annum or $793 (£396/10/-) per annum if living away from home. The closing date for applications is 30th September in the year immediately preceding that for which the scholarship is desired. Full particulars and application forms may be obtained from the Officer-in-Charge, University Branch Office, Department of Education, University Grounds, University of Sydney (Telephone: 68-2911).

University Scholarships

The University annually awards up to 15 scholarships tenable in degree courses to students who have matriculated at the Leaving Certificate Examination; 10 scholarships to students who have completed certificate courses (Department of Technical Education); 10 scholarships to students who have completed Trade Courses (Department of Technical Education); and 10 scholarships to part-time students who have taken the Qualifying and Matriculation course of the Department of Technical Education. The scholarships exempt the holder from payment of course fees during the currency of the scholarship. Scholarships will be awarded in order of merit on Leaving Certificate Examination results. They may be held only by persons who do not hold another award. Applications must be lodged after publication of Leaving Certificate Examination results and after the announcement of the award of Commonwealth Scholarships, but not later than 31st January.

Bursaries

A number of Bursaries tenable at the University are awarded to candidates of merit at the Leaving Certificate Examination whose family income falls within certain limits prescribed by the Bursary Endowment Board. Applications should be made to the Secretary, Bursary Endowment Board, c/- Department of Education, Bridge Street, Sydney.

Public Service Association Scholarship

The Public Service Association of New South Wales is offering a scholarship in 1966 to children of members of the Association who are entering the first year of any full-time course. It is valued at $200 (£100) per annum and is tenable for the normal duration of the course.

South Sydney Junior Rugby League Club Ltd. Scholarships

Two scholarships each valued at $300 (£150) are available to male residents in the South Sydney area who wish to enrol in a full-time course at the University. The scholarships, tenable for one year only, will be awarded on the results of the Leaving Certificate Examination in the immediately preceding year and may not be held concurrently with any other scholarship award. The scholarship is intended to enable a student to undertake the first year of a course with the possibility (provided that his first-year performance warrants it) of obtaining a later year Commonwealth Scholarship. Applications must be lodged with the Registrar after the announcement of the award of the Commonwealth Scholarships, but not later than 31st January, each year.

Mount Lyell Mining and Railway Company

The Company makes available each year a number of scholarships for students entering any full-time degree course. The scholarships have a value of $700 (£350) per annum and are tenable for four years. Applications should be made to the Mount Lyell Mining and Railways Company Ltd., Queenstown, Tasmania.

The Fell Scholarship (University Residential Colleges)

The Fell Scholarship is available to any undergraduate who is or will be in residence at one of the Colleges under the administration of Kensington College Ltd. during 1966. The annual value of the Scholarship is $100 (£50). It may be held concurrently with Commonwealth and other scholarships.

In awarding the scholarship the academic merit and financial need of the applicant will be taken into consideration.

Applications must be made on the appropriate form and lodged with the Master, Kensington College Ltd., Box 24, P.O., Kensington.

Food Technology Scholarships

A number of scholarships are usually made available by firms in the food processing industries. These scholarships have a value of $800 (£400) per annum, payable as a living allowance to students enrolled full-time in the Food Technology degree course. These scholarships may be held concurrently with a Commonwealth Scholarship.

New South Wales State Brickworks Scholarship in Ceramic Engineering

The State Brickworks of the Department of Public Works of New South Wales has made available an undergraduate scholarship in Ceramic Engineering to the value of $900 (£450) per annum. The scholarship will normally be tenable for four years.

Applicants must be British subjects and are expected to apply for a Commonwealth Scholarship to cover course and other University fees.

Steel Industry Scholarships in Metallurgy

Australian Iron and Steel Pty. Ltd. provides two scholarships for students enrolling in the full-time B.Sc. course in Metallurgy at Kensington. Each scholarship has a value of $360 (£180) to $700 (£350) per annum, which includes a living allowance of $260 (£130) and an annual grant for books of $100 (£50). Additional allowances are paid to students living away from home. The company also offers paid vacation employment to scholarship holders, together with three weeks' annual leave and a position on graduation. The scholarship will normally be tenable for four years, and applicants are expected to apply for a Commonwealth Scholarship to cover course and other University fees.

Metal Manufactures Clement Blazey Memorial Scholarship in Metallurgy

Metal Manufactures Ltd. of Port Kembla provide the Clement Blazey Memorial Scholarship for students enrolling in the full-time course in Metallurgy leading to the Degree of Bachelor of Science. The scholarship has a value of between $200 (£100) to $800 (£400) per annum payable to students as a living allowance and will normally be tenable for four years. It may be held concurrently with a Commonwealth Scholarship.

The John Heine Memorial Scholarship

This scholarship is designed to assist students to undertake the final two years of the degree course in Mechanical, Electrical, or Chemical Engineering, Applied Chemistry, Metallurgy, or Physics. Applicants must have qualified for admission to the third year of the course (fourth year for Chemical Engineering). The scholarship has a maximum total value of $700 (£350). Applications

should be made not later than 31st January each year to the Secretary, The John Heine Memorial Foundation, c/o the Metal Trades Employers' Association, 101 Walker Street, North Sydney.

Mining and Metallurgical Bursaries

The Trustees of the Mining and Metallurgical Bursaries Fund offers bursaries to students who are British subjects and who have completed the first year of the B.E. course in Mining Engineering or of the B.Sc. course in Applied Geology or Metallurgy, with a minimum of one second-class honours. The bursaries have a value of $100 (£50) per annum, and are tenable for one year, although the same student may receive an award in successive years of his course.

Conzinc Riotinto of Australia Ltd.

The Company offers each year three scholarships for students entering the full-time degree course in Chemical Engineering, Mining Engineering, Metallurgy or Geology, and six scholarships for students entering the second year of one of these courses. The value of the scholarships is $500 to $700 (£250 to £350) per annum, plus University tuition fees and a book allowance of $40 (£20). Applicants must also apply for a Commonwealth Scholarship. The tenure of the scholarships is for the duration of the course. Applications should be made to Conzinc Riotinto of Australia Ltd., Box 384D, Melbourne.

The Broken Hill Pty. Co. Ltd.

Ten scholarships are provided each year for students who have completed at least one full-time year of the degree course in Engineering, Science, Commerce or Economics. Preference is given to Commonwealth Scholarship holders. Students receive an annual grant with increments in successive years. The tenure of the scholarships is for the duration of the course. Application should be made to the nearest office of the Broken Hill Pty. Co. Ltd. or its subsidiaries.

Joint Coal Board and Australian Coal Association Scholarships

The Joint Coal Board and the Australian Coal Association (Research) Limited offer scholarships in full-time courses in Mining Engineering, Mechanical Engineering, Electrical Engineering, Fuel Engineering and Applied Geology. The value of these scholarships ranges from $700 (£350) to $1,200 (£600) per annum (including allowance for books and instruments). These scholarships will be awarded on the understanding that applicants will normally hold a Commonwealth Scholarship which covers the cost of University fees. However, applicants without Commonwealth Scholarships may be given consideration. While scholarship holders are not under bond it is expected that they will obtain employment in Coal Mining or a related industry on graduation. Applications on forms obtainable from headmasters or from the Secretary, Joint Coal Board, Box 3842, G.P.O., Sydney, must be lodged with the Board's secretary not later than seven days after the publication of Leaving Certificate results.

Overseas Companies Scholarships in Mining Engineering

A number of overseas companies associated with the development of the mining industry in Australia have combined to provide scholarships for students wishing to qualify for the degree of Bachelor of Engineering in Mining Engineering (Pass or Honours). Applicants must have completed the first two years of the Mining, Mechanical, Civil or Electrical Engineering full-time courses at University level, or the third year of the full-time Mining Engineering course at this University, or have satisfied the Professorial Board that they are qualified to enter the third year of the Mining Engineering full-time course. These scholarships have a value of $1,000 (£500) per annum, payable in fortnightly instalments over the academic year, and will normally be tenable for one or two years. They may be held concurrently with a Commonwealth Scholarship.

Scholarships Tenable at the Broken Hill Division

A number of mining companies operating in the Broken Hill district offer scholarships, tenable in any degree course, to students who are residents of Broken Hill. The companies are:

Broken Hill South Ltd., Broken Hill.

Zinc Corporation Ltd., P.O. Box 444, Broken Hill.

Zinc Corporation Ltd. and New Broken Hill Consolidated Ltd., P.O. Box 444, Broken Hill.

Applications should be made to the office of the Company.

Textile Technology Scholarships

The textile industry provides a number of scholarships for students wishing to enrol in courses leading to the degree of Bachelor of Science (Pass and Honours) in Textile Technology. Each scholarship has a value of $1,000 (£500) per annum and may be held concurrently with a Commonwealth Scholarship. An applicant for this scholarship will also receive consideration for the Wool Research Trust Fund Scholarships in Textile Technology.

Wool Technology Scholarships

Several firms and banks associated with the wool industry endow scholarships in courses leading to the Bachelor of Science degree in Wool Technology. The Scholarships for award this year have been donated by William Cooper & Nephews (Aust.) Pty. Ltd. and by the Commercial Banking Company of Sydney Limited. Valued from $600 (£300) to $1,000 (£500) per annum, these scholarships are normally tenable for four years, and may be held concurrently with a Commonwealth Scholarship. An applicant for these scholarships will also receive consideration for the Wool Research Trust Fund Scholarships in Wool Technology.

Wool Research Trust Fund Scholarships in Wool Technology and Textile Technology

Eight scholarships (two for courses in Wool Technology and six for courses in Textile Technology) have been made available by the Wool Research Trust Fund (Commonwealth Government). The scholarships provide an allowance of $800 (£400) per annum for living expenses for four years, and successful applicants may hold a Commonwealth Scholarship concurrently.

FACULTY REGULATIONS

RULES OF PROGRESSION

Progression in Full-Time Courses Where Progression is by the Year

1. No full-time student (except those in the Science course, the Arts course, or in the Commerce course) will be permitted to attend lectures or sit for examination in any subject in any year until he has passed in all subjects of the previous year, unless special permission has been granted by the faculty in which he is enrolled.

2. A student who fails to qualify to progress to the next year of the course where progression is by years may be granted, by the Head of the School conducting the course, exemption from further attendance and examination in any subject in which he has achieved a pass at a satisfactory standard. Such student may repeat those subjects required to complete the year by attendance at either day or evening classes.

3. Any student who elects to transfer to the related part-time course is not eligible to be considered for additional deferred examinations at the time of transfer and may not qualify for progression to the next year of the full-time course merely by completing the part-time equivalents of the subjects in which he has failed.

4. In general, students who fail in full-time courses, and who transfer to part-time courses, shall not be re-admitted with standing to the full-time course until they have graduated from the part-time course.

Rules Relating to Common First Year Subjects in the Faculties of Applied Science, Science, Engineering and Medicine

1. Each student intending to follow any course leading to the degree of Bachelor in any of the faculties of Science, Applied Science, Medicine or Engineering must have satisfied the examiners in the subjects of 1.001 Physics I, 2.001 Chemistry I, 10.001

Mathematics I, and in a fourth subject (elective) chosen from 5.001 Engineering I, 25.511 Geology I, 12.011 Psychology I or 17.001 General Biology, before progressing further in his course, except that progression may be permitted with outstanding subjects if faculty regulations permit, provided that for students intending to follow the course leading to the Bachelor of Surveying degree, the subject 2.001 Chemistry I above shall be replaced by the subject 8.801 Surveying I.

2. Notwithstanding faculty regulations to the contrary, full-time students will be required to complete the four subjects of Rule 1 in not more than two years' study and part-time students in not more than four years' study.

The re-enrolment of students who have not complied with this rule shall be subject to the general rules governing re-enrolment.

3. At enrolment, each student to whom Rule 1 applies will be required to nominate and apply for admission to the course which he desires to follow.

Although application for transfer from one course to another within these faculties may be made at any time students are advised that such transfers are most readily effected prior to re-enrolment in the second year of full-time courses and the third stage of part-time courses.

All such transfers will be subject to the regulations of relevant faculties and the concurrence of the Professorial Board.

CONDITIONS FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE (TECHNOLOGY)

The courses leading to the award of the degree of Bachelor of Science (Technology) are normally programmed over six years of part-time study in the University whilst the student is employed in industry. The regulations governing the award of this degree are as follows:

1. A candidate for degree of B.Sc.(Tech.) shall—
   (i) comply with the requirements for admission;
   (ii) follow the prescribed course of study in the appropriate school and pass the necessary examinations;
   (iii) complete an approved programme of industrial training over a period of not less than three years concurrently with attendance in the course.

2. During each year a student shall perform laboratory, drawing office and field work, attend demonstrations and excursions to such an extent and in such a manner as is prescribed from time to time by the Professorial Board on the recommendation of the Faculty and, in addition, undertake industrial training as approved by the Head of the School.

3. A student may be granted advanced standing by the Professorial Board on the recommendation of the appropriate Faculty but in each case a student must follow an approved course for at least three years with concurrent approved industrial training before being eligible for admission to the degree.

4. The degree of B.Sc.(Tech.) shall be awarded in the pass grade only, but in the case of superior performance throughout the course the degree shall be conferred "with merit".

5. Students shall be required to conform with the general rules relating to progression in University courses.

CONDITIONS FOR THE AWARD OF THE DEGREE OF BACHELOR OF ENGINEERING

(a) A candidate for the degree of Bachelor of Engineering shall—

(i) comply with the requirements for admission;

(ii) follow the prescribed course of study in the appropriate School, and satisfy the examiners in the necessary subjects;

(iii) complete an approved programme of industrial training of not less than thirty-six weeks in the case of Civil, Mechanical and Industrial Engineering students and not less than twenty-eight weeks in the case of Electrical Engineering and Mining Engineering students. In general, this training must be completed before January 31 in the year in which the degree is to be awarded.

(b) During each year a student shall perform laboratory, drawing office and field work, attend demonstrations and excursions to such an extent and in such a manner as is prescribed from time to time by the Professorial Board on the recommendation of the Faculty.

(c) A student shall be required to complete the first year of the course in not more than two years. Re-enrolment thereafter will be governed by the general regulations of the Professorial Board.

(d) A student may be granted advanced standing by the Professorial Board on the recommendation of the appropriate Faculty, but in each case must complete an adequate period of approved industrial training before being eligible for the degree. In addition to the above requirements a student coming from another institution must follow an approved course of study in this University for at least two years.

(e) The degree shall be awarded in the pass or honours grade. Candidates for honours must take any extra subjects prescribed for the third year of the course and must obtain the permission of the Head of their School before enrolling in the special course prescribed for honours students in the fourth year. Honours may be awarded in the following categories:

Honours Class I

Honours Class II, Division I

Honours Class II, Division II

A student enrolled in the honours course who fails to reach the standard required for the award of Honours Class II, Division II may be awarded the degree of Bachelor of Engineering.

UNDERGRADUATE COURSES

The Faculty of Applied Science consists of the Schools of Applied Geology, Chemical Engineering, Chemical Technology, Metallurgy, Mining Engineering, Textile Technology and Wool Technology. These Schools offer full-time undergraduate courses leading to the degrees of Bachelor of Science, Bachelor of Engineering, and part-time courses leading to the degree of Bachelor of Science (Technology).

Full-Time Courses

Full-time courses of four years' duration are offered in Food Technology, Industrial Chemistry, Ceramic Engineering, Polymer Science, Metallurgy, Applied Geology, Textile Technology and Wool Technology leading to the degree of Bachelor of Science. Four-year courses in Chemical Engineering, Fuel Engineering and Mining Engineering are offered, leading to the degree of Bachelor of Engineering. Candidates for honours are required to undertake special reading and other assignments as directed by the Head of the School concerned.

Honours: Candidates for honours are required to undertake special reading and other assignments as directed by the Head of the School concerned. In considering the award of Honours special attention is paid to the performance of a candidate in the final research project, for which a thesis describing a theoretical or experimental study is required. Honours are awarded in Class I, Class II division (I), and Class II division (II).

Common First Year: There is a common first year syllabus in Physics, Mathematics and Chemistry for all courses in the Faculty. All courses except Wool Technology, Food Technology and Applied Geology take Engineering I as the fourth subject of the first year. In the Wool Technology and Food Technology courses General Biology is the fourth subject, while students in Applied Geology take Geology I. This arrangement allows for a high degree of transferability.

Industrial Training Requirements: In the scientific and technological courses close association with industry is maintained on the practical aspects of the professions. This is achieved in most of the courses of the Faculty by requiring students to complete an approved industrial training programme prior to graduation. All full-time courses in the Faculty of Applied Science, with the exception of the Applied Geology Course, require the completion of at least eight weeks of approved industrial training before graduation. This is normally carried out during the Christmas vacations. In the case of Wool Technology students are required to complete 36 weeks' approved practical work. In Mining Engineering the second and third years of the course are of 24 weeks' duration and students will undertake a programme of practical training in the last part of the Third Term and the long vacation of these years.

Part-Time Courses

The Schools of Chemical Engineering, Chemical Technology, Metallurgy and Mining Engineering offer six-year part-time courses leading to the degree of Bachelor of Science (Technology) in Chemical Engineering, Fuel Engineering, Food Technology, Industrial Chemistry, Ceramics, Polymer Science, Metallurgy, and Mining Engineering (Wollongong and Broken Hill).

Students who qualify for the B.Sc(Tech.) degree in the Faculty of Applied Science and who wish to proceed to a B.Sc. or B.E. degree will normally be required to complete further work which will involve at least one year of full-time attendance.

Holders of the B.Sc.(Tech.) degree will be eligible to proceed to the degrees of Master of Science, Master of Engineering or Master of Technology, subject to the regulations relating to these degrees.

Transfer is also possible from full-time courses to the part-time B.Sc.(Tech.) courses, but one of the conditions for the award of the B.Sc.(Tech.) degree is that at least three years of approved industrial experience be gained before graduation. This requirement will apply to students transferring from full-time courses.

B.Sc. (Tech.) Courses With Partial Full-Time Attendance

B.Sc.(Tech.) courses may be completed by a combination of full-time and part-time study. The first two stages are to be completed part-time; in the following two years students complete the second and third years of the corresponding full-time course;

and in the fifth stage a special programme is prepared. Full details are set out below under the Schools which provide the courses.

General Studies Programme

All undergraduates in Faculties other than Arts are required to complete a number of courses in the humanities and social sciences. In this way the University hopes to give its students a general understanding of the different aspects of the world in which they live. Full-time students will do English or An Introduction to Modern Drama, plus two 30-hour electives and, where applicable, an advanced elective, from the following groups:

30-Hour Electives

11.011H History of Fine Arts
11.021H History of Architecture
12.191H Psychology
15.011H Economics
26.301H Music
26.601H History of Technology
51.011H History
52.011H Philosophy
53.011H Sociology
54.011H Political Science

Advanced Electives

The following courses require a previous course in the same subject as a pre-requisite:

12.591H Psychology
15.012H Economics
50.012H English
50.031H English Language
51.012H History
52.012H Philosophy
53.012H Sociology
54.012H Political Science

Part-time students will follow the same programme, less the Advanced Elective.

Allocation of Study Hours

In the outlines of the courses in the Faculty of Applied Science set out below the following scheme for indicating the allocation of study hours is used. The first three figures for each subject indicate the number of hours spent each week in lectures, tutorials and laboratory work respectively. The fourth figure is intended to be a guide to the average student as to the time he should devote to private study of the particular subject if he expects to reach pass standard in that subject. The academic load for most full-time courses is in the range of 45 to 50 hours per week.

SCHOOL OF APPLIED GEOLOGY

The development of natural resources and the allied engineering activities make essential a type of training for geologists which embraces basic geological instruction and various features of its application in practice. The structure and syllabus of the course in Applied Geology are designed to enable graduates to enter immediately into various aspects of applied geology and to play an effective part in associated engineering and technological practice.

In the early part of the course students receive instruction in the allied fundamental sciences and basic engineering subjects as well as introductory geology. Later geological instruction is developed and emphasis is placed progressively on engineering application and on economic aspects of geology.

The applied nature of the course is indicated by the inclusion of such subjects as Engineering I, Materials and Structures, Soil Mechanics, Mining and Mineral Process Engineering. A course in Surveying and courses in Geophysics, Mining and Exploration Geology, Engineering Geology and Petroleum Geology are added to the basic geology subjects in the later stages of the course.

Attendance at the University for students taking the full-time course in Applied Geology is for thirty weeks per year on a three-term basis, the Third Term of the fourth year being devoted to work on a project.

A three-year course (full-time) and a seven-year course (part-time) in Geology is available to students in the Faculty of Science. Selected students in the Faculty of Science may also read for an honours degree in Geology.

In order to meet the demands for trained Geophysicists in the Commonwealth a Graduate Diploma in Applied Geophysics will be offered for the first time in 1966.

APPLIED GEOLOGY — FULL-TIME COURSE

Bachelor of Science

First Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Prac.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
10.001	Mathematics I	4	2	0	4
25.511	Geology I*	2	0	4	4
		12	3	9	16½

* Three geology field excursions, up to five days in all, are an essential part of the course.

Second Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Prac.	Private Study
1.212	Physics	1½	½	1	2
2.022	Chemistry II (M)*	3	0	2½	5
5.011	Engineering I†	2	0	3	3½
10.031	Mathematics	1	1	0	2
25.512	Geology II‡	4	0	5	6
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		13½	1½	11½	22½

Geological fieldwork, up to two weeks in all, is an essential part of the course. It includes an excursion of approximately one week.

* Hours for Terms I and 3 only.				
Hours for Term 2	4	0	3	6½
† Hours for Terms 1 and 2 only.				
Hours for Term 3	1	0	1	1½
‡ Hours for Terms 1 and 2 only.				
Hours for Term 3	4	4	1	6

THIRD YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
8.112	Materials and Structures	1	1	1	1½
8.243S	Soil Mechanics	1	0	1	2
10.331	Statistics	1	0	1	1½
25.513/1	Geology III, Part 1 *				
25,513/2	Geology III, Part 2 *	7	0	6	16
25.513/3	Geology III, Part 3 *				
	Two 30-hour General Studies Electives	2	0	0	4
		12	1	9	25

Fieldwork is an essential part of the course. It includes approximately one week's geological survey camp, which may be held before First Term, at least one other excursion of approximately one week, and a one-day Geophysics excursion. In all, up to three weeks may be spent in the field.

* Hours for Term 1 only.

Hours for Term 2	7	2	5	16
Hours for Term 3	5	2	5	12

FOURTH YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Prac.	Private Study
*7.551	Mining and Mineral Process Engineering†	2	2	0	2
*8.421S	Surveying	1½	0	1½	3
*25.514/1	Geology IV, Part 1 ‡				
*25.514/2	Geology IV, Part 2 ‡	5	2	4	13
*25.514/3	Geology IV, Part 3 ‡				
25.591	Project**	0	4	0	0
	Humanities— Advanced Elective §	3	0	0	6
		11½	8	5½	24

Four short excursions to civil engineering works and mine workings are an essential part of the course.

* These courses run for 24 weeks.

† Hours for Term 1 only.

Hours for Terms 2 and 3	1	0	3	3

‡ Hours for Term 1 only.

Hours for Term 2	5	1	7	15
Hours for Term 3	6	1	7	15

** Hours for Term 1 only.

Hours for Term 3	0	0	10	40

In the last six weeks of Term 3, students should spend 10 hours per week in laboratory and other supporting work on the Project; 40 hours (approx.) will be devoted to field work.

§ Terms 1 and 2 only.

SCHOOL OF CHEMICAL ENGINEERING

The School offers courses in Chemical Engineering, Fuel Engineering and Food Technology.

Chemical engineering is the application of the principles of the physical sciences, together with the principles of economics and human relations, to fields in which matter undergoes a change in state, energy content or composition. The chemical engineer is generally responsible for the design, construction and operation of plant and equipment used in the chemical processing industries.

Fuel engineering is primarily concerned with the practical and economic applications of scientific knowledge and engineering experience to the production, processing and utilization of fuels and energy. The industrial future of a nation is largely dependent on the success of its fuel industries, on which all other industries depend. In Australia, fuel and combustion engineers are needed in a wide and varied field of activity: in management and design, in supervision and control of equipment to maintain optimum performance, in technical services and air pollution control, and in research and development to seek better and more efficient methods of energy production and utilization.

Food technologists are concerned with the management of foods from the time of production until they reach the consumer. It is their responsibility that they do not spoil or perish. This covers handling, transportation, storage and packaging of fresh and prepared foods and the techniques for preservation such as cold storage, freezing, canning, dehydration and packaging.

Chemical Engineering—Full-Time Course
Bachelor of Engineering

This course extends over four years and students study full-time during the day for 30 weeks of each year (excluding examination and vacation periods). For the award of honours, students will be required to have distinguished themselves in formal work, in additional assignments as directed by the Head of the School and in the final year project for which a thesis will be required.

First Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

Second Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics II	1½	½	1	2
2.002	Chemistry II (S)*	4	0	5	7
3.111	Chemical Engineering I	1	3	0	2
3.311	Fuel Science and Engineering I	2	0	0	2
8.112	Materials and Structures	1	1	1	1½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		13½	6½	7	22
	* Hours for Terms 1 and 3 only. Hours for Term 2	5	0	4	9

Third Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.121	Chemical Engineering IIA	4	2	0	5
3.122	Chemical Engineering IIB	6	3	3	10
6.801	Electrical Engineering	1	0	2	2
10.032	Mathematics	1	1	0	2
	Two 30-hour General Studies Electives	2	0	0	4
		14	6	5	23

Fourth Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.131S	Chemical Engineering IIIA*	2	2	6	8
3.132S	Chemical Engineering IIIB*	6	4	3	12
3.140}	Projects†	0	3	0	0
3.150}	Advanced Elective — Humanities	2	0	0	4
		10	9	9	24
	* Terms 1 and 2 only. † Hours for Terms 1 and 2 only. Hours for Term 3	0	0	15	29

Chemical Engineering—Part-Time Course*
Bachelor of Science (Technology)

This course is designed to meet the requirements of students who are employed in the chemical processing industries. It extends over six years of part-time study.

This course covers approximately the same subject matter as the first three years of the full-time course. Students who have completed the requirements of this course and have qualified for the degree of Bachelor of Science (Technology) may proceed to the degree of Bachelor of Engineering by attending for one full-time year and completing the subjects listed in the fourth year of the full-time course. Students desiring to proceed to a Bachelor of Engineering degree must apply to the Head of the School not later than December 31 of the year in which the sixth stage is completed.

First and Second Stages

Two of the following subjects will be taken in the first year and the other two in second year (as directed).

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

* See below for outline of this course involving combined full-time and part-time study.

THIRD STAGE
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics II	1½	½	1	2
2.002	Chemistry II (S)*	4	0	5	7
50.011H/1	English	1	0	0	2
		6½	½	6	11
	* Terms 1 and 3 only. Hours for Term 2	5	0	4	9

FOURTH STAGE
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.111	Chemical Engineering I	1	3	0	2
3.311	Fuel Science and Engineering I	2	0	0	2
8.112	Materials and Structures	1	1	1	1½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
50.011H/2	English	1	0	0	2
		7	6	1	11

FIFTH STAGE
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.121	Chemical Engineering IIA	4	2	0	5
6.801	Electrical Engineering	1	0	2	2
10.032	Mathematics	1	1	0	2
	One 30-hour General Studies Elective	1	0	0	2
		7	3	2	11

SIXTH STAGE*
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.122	Chemical Engineering IIB	6	3	3	10
	One 30-hour General Studies Elective	1	0	0	2
		7	3	3	12

* Students are required also to sit for an examination embracing the principles of unit operations and of design at the end of the sixth year (3.123 Combined Chemical Engineering Examination).

Chemical Engineering B.Sc. (Tech.) in Full-Time—Part-Time Study

Students enrolling in the Chemical Engineering, B.Sc.(Tech.) course may reduce the time required for completion by undertaking the following programme of combined part-time/full-time study:

Stage 1.....Part-time (as for B.Sc.(Tech.) course above)
Stage 2.....Part-time (as for B.Sc.(Tech.) course above)
Stage 3A.....Full-time (as for second year of full-time B.E. course above)
Stage 4A.....Full-time (as for third year of full-time B.E. course above)
Stage 5A.....Part-time (as set out below)

STAGE 5A

A programme of 6-9 hours per week selected from the following subjects on the advice of the Head of the School of Chemical Engineering:

22.111 Industrial Chemistry I
22.211 Ceramics I
22.311 Polymer Science I
4.011 Metallurgy I
7.311 Mineral Dressing
3.321 Fuel Engineering II
17.201/2 Microbiology I, Part 2
Any other subject approved by the Professorial Board on the recommendation of the Head of School or Department.

DEPARTMENT OF FUEL TECHNOLOGY

This Department, the first of its kind in Australia, was established to meet the important and growing need of Australian industrial and research establishments for personnel with specialized training in the science and technology of fuels and their utilization.

One constant problem of the fuel industries is that of improving and developing methods of processing and using solid, liquid and gaseous fuels to meet the continuously shifting patterns of demand. It is in this field of activity that the university-trained fuel technologist has a most important part to play.

In Australia, there is a growing need for people trained in the technology of fuels, and opportunities for employment and advancement of fuel engineers are therefore particularly good.

Many exciting and revolutionary possibilities are apparent in the fuel and power industries, and there is a wide and varied

field of activity which offers opportunity and challenge in the application of chemistry, physics and engineering to the problems of Fuel Science and Engineering.

The Department offers two undergraduate courses: a four-year full-time course leading to the degree of Bachelor of Engineering (pass or honours) and a six-year part-time course leading to the degree of Bachelor of Science (Technology) in Fuel Engineering. A course leading to a graduate diploma is also offered by the Department, details being given in Section III.

The Council of the Institute of Fuel has accepted the degree courses in Fuel Engineering as providing exemption from the examination required for admission to corporate membership of the Institute. In addition, the fuel subjects in the course, if taken separately, carry exemption from the advanced fuel subjects of the London City and Guilds Institute, conducted on behalf of the Institute of Fuel, and are thus a recognised qualification for admission to corporate membership.

Fuel Engineering—Full-Time Course

Bachelor of Engineering

The full-time undergraduate course, which leads to the degree of Bachelor of Engineering, is planned to emphasize the importance of scientific principles and their application in practice. The course extends over four years and students study full-time during the day. The training in the first three years is almost identical with that of the first three years in the Chemical Engineering course and consists essentially of instruction and laboratory work in the basic sciences and engineering.

The final year is devoted entirely to professional subjects which cover refractories and insulating materials, constitution, processing and utilization of fuels, flames and gas reactions, progress and developments in fuel science and fuel and combustion engineering. The latter includes the design, construction, testing and operation of boilers and furnaces, instrumentation and automatic control.

The student is required to spend at least eight weeks in industry gaining practical experience in some field of fuel engineering. He also attends seminars and discussion groups, visits works and undertakes an individual research or design project in his final year.

First Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

Second Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics IIT	1½	½	1	2
2.002	Chemistry II (S)*	4	0	5	7
3.111	Chemical Engineering I	1	3	0	2
3.311	Fuel Science and Engineering I	2	0	0	2
8.112	Materials and Structures	1	1	1	1½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		13½	6½	7	22
	* Hours for Terms 1 and 3 only. Hours for Term 2	5	0	4	9

Third Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.121	Chemical Engineering IIA	4	2	0	5
3.122	Chemical Engineering IIB	6	3	3	10
3.321	Fuel Engineering II*	2	0	1	2
6.801	Electrical Engineering	1	0	2	2
	Two 30-hour General Studies Electives	2	0	0	4
		15	5	6	23

* 10.032 Mathematics may be substituted.

FOURTH YEAR
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.331S*	Fuel Engineering IIIA	4	2½	4	8
3.332S*	Fuel Engineering IIIB	4	2½	4	8
3.340†	Projects‡	0	3	0	2
	Humanities—Advanced Elective	2	0	0	4
		10	8	8	22
	Hours for Term 3	0	1	20	20

* Terms 1 and 2 only.
† Hours for Terms 1 and 2 only.
‡ Students who have taken 10.032 Maths in third year will have to take the subject 3.321 Fuel Engineering II as part of their assignments.

Fuel Engineering—Part-Time Course*

Bachelor of Science (Technology)

The part-time course, leading to the B.Sc.(Tech.) degree in Fuel Engineering, is of six years' duration. It is designed to meet the needs of persons engaged in the fuel industry who desire to obtain formal educational training in this technology. Candidates for this degree are required to complete an approved programme of industrial training over a period of not less than three years, concurrently with attendance in the course.

FIRST AND SECOND STAGES
(30 weeks' part-time course)

Two of the following subjects will be taken in the first year and the other two in second year (as directed).

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

* See below for outline of this course involving combined full-time and part-time study.

Third Stage
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics IIT	1½	½	1	2
2.002	Chemistry IIS*	4	0	5	7
50.011H/1	English	1	0	0	2
		6½	½	6	11
	* Hours for Term 1 only.				
	Hours for Term 2	5	0	4	9
	Hours for Term 3	4	0	5	7

Fourth Stage
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.111	Chemical Engineering I	1	3	0	3
3.311	Fuel Science and Engineering I	2	0	0	2
8.112	Materials and Structures	1	1	1	1½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
50.011H/2	English	1	0	0	2
		7	6	1	11

Fifth Stage
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.121	Chemical Engineering IIA	4	2	0	5
3.321	Fuel Engineering II	2	0	1	2
6.801	Electrical Engineering	1	0	2	2
	One 30-hour General Studies Elective	1	0	0	2
		8	2	3	11

Sixth Stage
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.333	Fuel Engineering IIIM	5	3	4	10
	One 30-hour General Studies Elective	1	0	0	2
		6	3	4	12

Fuel Engineering B.Sc. (Tech.) in Full-Time/Part-Time Study

Students enrolling in the Fuel Engineering B.Sc.(Tech.) course may reduce the time required for completion by undertaking the following programme of combined part-time/full-time study:

Stage 1.....Part-time (as for B.Sc.(Tech.) course above)
Stage 2.....Part-time (as for B.Sc.(Tech.) course above)
Stage 3A.....Full-time (as for second year of full-time B.E. course above)
Stage 4A.....Full-time (as for third year of full-time B.E. course above)
Stage 5A.....Part-time (as set out below)

STAGE 5A

Report and Seminar	3 hours
Elective subjects	4 to 6 hours

The students taking the accelerated B.Sc.(Tech.) degree course may select subjects from existing Fuel subjects or the following list to the extent of a total weekly allocation of 4 to 6 hours.

22.211/1	Ceramics IA	3 hours
22.221	Chemical Thermodynamics and Kinetics	3 hours
4.931S	Metallurgy	1½ hours
18.111	Industrial Administration	2 hours
18.321	Methods Engineering	2 hours
14.041	Industrial and Commercial Law	2 hours
3.122/2	Chemical Engineering IIB (Design I)	4 hours
3.121/2	Chemical Engineering IIA	1 hour

(Management and Data Processing)

Selection from the above list will be subject to students possessing the necessary pre-requisites and to the availability of the courses.

The topic for the report will be submitted to the Head of the Department for approval before the end of the third week of the First Term. The report may take the form of a literature survey or a topic connected with the student's employment activities.

DEPARTMENT OF FOOD TECHNOLOGY

Food technologists are concerned with the storage, processing, preservation, packaging and distribution of foods. Food technology—a branch of applied science—covers the management of fresh foods of all kinds, the canning, freezing, refrigeration, and dehydration of foods, and the utilization of the by-products of the food industries.

The food scientist acquires new knowledge by laboratory experiments. The food technologist applies such knowledge to practice in manufacture and commerce. He must, therefore, be entirely familiar with food science in its many facets.

Food technology is a profession equally suitable to men and women, and offers much in reward to the adequately trained person prepared to accept responsibility as the guardian of the quality and safety of man's food supplies.

There is great need for food technologists to help solve the prime problem of our age—to make food supplies increase faster than the world's population, to let nothing perish that could serve as food for man or beast.

The Department of Food Technology offers a four-year full-time course leading to the degree of Bachelor of Science and a six-year part-time course leading to the degree of Bachelor of Science (Technology). Graduates of the B.Sc. course qualify for membership of the Royal Australian Chemical Institute and the Institute of Food Technologists.

A Graduate Diploma course in Food Technology of one year full-time or two years' part-time is designed for graduates in science or agriculture wishing to familiarise themselves with the principles of food technology.

Food Technology—Full-Time Course

Bachelor of Science

The full-time course has been revised, and the new course described below will be introduced in 1966. (Transition arrangements for students who completed second or third year of the old course in 1965 are given on p. 68.)

This course is designed to provide depth and breadth in the relevant physical and biological sciences on which food technology is based. Graduates will be able to pursue more advanced studies in any of these.

FIRST YEAR
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
10.001	Mathematics I	4	2	0	4
17.001	General Biology	2	0	4	4
		12	3	9	16½

SECOND YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.002	Chemistry II (S)*	4	0	5	7
3.111/1	Chemical Engineering I—Principles I	1	1	0	2
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
17.111	Biochemistry†	3	0	6	6
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		12	3	11	22½
	* Hours for Terms 1 and 3 only. Hours for Term 2	5	0	4	9
	† There is no laboratory work in Third term.				

THIRD YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.261	Applied Organic Chemistry	2	0	4	3½
3.211	Food Technology I, Part 1*	1½	0	3	3½
3.212	Food Technology I, Part 2†	4	0	8	10
3.231	Chemical Engineering	2	0	0	4
17.201/1	Microbiology I, Part 1‡	4	0	8	10
	Two 30-hour General Studies Electives	2	0	0	4
		11½	0	15	25

* Includes 17.311 Botany.
† Operates for **second** fifteen weeks of academic year.
‡ Operates for **first** fifteen weeks of academic year.

FOURTH YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.221	Food Technology II*	3	0	4	6
3.222	Project	0	0	8	4
	Humanities—Advanced Elective	2	0	0	4
		5	0	12	14

* Includes 17.511 Entomology.

Plus *one* Elective from—					
17.112	Biochemistry †	3	0	10	7
17.201/2	Microbiology I, Part II‡	4	0	8	10

† Operates for **first** fifteen weeks of academic year.
‡ Operates for **second** fifteen weeks of academic year.
Students electing to take biochemistry will be expected to adjust appropriately the time devoted to the Project.

During the third and fourth years of the course excursions will be made to various food industries. Detailed reports of some of these visits are required.

A detailed report of the student's activities during his period in industry will be required, and will be taken into account in the classification for the Honours list.

Transition Arrangements—Full-Time Course

FIRST YEAR: First Year course unchanged.

SECOND YEAR: Students who completed Second Year in 1965 will follow the existing Third Year in 1966 and a transitional Fourth Year in 1967.

THIRD YEAR: Students who completed Third Year in 1965 will follow the transitional Fourth Year in 1966.

TRANSITIONAL FOURTH YEAR

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.111/1	Chemical Engineering I—Principles I	1	1	0	2
3.221	Food Technology II	2	0	2	3
3.222	Project	0	0	8	4
3.231	Chemical Engineering	2	0	0	4
	Humanities—Advanced Elective	2	0	0	4
	Food Technology Elective	2	0	4	5
		9	1	14	22

Food Technology—Part-Time Course*
Bachelor of Science (Technology)

The part-time course has been revised, and the new course described below will be introduced in 1966. (For transition arrangements see p. 71.)

This course has been designed for students already gaining practical experience in a related occupation in the food industry. The course, which covers the same subject matter as the first three years of the full-time course, extends over six years. For the first

* See below for outline of this course involving combined full-time and part-time study.

two years students follow a common course in which general biology is taken, and thereafter specialize in the biological sciences, which are fundamental to the study of food science and technology.

Students who have completed the requirements of this course and have qualified for the degree of Bachelor of Science (Technology) may proceed to the degree of Bachelor of Science by attending for one full-time year and completing the subjects listed in fourth year of the full-time course. Students desiring to proceed to a B.Sc. degree must apply to the Head of the School not later than December 31 of the year in which the sixth stage is completed.

First and Second Stages

Two of the following subjects will be taken in first year and the other two in second year (as directed):

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
10.001	Mathematics I	4	2	0	4
17.001	General Biology	2	0	4	4
		12	3	9	16½

Third Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.002	Chemistry II (S)*	4	0	5	7
10.031	Mathematics	1	1	0	2
50.011H/1	English	1	0	0	2
		6	1	5	11
	* Hours for Terms 1 and 3 only. Hours for Term 2	5	0	4	9

Fourth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.111/1	Chemical Engineering I—Principles I	1	1	0	2
10.331	Statistics	1	1	0	2
17.111	Biochemistry*	3	0	6	6
50.011H/2	English	1	0	0	2
		6	2	6	12

* There is no laboratory work in Term 3.

Fifth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.231	Chemical Engineering	2	0	0	4
3.211	Food Technology I, Part 1*	1½	0	3	3½
2.261	Applied Organic Chemistry	2	0	4	3½
	One 30-hour General Studies Elective	1	0	0	2
		6½	0	7	13

* Includes 17.311 Botany.

Sixth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.212	Food Technology I, Part 2*	4	0	8	10
17.201/1	Microbiology I, Part 1†	4	0	8	10
	One 30-hour General Studies Elective	1	0	0	2
		5	0	8	12

* Operates for **second** fifteen weeks of academic year.
† Operates for **first** fifteen weeks of academic year.

Food Technology B.Sc. (Tech.) in Full-Time/Part-Time Study

Students enrolling in the Food Technology B.Sc.(Tech.) course may reduce the time required for completion by undertaking the following programme of combined part-time/full-time study:

Stage 1.....Part-time (as for B.Sc.(Tech.) course above)
Stage 2.....Part-time (as for B.Sc.(Tech.) course above)
Stage 3A.....Full-time (as for second year of full-time B.Sc. course above)
Stage 4A.....Full-time (as for third year of full-time B.Sc. course above)
Stage 5A.....Part-time (as set out below)

STAGE 5A

A programme of 6-9 hours per week selected from the following subjects on the advice of the Head of the Department of Food Technology:

22.111 Industrial Chemistry I
22.211 Ceramics I
22.311 Polymer Science I
4.011 Metallurgy I
7.311 Mineral Dressing
3.311 Fuel Science and Engineering I
3.321 Fuel Engineering II
17.201/2 Microbiology I, Part 2
Any other subject approved by the Professorial Board on the recommendation of the Head of the Department of Food Technology.

Transition Arrangements—Part-Time Course

Stage 1, Stage 2: Students who completed Stage 1 or Stage 2 in 1965 will follow the new course pattern in 1966 and subsequent years.

Stage 3, Stage 4, Stage 5: Students who completed Stage 3, Stage 4 or Stage 5 in 1965 will follow the former course pattern in 1966 and subsequent year.

SCHOOL OF CHEMICAL TECHNOLOGY

Courses are offered on a four-year full-time basis in the fields of Industrial Chemistry, Ceramic Engineering and Polymer Science leading to the award of the degree of Bachelor of Science. Six-year part-time courses are also available in Industrial Chemistry, Ceramics and Polymer Science.

The first year of the Industrial Chemistry course provides for a choice between Engineering I, General Biology or Geology I. Where Engineering I is elected, the first two years of the full-time courses in Industrial Chemistry, Ceramic Engineering and Polymer Science, and the first four stages of the part-time courses in Industrial Chemistry, Ceramics and Polymer Science follow a common academic programme. This feature enables these students to leave open until the third year or fifth stage respectively, the final decision on whether they will take their professional qualification as an Industrial Chemist, Ceramic Engineer, or Polymer Scientist. Industrial Chemistry students who prefer to elect General Biology or Geology I rather than Engineering I will be at no disadvantage in following their course since Engineering I is not a pre-requisite subject. The only effect will be that they will be required to include Engineering I in their programme if they transfer to Ceramic Engineering or Polymer Science at a later date.

INDUSTRIAL CHEMISTRY

The courses in Industrial Chemistry are designed to provide scientists trained for industries and organisations concerned with the development, manufacture and use of inorganic and organic industrial chemicals. Graduates from these courses will play an effective role in the research and development, production control, quality control and technical sales and service aspects of the chemical industries.

CERAMIC ENGINEERING

The Department of Ceramic Engineering offers courses designed to provide scientists and engineers fitted for service in industries and organisations concerned with the development, manufacture and use of materials in the fields of: whitewares, structural ceramic productions, high-temperature materials, electrical ceramics, glass, ceramic surface coatings, abrasives, cermets and nuclear ceramics. Graduates from these courses would be able to find employment in the general field of ceramics in the following capacities: ceramist or ceramic engineer on research and development, production control, quality control, product evaluation, technical sales and service.

POLYMER SCIENCE

The Department of Polymer Science provides courses in Polymer Science designed to train scientists fitted for service in industries concerned with surface coatings, plastics and rubber (natural and synthetic). Graduates from these courses would be capable of satisfactorily applying their training in the following functions in these industries: research and development, production control, quality control, product evaluation and technical sales and service.

Industrial Chemistry—Full-Time Course
Bachelor of Science

First Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
10.001	Mathematics I	4	2	0	4
Plus one of:—					
5.001	Engineering I	3	3	0	4½
17.001	General Biology	2	0	4	4
25.511	Geology I*	2	0	4	4

* Three field excursions, up to five days in all, are an essential part of the course.

SECOND YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	0	1½	3½
2.032	Chemistry II—				
	Inorganic/Analytical	2	0	3	3½
	Physical	2	0	3	3½
	Organic	2	0	3	3½
10.031	Mathematics II	1	1	0	2
10.331	Statistics	1	1	0	1½
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		11½	2	10½	21½

THIRD YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.211	Applied Organic Chemistry	1	0	3	2½
3.111	Chemical Engineering I	2	2	0	2
3.311	Fuel Science and Engineering I	2	0	0	2
22.111	Industrial Chemistry I	7½	2	2½	14
	Two 30-hour General Studies Electives	2	0	0	3
		14½	4	5½	23½

FOURTH YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
22.112	Industrial Chemistry II*	8	0	4	16
22.121	Industrial Chemistry Seminar	0	3	0	5
22.191	Project†	0	0	3	3
	Humanities—Advanced Elective	2	0	0	4
		10	3	7	28
	* Hours for Terms 1 and 2 only. Hours for Term 3	2	0	0	4
	† Hours for Term 1 only.				
	Hours for Term 2	0	0	6	3
	Hours for Term 3	0	0	27	3

Industrial Chemistry—Part-Time Course*

Bachelor of Science (Technology)

First and Second Stages

Two of the following subjects will be taken in the first year, the other two in second year (as directed).

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
10.001	Mathematics I	4	2	0	4
Plus one of:—					
5.001	Engineering I	3	3	0	4½
17.001	General Biology	2	0	4	4
25.511	Geology I*	2	0	4	4

* Three field excursions, up to five days in all, are an essential part of the course.

Third Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	0	1½	3½
2.311	Physical Chemistry	2	0	3	3½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
		5½	2	4½	10½

Fourth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.451	Inorganic/Analytical Chemistry	2	0	3	3½
2.611	Organic Chemistry	2	0	3	3½
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		6	0	6	11

* See below for outline of this course involving combined full-time and part-time study.

Fifth Stage
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.111	Chemical Engineering I	2	2	0	2
3.311	Fuel Science and Engineering I	2	0	0	2
22.111/1	Industrial Chemistry I, Part I	2½	0	2½	6
	One 30-hour General Studies Elective	1	0	0	1½
		7½	2	2½	11½

Sixth Stage
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.211	Applied Organic Chemistry	1	0	3	2½
22.111/2	Industrial Chemistry I, Part I	5	2	0	8
	One 30-hour General Studies Elective	1	0	0	1½
		7	2	3	12

Ceramic Engineering—Full-Time Course
Bachelor of Science

First Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

SECOND YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
2.032	Chemistry II—				
	Inorganic/Analytical	2	0	3	3½
	Organic	2	0	3	3½
	Physical	2	0	3	3½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		11½	2½	10	20

THIRD YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.111	Chemical Engineering I	2	2	0	2
3.311	Fuel Science and Engineering I	2	0	0	2
8.112	Materials and Structures	1	1	1	1½
22.211	Ceramics I	3	0	5	7
22.221	Chemical Thermodynamics and Kinetics	2	1	0	3
25.551	Mineralogy	1	0	2	2
	Two 30-hour General Studies Electives	2	0	0	4
		13	4	8	21½

FOURTH YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
22.212	Ceramics II	3	0	3	6
22.231	Ceramic Engineering	2	0	2	4
22.241	Instrumentation Process Control*	3	0	4	5
22.251	Operation Research and Seminars	1	0	0	2
22.291	Project†	0	0	6	3
	Humanities—Advanced Elective	2	0	0	4
		11	0	15	24

* Terms 1 and 2 only.
† In Term 3, 18 hours per week are devoted to laboratory work on the Project.

Ceramics—Part-Time Course*

Bachelor of Science (Technology)

First and Second Stages

Two of the following subjects will be taken in the first year and the other two in the second year (as directed).

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

Third Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
2.311	Physical Chemistry	2	0	3	3½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
		5½	2½	4	9

Fourth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.451	Inorganic/Analytical Chemistry	2	0	3	3½
2.611	Organic Chemistry	2	0	3	3½
50.011H/2 or 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		6	0	6	11

* See below for outline of this course involving combined full-time and part-time study.

Fifth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
8.112	Materials and Structures	1	1	1	1½
22.211/1	Ceramics I, Part I	1	0	2	2
22.221	Chemical Thermodynamics and Kinetics	2	1	0	3
25.551	Mineralogy	1	0	2	2
	One 30-hour General Studies Elective	1	0	0	2
		6	2	5	10½

Sixth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.111	Chemical Engineering I	2	2	0	2
3.311	Fuel Science and Engineering I	2	0	0	2
22.211/2	Ceramics I, Part II	2	0	3	5
	One 30-hour General Studies Elective	1	0	0	2
		7	2	3	11

Polymer Science—Full-Time Course

Bachelor of Science

First Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

SECOND YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
2.032	Chemistry II—				
	Inorganic/Analytical	2	0	3	3½
	Organic	2	0	3	3½
	Physical	2	0	3	3½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		11½	2½	10	20

THIRD YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.322	Physical Chemistry	2	0	3	4½
2.632	Organic Chemistry	2	0	3	4½
3.111/1	Chemical Engineering I (Principles I)	1	1	0	1
22.311	Polymer Science I	3	0	6	8
	Two 30-hour General Studies Electives	2	0	0	3
		10	1	12	21

FOURTH YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.331	Applied Physical Chemistry	1	0	3	2½
22.312	Polymer Science II* (Terms 1 and 2)	4	0	9	12
22.321	Seminar (Terms 1 and 2)	0	2	0	3
22.391	Project†	0	0	3	3
	Humanities—Advanced Elective	2	0	0	4
		7	2	15	24½
	* Hours for Term 1 only. Hours for Term 2	4	0	8	12
	† Hours for Term 1 only.				
	Hours for Term 2	0	0	6	3
	Hours for Term 3	0	0	30	6

Polymer Science—Part-Time Course*

Bachelor of Science (Technology)

First and Second Stages

Two of the following subjects will be taken in the first year and the other two in the second year (as directed).

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

Third Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
2.311	Physical Chemistry	2	0	3	3½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
		5½	2½	4	9

Fourth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.451	Inorganic/Analytical Chemistry	2	0	3	3½
2.611	Organic Chemistry	2	0	3	3½
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		6	0	6	11

* See below for outline of this course involving combined full-time and part-time study.

Fifth Stage
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.322	Physical Chemistry	2	0	3	4½
2.632	Organic Chemistry	2	0	3	4½
	One 30-hour General Studies Elective	1	0	0	2
		5	0	6	11

Sixth Stage
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
3.111/1	Chemical Engineering I (Principles I)	1	1	0	1
22.311	Polymer Science I	3	0	6	8
	One 30-hour General Studies Elective	1	0	0	2
		5	1	6	11

B.Sc. (Tech.) Courses in Full-Time/Part-Time Study

Students enrolling in the B.Sc.(Tech.) courses in Industrial Chemistry, Ceramics or Polymer Science may reduce the time required for completion by undertaking the following programme of combined part-time/full-time study.

Stage 1.....Part-time (as for B.Sc.(Tech.) course above)
Stage 2.....Part-time (as for B.Sc.(Tech.) course above)
Stage 3A.....Full-time (as for second year of full-time B.Sc. course above)
Stage 4A.....Full-time (as for third year of full-time B.Sc. course above)
Stage 5A.....Part-time (as set out below)

Stage 5A

A programme of 6-9 hours per week selected from the following subjects on the advice of the Head of the School of Chemical Technology:

22.111 Industrial Chemistry I
22.211 Ceramics I
22.311 Polymer Science I
4.011 Metallurgy I
7.311 Mineral Dressing
3.321 Fuel Engineering II
Any other subject approved by the Professorial Board on the recommendation of the Head of School.

SCHOOL OF METALLURGY

The metallurgical profession is developing rapidly in importance in Australia, in keeping with the recent spectacular growth of our metal and mineral industry. In terms of value of production this industry is now a close second to—and at the present rate of growth will soon surpass—the wool industry as Australia's most important income earner.

Industrial development in metallurgy has been accompanied by, and is based on, the development of metallurgical research. This is being carried on in a number of laboratories run by industry, government, and the universities.

The undergraduate courses in metallurgy have been designed to prepare students for employment in metallurgical industries and research institutions, and involve a general training in basic sciences and engineering. These fundamental principles are then extended to cover studies of the extraction, refining, working, fabrication and use of metals.

These courses meet the formal educational requirements for admission to the professional metallurgical institutes, such as the Australasian Institute of Mining and Metallurgy and the Institution of Metallurgists (London). Further details about membership of these institutes, the Australian Institute of Metals and the undergraduate Metallurgical Society of the University, all of which students are encouraged to join, may be obtained from the Head of the School.

While the emphasis in the course is on providing a broad fundamental background in all branches of metallurgy, provision is made for a limited amount of specialization of the student's own choice in the final year.

Metallurgy—Full-Time Course
Bachelor of Science

Students in this course attend the University for 30 weeks over three terms from March to November (excluding examinations and vacations).

Students are required, before graduation, to have gained at least four months of approved industrial experience. This is normally achieved by working during the Christmas vacations at the end of the second and third years. During the second, third, and fourth years of the course, visits are made to various metallurgical works, and students are required to submit reports on some of these.

First Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

Second Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
2.022	Chemistry II (M)*	3	0	2½	5
4.011	Metallurgy†	5	0	5	8
10.031	Mathematics	1	1	0	2
25.551	Mineralogy	1	0	1	2
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		13½	1½	9½	23
	* Hours for Term 1 only.				
	Hours for Term 2	4	0	3	7
	Hours for Term 3	3	0	2½	5
	† Hours for Term 1 only.				
	Hours for Terms 2 and 3	4	1	5	7

THIRD YEAR
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
4.012	Metallurgy II	9	1*	9	17
6.801	Electrical Engineering	1	0	2	2
	Two 30-hour General Studies Electives	2	0	0	4
		12	1	11	23

* Two hours in terms 2 and 3.

FOURTH YEAR
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
4.013	Metallurgy III*	6	2	9	13½
4.021	Metallurgy Project†	0	0	5	5
	Humanities—Advanced Elective	2	0	0	4
		8	2	14	22½
	* Hours for Term 1 only.				
	Hours for Term 2	6	2	6	13
	Hours for Term 3	6	0	0	12
	† Hours for Term 1 only.				
	Hours for Term 2	0	0	8	8
	Hours for Term 3	0	0	12	12

Metallurgy—Part-Time Course*

Bachelor of Science (Technology)

The part-time course extends over six years of three terms each. Students are required to obtain at least three years' approved experience in a metallurgical industry or research establishment concurrently with studies.

During the last three years of the course visits are made to various metallurgical works, and students are required to submit reports on some of these.

* See below for outline of this course involving combined full-time and part-time study.

First and Second Stages

(30 weeks' part-time course)

(Two subjects to be taken in each year)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

Third Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
2.022	Chemistry II (M)*	3	0	2½	5
10.031	Mathematics	1	1	0	2
50.011H/1	English	1	0	0	2
		6½	1½	3½	11
	*Hours for Term 1 only.				
	Hours for Term 2	4	0	3	7
	Hours for Term 3	3	0	2½	5

Fourth Stage

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
4.011	Metallurgy I*	5	0	5	8
25.551	Mineralogy	1	0	1	2
50.011H/2	English	1	0	0	2
		7	0	6	12
	* Hours for Term 1 only.				
	Hours for Terms 2 and 3	4	1	5	7

FIFTH STAGE
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
4.012/1	Metallurgy IIA*	4	0	5	8
6.801	Electrical Engineering	1	0	2	2
	One 30-hour General Studies Elective	1	0	0	2
		6	0	7	12
	* Hours for Terms 1 and 2 only. Hours for Term 3	4	2	3	8

SIXTH STAGE
(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
4.012/2	Metallurgy IIB	5	1	5	10
	One 30-hour General Studies Elective	1	0	0	2
		6	1	5	12

Metallurgy B.Sc. (Tech.) in Full-Time/Part-Time Study

Students enrolling in the Metallurgy B.Sc.(Tech.) course may reduce the time required for completion by undertaking the following programme of combined part-time/full-time study:

Stage 1.....Part-time (as for B.Sc.(Tech.) course above)
Stage 2.....Part-time (as for B.Sc.(Tech.) course above)
Stage 3A.....Full-time (as for second year of full-time B.Sc. course above)
Stage 4A.....Full-time (as for third year of full-time B.Sc. course above)
Stage 5A.....Part-time (as set out below)

STAGE 5A

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
4.012/3	Metallurgy IIC	2	0	2	3½
4.013/1	Seminar	0	0	1	1
4.012/4	Report	0	0	0	2
		2	0	3	6½

SCHOOL OF MINING ENGINEERING

The School of Mining Engineering offers a full-time course in Mining Engineering leading to the degree of Bachelor of Engineering (pass or honours).

The School also offers two courses at graduate level requiring one year of full-time or two years of part-time study leading to the Graduate Diploma (Grad.Dip.) in Mining Engineering or Mineral Technology.

Part-time courses in Mining Engineering are conducted at the Wollongong University College and at the Broken Hill Division of the University, leading to the award of the B.Sc. (Tech.) degree. Students in the B.Sc. (Tech.) course may complete the requirements for the Bachelor of Engineering degree at Kensington after obtaining the approval of the Head of the School.

The courses within the School prepare graduates for employment in the mineral industries and in research institutions which are linked with those industries.

Since 1850 the mining industry has been a pioneering force in the development of Australia. If mining engineers are to carry on this tradition they must realise that the problems of today are complex and require great technical skill. They also must be aware that the future offers an increasing number of opportunities for all grades and all types of mining engineers.

It is obvious that the mining industry, now ranking third in Australia, will become, because of its spectacular rate of growth, an even greater influence in the development of this and neighbouring countries than it has been in the past. Vigorous expansion faces the industry. For example, extensive and successful prospecting is already taking place, particularly in those areas which in the past received little attention, and hidden, sub-surface deposits are being discovered on established mining fields. After the discovery of a promising deposit there is a period of testing, proving and assessment followed by a period of development and

construction. Finally, there is the production period with which is associated some extension of activities which includes smelting and refining.

Mining Engineering—Full-Time Course

Bachelor of Engineering

The first two years of the course consist of those years of either the Mechanical Engineering, the Civil Engineering or the Electrical Engineering full-time courses which are known as Option 1, Option 2 and Option 3 respectively. In the third year the programme is designed so that students from any of the options will reach the same standard in the basic science and engineering subjects. The final year is concerned with the professional Mining Engineering subjects which include Geology and Geophysics, Mining Engineering and Mineral Processing.

The aim of the training is to give students a thorough foundation in mining engineering and so permit them to enter "coal mining", "metalliferous mining" or the "petroleum industry", and to be employed in any of the phases of these industries, ranging from exploration to production.

To cater for the varied needs of the industry and to develop the special talents of individual students an elective subject is offered in the final year of the course. In addition, during the final year of the course students are given a project which may be linked with the elective and for which a thesis must be submitted.

During the undergraduate course students will spend portion of the long vacations obtaining practical experience in mines. Mining companies prepare programmes so that the students obtain a comprehensive experience in many aspects of mining work. This experience is important; it is related to the academic training received within the School, and can contribute to the experience record of candidates for the Mine Manager's Certificate.

After graduation it is normal for mining engineers to obtain the abovementioned statutory certificate of competency from one of the State Government Departments of Mines. Graduates in Mining Engineering are exempt from certain parts of the relevant examination.

First Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

Second Year

The second year of either the Mechanical (24 weeks), Civil (24 weeks) or Electrical Engineering (30 weeks) courses may be taken as the second year of the Mining Engineering course. These three possible second year courses are known as Option 1, Option 2 and Option 3 respectively.

SECOND YEAR

		24 WEEKS' DAY COURSE						30 WEEKS' DAY COURSE		
		Option 1			**Option 2**			**Option 3**		
		Mechanical Engineering			Civil Engineering			Electrical Engineering		
		Lec.	Tut.	Lab.	Lec.	Tut.	Lab.	Lec.	Tut.	Lab.
1.112	Physics	—	—	—	—	—	—	4	0	4
1.212S	Physics II (T)	2	0	2½	2	0	2½	—	—	—
4.911S	Materials Science	1¼	1¼	0	—	—	—	—	—	—
4.921	Materials Science	—	—	—	—	—	—	1	½	0
5.202S	Mechanical Technology	2	0	0	—	—	—	—	—	—
5.301	Engineering Mechanics	—	—	—	—	—	—	1	1	0
5.301S	Engineering Mechanics	1½	1	0	1½	1	0	—	—	—
5.501S	Fluid Mechanics	1	0	1½	—	—	—	—	—	—
5.701	Thermodynamics	—	—	—	—	—	—	1	0	1
5.701S	Thermodynamics	1	0	1½	1	0	1½	—	—	—
6.101	Electric Circuit Theory	—	—	—	—	—	—	1	2	0
8.112	Materials and Structures	—	—	—	—	—	—	1½	1½	0
8.112S	Materials and Structures	2	2	0	2	2	0	—	—	—
8.421S	Engineering Surveying*	—	—	—	1½	0	1½	—	—	—
10.022S	Mathematics	4	1	0	4	1	0	—	—	—
10.111	Pure Mathematics II	—	—	—	—	—	—	3	2	0
25.531S	Geology†	—	—	—	2	0	1	—	—	—
50.011H 57.011H	English *or* An Introduction to Modern Drama	3	0	0	3	0	0	2	0	0
		17¾	5¼	5½	17	4	6½	14½	7	5

* A one-week survey camp must be attended in seventh week of Third Term.

† Two one-day Geology excursions are an essential part of the course.

THIRD YEAR

(24 weeks' day course)

		Option 1 Terms 1, 2, 3				Option 2 Terms 1, 2, 3				Option 3 Terms 1, 2, 3			
		Lec.	Tut.	Lab.	Private Study	Lec.	Tut.	Lab.	Private Study	Lec.	Tut.	Lab.	Private Study
4.931S	Metallurgy	—	—	—	—	1	0	1	2	—	—	—	—
5.402S	Mechanics of Solids	1½	1½	0	1½	1½	1½	0	1½	1½	1½	0	1½
5.501S	Fluid Mechanics	—	—	—	—	1	1½	0	2	1	1½	0	2
6.801S	Electrical Engineering	1½	0	2½	2½	1½	0	2½	2½	1½	0	2½	1
7.111S	Mining Engineering I	6	0	4	8	6	0	4	8	6	0	4	8
8.421S	Surveying*	1½	0	1½	2½	—	—	—	—	1½	0	1½	2½
25.531S	Geology†	2	0	1	2	—	—	—	—	2	0	1	2
	Two 30-hour General Studies Electives‡	3	0	0	5	3	0	0	5	3	0	0	5
		15½	1½	9	21½	14	3	7½	21	16½	3	9	22

* A survey camp of one week's duration will be conducted in the seventh week of the third term.

† Two-one-day Geology excursions are an essential part of the course.

‡ Terms 1 and 2 (21 weeks) only.

Fourth Year

(Common to the three options)

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
7.112	Mining Engineering II and Project*	4	1	4	7
7.113	Mining Engineering Elective	1	1	0	2
7.121	Mine Surveying	1	0	1	1½
7.311	Mineral Dressing	1	0	3	2
25.532	Geology for Mining Engineers†	4	0	3	6
	Humanities—Advanced Elective	2	0	0	4
		13	2	11	22½

* Project for the award of honours will be more advanced than that required for the award of the pass degree.
† A Geology excursion will be conducted during the year.

Third Term

During the third term of the fourth year, students will devote time to the professional elective subjects and the preparation of their thesis.

Mining Engineering—Part-Time Course
Bachelor of Science (Technology)

(Broken Hill Division and Wollongong University College)

The School of Mining Engineering offers at Broken Hill and Wollongong part-time courses in Mining Engineering leading to the degree of Bachelor of Science (Technology).

First and Second Years

(30 weeks' part-time course)

(Two subjects to be taken in each year)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	6
		13	6	5	19

Third Year

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212S	Physics IIT	1½	½	1	2
5.301	Engineering Mechanics	1	½	½	2
7.111/1	Mining Engineering I, Part I	1	0	0	1
8.112	Materials and Structures	1½	1½	0	1½
10.022/1	Mathematics II, Part I	1	1	0	2
50.011H/1	English	1	0	0	2
		7	3½	1½	10½

Fourth Year

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
4.911	Materials Science	1	0	1	1
5.501	Fluid Mechanics	1	½	½	2
5.701	Thermodynamics	1	½	½	2
7.111/2	Mining Engineering I, Part II	2	0	0	4
*8.421	Engineering Surveying	1½	0	0	2
10.022/2	Mathematics II, Part II	1	1	0	2
50.011H/2	English	1	0	0	2
		8½	2	2	15

* Including practical work.

Fifth Year

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
5.402	Mechanics of Solids	1½	1½	0	2
6.801	Electrical Engineering	1	1	1	2
7.111/3	Mining Engineering I, Part III	2	0	1	5
25.531	Geology*	1	0	1	2
	Two 30-hour General Studies Electives	2	0	0	4
		7½	2½	3	15

* Two short Geology excursions are an essential part of the course.

Sixth Year

(30 weeks' part-time course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
7.112/1	Mining Engineering II and Project*	2	0	1	4
7.121/1	Mine Surveying†	1½	0	0	1½
7.311/1	Mineral Dressing	2	0	2	3
25.532/1	Geology for Mining Engineers‡	2	0	2	4
		7½	0	5	12½

* A mining excursion of five days will be conducted during the year.

† Including practical work.

‡ A Geology excursion will be conducted during the year.

SCHOOL OF TEXTILE TECHNOLOGY

The field of textile technology is so broad in scope that students are given the opportunity of choosing from four courses, viz., Textile Chemistry, Textile Physics, Textile Engineering and Textile Manufacture. Each course extends over four years. The aim of all four courses is to produce graduates who have acquired a comprehensive knowledge of all the textile sciences and technologies, the courses themselves differing in the fundamental subjects offered in the second and third years. All students take a common first year, and they need not choose the option they desire to follow until the end of that year. Students are required to undertake a minimum of eight weeks' industrial training during the second and third year vacations. The fourth year is common to all four Textile Technology courses.

Although Australia converts only ten per cent of her wool clip and imports 90 per cent of her manufactured cotton and synthetic requirements, the textile industry is nevertheless the second largest manufacturing group in this country. Present-day textile technology is based on engineering and the fundamental sciences, and excellent opportunities await university-trained scientists and technologists in the textile and allied industries, and in research and development organisations.

The conversion of textile raw materials into their finished products is simply a succession of, and an interaction between, a number of chemical, physical and engineering processes. Graduates with a good background in physics, chemistry or engineering, together with a broad training in the whole range of textile sciences and technologies, as provided in these courses, will substantially meet the present and future technological requirements of industry. They will also play a decisive part in bridging the gap which exists between fundamental research and its industrial application. The course in Textile Manufacture, which includes subjects in Commerce and Applied Psychology, is especially designed to meet the undoubted need for executives in industry who have been given a comprehensive technological training.

Textile Technology—Full-Time Course
Bachelor of Science

First Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics I	3	1	2	3½
2.001	Chemistry I	3	0	3	5
5.001	Engineering I	3	3	0	4½
10.001	Mathematics I	4	2	0	4
		13	6	5	17

TEXTILE CHEMISTRY

Second Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
2.062	Chemistry II—				
	Organic Chemistry	2	0	3	3½
	Physical Chemistry	2	0	3	3½
10.331	Statistics	1	1	0	1½
13.111	Textile Technology I	5	0	5	5
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		13½	1½	12	19½

Third Year
(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
2.451	Chemistry II—				
	Inorganic/Analytical	2	0	3	3½
13.112	Textile Technology II	6	0	7	10
13.211	Textile Science I	1	1	0	3
13.311	Textile Engineering I	1	0	0	1½
	Two 30-hour General Studies Electives	2	0	0	4
		12	1	10	22

TEXTILE PHYSICS

SECOND YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.112	Physics II	4	0	3	4
10.111	Pure Mathematics II	3	2	0	4
10.331	Statistics	1	1	0	1½
13.111	Textile Technology I	5	1	5	5
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		15	4	8	18½

THIRD YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.213	Physics III	4	0	3	5
13.112	Textile Technology II	6	0	7	10
13.211	Textile Science I	1	0	0	2
13.311	Textile Engineering I	1	0	0	1½
	Two 30-hour General Studies Electives	2	0	0	4
		14	0	10	22½

TEXTILE ENGINEERING

SECOND YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
5.301	Engineering Mechanics	1½	½	0	2
5.501	Fluid Mechanics	1	½	½	2
8.112	Materials and Structures	1	1	1	1½
10.031	Mathematics	1	1	0	2
10.331	Statistics	1	1	0	1½
13.111	Textile Technology I	5	1	5	5
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		14	5½	7½	20

THIRD YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
5.101/1	Mechanical Engineering Design	0	2	0	1
5.302	Theory of Machines	1½	1	0	2
6.801	Electrical Engineering	1	0	2	2
13.112	Textile Technology II	6	0	7	10
13.211	Textile Science I	1	0	0	2
13.311	Textile Engineering I	1	0	0	1½
	Two 30-hour General Studies Electives	2	0	0	4
		12½	3	9	22½

TEXTILE MANUFACTURE

SECOND YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.212	Physics	1½	½	1	2
10.331	Statistics	1	1	0	1½
12.101	Psychology	2	1	0	2
13.111	Textile Technology I	5	1	5	5
14.101	Accounting I	2	2	0	4
15.101	Economics I	2	1	0	3
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		15½	6½	6	21½

THIRD YEAR

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
12.501	Social Psychology	2	0	0	2
13.112	Textile Technology II	6	0	7	10
13.211	Textile Science I	1	0	0	2
13.311	Textile Engineering I	1	0	0	1½
14.321	Business Finance	2	0	0	3
14.311	Marketing	2	0	0	3
	Two 30-hour General Studies Electives	2	0	0	4
		16	0	7	25½

Fourth Year

(30 weeks' day course)

Common to all four courses

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
13.113	Textile Technology III	5	0	3	8
13.212	Textile Science II	2	1	3	6
13.312	Textile Engineering II	1⅓	0	0	3
13.411	Project	0	0	7	2
	Advanced Elective	2	0	0	4
		10⅓	1	13	23

SCHOOL OF WOOL TECHNOLOGY

To meet a potential threat from cheaply-produced man-made fibres, wool producers, by the implementation of the Wool Use Promotion Act of 1945 and subsequent legislation, have undertaken a programme to improve efficiency through research, increased extension services, and adequate publicity for wool. The full development of this programme will require specialist personnel trained to give service to the pastoral industry.

To meet this need the School of Wool Technology offers a full-time course in wool technology.

Previously far too many senior workers in the pastoral industry in Australia had no opportunity for tertiary education, and their knowledge, usually highly specialized, came from long practical experience and from personal contacts in the industry. This was especially true in the field of wool commerce, where men aspiring to the highest positions in wool broking and wool buying had to get a substantial part of their training outside of formal instruction, or spend a year or more in an oversea wool centre such as Bradford, Leeds or Boston.

The Wool Technology course aims to provide a pool of graduates in whom has been inculcated a liberal scientific outlook, and the habit of exact and logical thought. These men will be familiar with the latest developments in fields relating to wool production, wool commerce, and wool utilization. They will also be good practical wool men, capable of handling wool and recognizing its technical characteristics, through facility in subjective appraisal on which the whole wool trade is based. One broad aim of this course is to link producers, buyers and users of wool. Trainees, for example, will be given the opportunity, on machines of the Textile Department, of following particular lots of wool through all processing operations, and observing for themselves the effect in manufacture of characteristics apparent in the raw material.

The first year of the course consists of a basic training in general science; vocational subjects essential to all branches of

the wool industry are given in the second, third and fourth years. The fourth year work will include a project which will give each student an opportunity to express initiative and originality. By association with lecturers, and teachers who are all engaged in research, we aim to provoke both curiosity and interest in students who will themselves endeavour to contribute to the advance of efficiency.

From time to time obligatory excursions and farm tours are arranged for senior students.

Requirements for Industrial Training

Each student is required to complete satisfactorily thirty-six weeks' practical work on approved sheep properties, twenty-four weeks of which work should be concurrent with the course. If a student has done practical work before entering the course, this may be taken into consideration in determining any further work required.

In order to obtain recognition of practical work carried out students shall:

1. Make application for the approval of the properties where they intend to carry out the required practical work, such application to contain a brief description of the property and to be in the hands of the Head of the School at the earliest possible date. Students should endeavour to obtain experience in the pastoral, sheep-wheat, and high rainfall sheep zones.

2. At the conclusion of the work, produce certificates from employers stating periods of employment and reporting on the quality of the student's work.

3. Supply reports as hereunder:
   (i) On work carried out in the long vacation—
      (a) Monthly interim reports setting out briefly the nature of the work engaged in, with any notes of topical interest. The first interim report shall include a description of the property, including details of farm buildings, dip and yards, plant and equipment, stock numbers (in age and sex groups), and such features as water supplies, improved pastures, crops, etc. A sketch plan of the property should also be included.

(b) A final report to be submitted within a month of resumption of lectures. The final report should embody a report on a district basis in general and the property on which the student has worked in particular. The development of farming practices, the salient features of management in relation to the environment, pasturage, rainfall and distribution, water supplies, type of stock and breeding policies, statistics, etc., should receive consideration. The size and capacity of the farm buildings should be mentioned. Sketch plans with the principal measurements and photographs to illustrate features will be of value. Where applicable, details of pasture mixtures, rate of sowing for crops and fertiliser treatment should be recorded, as should also labour performances (both manual and with machines), and costs.

(ii) On work carried out in short vacations—A brief report to be submitted within one week of the resumption of the term.

(iii) By students who carry out work for thirty-six weeks on a property or properties—

(a) Interim reports to be submitted every two months.

(b) Final reports to be submitted by March 31 in the year of resumption of studies. The nature of the interim and final reports shall be as required for work carried out in the long vacation.

Note.—Students will find that a loose-leaf note-book suitably indexed will be of great value for recording factual material, costs, material requirements for various jobs, et cetera.

Students are also encouraged to submit questions relating to any problems they may meet in the course of their practical work.

Wool Technology—Full-Time Course

Bachelor of Science

First Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
1.001	Physics	3	1	2	3½
2.001	Chemistry	3	0	3	5
10.001	Mathematics	4	2	0	4
17.001	General Biology	2	0	4	4
		12	3	9	16½

Second Year

(30 weeks' day course)

		Hours per week for three terms			
		Lec.	Tut.	Lab.	Private Study
9.101	Livestock Production I	3	0	0	4½
9.221	Agronomy	2	0	2	4
9.531	Wool Technology I	2	0	4	4
10.331	Statistics	1	1	0	1½
17.111	Biochemistry	3	0	6	6
50.011H 57.011H	English *or* An Introduction to Modern Drama	2	0	0	4
		13	1	12	24

THIRD YEAR

(30 weeks' day course)

		Hours per week											
		Term 1				Term 2				Term 3			
		Lec.	Tut.	Lab.	Private Study	Lec.	Tut.	Lab.	Private Study	Lec.	Tut.	Lab.	Private Study
9.122	Livestock Production II	3	0	0	4½	6	0	0	10½	3	0	0	6
9.311	Economics	2	0	0	4	2	0	0	4	1	0	0	2
9.411	Agricultural Chemistry	1	0	3	2	1	0	3	2	1	0	3	2
9.532	Wool Technology II	2	0	3	4	1	0	3	2	2	0	3	4
9.601	Animal Physiology I	2	0	3	3	1	0	3	1½	2	0	2	4
9.801	Genetics I	2	0	1	4	1	0	1	2	2	0	1	4
	Two 30-hour General Studies Electives	2	0	0	4	2	0	0	4	2	0	0	4
		14	0	10	25½	14	0	10	26	13	0	9	26

FOURTH YEAR
(30 weeks' day course)

		Hours per week											
		Term 1				Term 2				Term 3			
		Lec.	Tut.	Lab.	Private Study	Lec.	Tut.	Lab.	Private Study	Lec.	Tut.	Lab.	Private Study
9.001	Project	0	0	7*	0	0	0	7*	0	0	0	11*	0
9.533	Wool Technology III	0	0	1	0	0	0	1	0	0	0	1	0
9.123	Livestock Production III	1	1	0	2	1	1	0	2	2	0	0	4
9.231	Pastoral Agronomy	1	1	0	2	1	1	0	2	1	1	0	2
9.421	Animal Nutrition	2	0	0	4	2	0	0	4	—	—	—	—
	Humanities—Advanced Elective	2	0	0	4	2	0	0	4	2	0	0	4
		6	2	8	12	6	2	8	12	5	1	12	10

Plus two of the following subjects, the choice to be approved by the Head of the School.

9.312	Farm Management	2	2	0	4	2	2	0	4	2	2	0	4
9.534	Wool Technology IV	2	0	2	4	2	0	2	4	2	0	2	4
9.901	Rural Extension	2	2	0	4	2	2	0	4	2	2	0	4
9.602	Animal Physiology II	2	0	2	4	2	0	2	4	2	0	2	4
17.122	Biochemistry	3	1	6*	6	3	1	6*	6	3	1	10*	6
9.802	Genetics II	2	0	2	4	2	0	2	4	2	0	2	4
9.811	Biostatistics	2	0	2	4	2	0	2	4	2	0	2	4

* Students electing the Biochemistry option must undertake an approved project in a related field.

Table of Pre-requisite and Co-requisite Subjects

Subject	*Pre-Requisite*	*Co-Requisite*
1st Year		
1.001 Physics	Nil	Nil
2.001 Chemistry	,,	,,
10.001 Mathematics	,,	,,
17.001 General Biology	,,	,,
2nd Year		
9.101 Livestock Production I	17.001 General Biology	9.221 Agronomy 9.531 Wool Technology I 17.111 Biochemistry
9.221 Agronomy	2.001 Chemistry 17.001 General Biology	
9.531 Wool Technology I	17.001 General Biology 2.001 Chemistry	9.101 Livestock Production I
3rd Year		
9.122 Livestock Production II	9.101 Livestock Production I	9.601 Animal Physiology 9.122 Livestock Production II
9.532 Wool Technology II	9.531 Wool Technology I 9.101 Livestock Production I	
9.601 Animal Physiology I	17.001 General Biology 1.001 Physics 17.111 Biochemistry 2.001 Chemistry	9.122 Livestock Production II
9.801 Genetics I	17.001 General Biology 10.331 Statistics 9.101 Livestock Production I	
9.411 Agricultural Chemistry	1.001 Physics 2.001 Chemistry 17.111 Biochemistry	
9.311 Economics		
4th Year		
9.001 Project 9.123 Livestock Production III 9.231 Pastoral Agronomy 9.312 Farm Management 9.421 Animal Nutrition 17.122 Biochemistry 9.533 Wool Technology III 9.534 Wool Technology IV 9.602 Animal Physiology II 9.802 Genetics II 9.811 Biostatistics 9.901 Rural Extension	In general these subjects require the subjects of the 1st, 2nd and 3rd year or their equivalents.	Compulsory subjects of the 4th year gain by being taught as a group but could be taken singly, with the approval of Head of School. Optional subjects are to be approved by the Head of the School.

All students take common subjects up to and including third year. They have, therefore, all the pre-requisites for any two optional subjects they choose. There are no co-requisites for the two subjects chosen, all of which will have had a logical development during the first three years of the course.

FACULTY OF ENGINEERING

The Faculty of Engineering consists of the Schools of Civil Engineering (with its associated Department of Surveying), Electrical Engineering, and Mechanical Engineering (with its associated Department of Industrial Engineering), and the Schools of Highway Engineering, Nuclear Engineering and Traffic Engineering.

The Schools of the Faculty offer four-year full-time courses leading to the degrees of Bachelor of Engineering and Bachelor of Surveying (pass or honours), and six-year part-time courses leading to the degree of Bachelor of Science (Technology) and a seven-year part-time course leading to the degree of Bachelor of Surveying.

Common First Year: There is a common first-year syllabus in Physics, Mathematics, Chemistry and Engineering for all courses in the Faculty, except Surveying, making it possible for students to transfer from one course to another at the end of their first year without loss of standing. This first year is also equivalent to the first two stages of the part-time Engineering courses which lead to the degree of Bachelor of Science (Technology). Transfer to and from certain courses in the Faculties of Science and Applied Science without loss of standing is also possible at the end of the first year.

Rules relating to the operation of these common first-year subjects in the Faculties of Engineering, Science, Medicine and Applied Science are set out in the Calendar and also in the Faculty of Engineering Handbook.

POST-GRADUATE STUDY

The Faculty provides facilities for students to proceed to the higher degrees of Doctor of Philosophy, Master of Engineering, Master of Science and Master of Technology. Courses leading to the award of a Graduate Diploma are also offered. The degree of Doctor of Science is awarded for a contribution of distinguished merit in the fields of science, engineering or applied science.

The degrees of Doctor of Philosophy, Master of Engineering and Master of Science are all awarded for research and require the preparation and submission of a thesis embodying the results of an original investigation or design. Candidates for the Doctorate of Philosophy may read for the degree in this Faculty and are normally involved in three years' work. The work for the Master's degree may be completed in a minimum of one year, but normally requires two years of study.

The Faculty offers courses leading to the award of the degree of Master of Technology. The institution of this degree springs from the recognition of the considerable advance of knowledge in the fields of applied science and engineering which have marked recent years and the consequent increased scope for advanced formal instruction in these fields. Students are usually in attendance at the University for one year on a full-time basis, or for two years part-time.

A number of courses are also offered at the post-graduate level leading to the award of a Graduate Diploma. Students are required to attend courses of study for one year full-time or two years part-time. The courses available for the Graduate Diploma are Applied Geophysics, Process Chemical Engineering, Corrosion Technology, Food Technology, Fuel Technology, Mineral Technology, Mining Engineering and Wool Technology.

Courses leading to the degree of Master of Technology and to Graduate Diplomas are available in Sydney only. Candidates may register for all the research degrees at Sydney. At Wollongong University College and the University Division at Broken Hill

they may register for the degrees of Master of Science and Master of Engineering subject to adequate research facilities and satisfactory supervision being available in the candidate's particular field of study. Where these special conditions can be met the Professorial Board may grant permission to a candidate to register for the degree of Doctor of Philosophy in these centres.

The conditions governing the award of the various higher degrees and graduate diplomas are set out in the following pages.

Short, intensive graduate and special courses are provided throughout each year designed to keep practising scientists and technologists in touch with the latest developments in their various fields.

CONDITIONS FOR AWARD OF DEGREE OF DOCTOR OF SCIENCE IN THE FACULTY OF APPLIED SCIENCE

1. The degree of Doctor of Science may be granted by the Council on the recommendation of the Professorial Board for an original contribution (or contributions) of distinguished merit to some branch of Science, Engineering or Applied Science.

2. A candidate for the degree of Doctor of Science shall hold a degree of the University of New South Wales or shall have been admitted to the status of such degree. No candidate shall present himself for the degree of Doctor of Science until five years after the award of his original degree.

3. The degree shall be awarded on the published work* of the candidate although in special circumstances additional unpublished work may be considered provided that these circumstances are recognised as sufficient by the Professorial Board.

4. A candidate for the degree shall forward to the Registrar an application accompanied by a fee of $63 (£31/10/-). With such application the candidate shall forward—

(i) Four copies (wherever possible) of the work referred to in paragraph 3.

(ii) Any additional work, published or unpublished, which he may desire to submit in support of his application.

* In these regulations, the term "published work" shall mean printed in a periodical or as a pamphlet or as a book readily available to the public. The purpose of requiring publication is to ensure that the work submitted has been available for criticism by relevant experts, and examiners are given discretion to disregard any of the work submitted if, in their opinion, the work has not been so available for criticism.

(iii) A statutory declaration indicating those sections of the work, if any, which have been submitted previously for a degree or diploma in any University.

5. Every candidate in submitting his published work and such unpublished work as he deems appropriate shall submit a short discourse describing the research activities embodied in his submission. The discourse shall make clear the extent of originality and the candidate's part in any collaborative work.

6. The work shall be submitted to three examiners appointed by the Professorial Board who may require the candidate to answer orally or in writing any questions concerning his work.

CONDITIONS FOR THE AWARD OF DEGREE OF DOCTOR OF PHILOSOPHY (Ph.D) IN THE FACULTY OF APPLIED SCIENCE

1. The degree of Doctor of Philosophy may be granted by the Council on the recommendation of the Professorial Board to a candidate who has made an important contribution to knowledge and who has satisfied the following requirements.

Qualifications

2. A candidate for registration for the degree of Doctor of Philosophy shall—

(i) hold an honours degree from the University of New South Wales; or

(ii) hold an honours degree of equivalent standing from any other approved University; or

(iii) if he holds a degree without honours from the University of New South Wales or an approved University, have achieved by subsequent work and study a standard recognised by the Board as equivalent to honours; or

(iv) in exceptional cases, submit such other evidence of general and professional qualifications as may be approved by the Professorial Board.

3. When the Professorial Board is not satisfied with the qualifications submitted by a candidate, the Board may require him, before he is permitted to register, to undergo such examination or carry out such work as the Board may prescribe.

Registration

4. A candidate for registration for a course of study leading to the degree of Doctor of Philosophy shall—

(i) apply to the Registrar on the prescribed form at least one calendar month before the commencement of the term in which he desires to register; and

(ii) submit with his application a certificate from the Head of the University School in which he proposes to study stating that the candidate is a fit person to undertake a course of study or research leading to the Doctor of Philosophy degree and that the School is willing to undertake the responsibility of supervising the work of the candidate and of reporting to the Professorial Board at the end of the course on the merits of the candidate's performance in the prescribed course of study.

5. Subsequent to registration the candidate shall pursue a programme of advanced study and research for at least nine academic terms, save that—

(i) a candidate fully engaged in research work for his degree, who before registration was engaged upon research to the satisfaction of the Professorial Board, may be exempted from three academic terms;

(ii) in special circumstances the Professorial Board may grant permission for the candidate to spend not more than one calendar year of his programme in research at another institution provided that his work can be supervised in a manner satisfactory to the Board.

6. A candidate who is fully engaged in research for the degree shall present himself for examination not later than fifteen academic terms from the date of his registration. A candidate not fully engaged in research shall present himself for examination not later than eighteen academic terms from the date of his registration. In special cases an extension of these times may be granted by the Professorial Board.

7. The candidate shall be required to devote his whole time to advanced study and research, save that:—

(i) the Professorial Board 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 University staff may be accepted as a part-time candidate for the degree, in which case the Professorial Board shall prescribe a minimum period for the duration of the programme.

(iii) in special circumstances, the Professorial Board may accept as a part-time candidate for the degree a person engaged in another regular occupation which, in its opinion, leaves the candidate substantially free to pursue his programme in a School of the University. In such a case the Professorial Board 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 School is equivalent to the nine terms ordinarily required.

8. Every candidate shall pursue his programme under the direction of a supervisor appointed by the Professorial Board from the full-time members of the University staff. The work, other than field work, shall be carried out in a School of the University save that in special cases the Professorial Board 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.

9. Not later than three academic terms after registration the candidate shall submit the subject of his thesis for approval by the Professorial Board. After the subject has been approved it may not be changed except with the permission of the Board.

10. A candidate may be required to attend a formal course of study appropriate to his work.

Thesis

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 Ph.D. degree.

(ii) It must be a distinct contribution to the knowledge of the subject.

(iii) It must be written in English and reach a satisfactory standard of literary presentation.

12. The thesis must consist of the candidate's own account of his research. In special cases work done conjointly with other persons may be accepted, provided the Professorial Board is satisfied on the candidate's part in the joint research.

13. Every candidate shall be required to submit with his thesis a short abstract of the thesis comprising not more than 300 words.

14. A candidate 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.

Entry for Examination

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 fee.

16. Four copies of the thesis shall be submitted together with a certificate from the supervisor that the candidate has completed the course of study prescribed in his case. It shall be understood that the University retains the four copies of the thesis and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act*, 1912-1950, the University may issue the thesis in whole or in part in photostat or micro-film, or other copying medium.

17. The thesis shall be in double-spaced typescript. The *original* copy for deposit in the Library shall be prepared and bound in a form approved by the University.* The other three copies shall be bound in such manner as allows their transmission to the examiners without possibility of disarrangement.

18. The candidate may also submit as separate supporting documents any work he has published, whether or not it bears on the subject of the thesis.

19. The Professorial Board shall appoint the examiners, one of whom shall normally be an external examiner.

20. After the examiners have read the thesis they may—

(i) without further test recommend the candidate for rejection;

* For the specifications currently approved for the preparation and binding of theses, see p. 123.

(ii) request additional work on the thesis before proceeding further with examination.

21. If the thesis reaches the required standard, the examiners shall arrange for the candidate to 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, save that on the recommendation of the examiners the Professorial Board may dispense with the oral examination.

22. If the thesis is adequate but the candidate fails to satisfy the examiners at the oral or other examinations, the examiners may recommend the University to 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 eighteen months.

23. At the conclusion of the examination, the examiners will submit to the Professorial Board a concise report on the merits of the thesis and on the examination results.

Fees

24. The fee payable for an examination qualifying for registration shall be $10 (£5).

25. An approved candidate shall pay—
(i) a registration fee of $4 (£2).
(ii) a supervision fee of $60 (£30) per annum.
(iii) a fee of $42 (£21) on application for the examination.

26. Fees shall be paid in advance.

CONDITIONS FOR THE AWARD OF DEGREE OF MASTER OF ENGINEERING

1. An application to register a candidate for the degree of Master of Engineering shall be made on the prescribed form which shall be lodged with the Registrar at least one full calendar month before the commencement of the term in which the candidate desires to register.

2. An applicant for registration for the degree of Master shall have been admitted to a Bachelor's degree in Engineering in the University of New South Wales, or other approved University, in an appropriate School.

3. (i) In exceptional cases persons may be permitted to register as candidates for the degree of Master if they submit evidence of such academic and professional attainments as may be approved by the Professorial Board.

(ii) The registration of diplomates of the New South Wales Department of Technical Education as candidates for the degree of Master of Engineering shall be determined in each case by the Professorial Board. Normally such applicants shall be required to produce evidence of academic and professional progress over a period of five years from the time of gaining the diploma.

4. Notwithstanding any other provisions of these regulations the Professorial Board may require an applicant to demonstrate his fitness for registration by carrying out such work and sitting for such examinations as the Board may determine.

5. In every case, before permitting an applicant to register as a candidate, the Professorial Board shall be satisfied that adequate supervision and facilities are available.

6. An applicant approved by the Professorial Board shall register in one of the following categories:

(i) Student in full-time attendance at the University.

(ii) Student in part-time attendance at the University.

(iii) Student working externally to the University.

7. An approved applicant shall be required to pay the undermentioned fees:

(i) a registration fee of $4 (£2);

(ii) the appropriate laboratory and supervision fee according to the category in which the student is registered;

(iii) a fee of $30 (£15) when submitting the thesis for examination.

The combined laboratory and supervision fees shall be—

(a) $60 (£30) p.a. for students in full-time attendance at the University;

(b) $30 (£15) p.a. for students in part-time attendance at the University;

(c) $20 (£10) p.a. for students working externally to the University.

Fees shall be paid in advance.

8. (i) Every candidate for the degree shall be required to carry out a programme of advanced study, to take such examinations, and to perform such other work as may be prescribed by the Professorial Board. The programme shall include the preparation and submission of a thesis embodying the results of an original investigation or design. The candidate may submit also for examination any work he has published, whether or not such work is related to the thesis.

(ii) The investigation or design, and other work as provided in paragraph 8 (i) shall be conducted under the direction of a supervisor appointed by the Board or under such conditions as the Board may determine.

(iii) Every candidate shall submit three copies of the thesis as provided under paragraph 8 (i).* All copies of the thesis shall be in double-spaced typescript, 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 higher degree to any other university or institution. The *original* copy of the thesis for deposit in the Library shall be prepared and bound in a form approved by the University.† The other two copies of the thesis shall be bound in such manner as allows their transmission to the examiners without possibility of disarrangement.

(iv) It shall be understood that the University retains the three copies of the thesis and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act,* 1912-1950, the University may issue the thesis in whole or in part in photostat or micro-film or other copying medium.

9. No candidate shall be considered for the award of the degree until the lapse of six complete terms from the date from which the registration becomes effective, save that in the case of a full-time candidate who has obtained the degree of Bachelor with Honours or who has had previous research experience, this period may, with the approval of the Professorial Board, be reduced by not more than three terms.

* The thesis and other relevant work may be submitted to the Registrar at any time during the year, within the provisions of paragraph 9 of the Master of Engineering Regulations.
In order that a successful candidate may have a reasonable chance of having his degree conferred at one of the formal degree conferring ceremonies, the candidate should arrange for his thesis and other relevant work to be in the hands of the Registrar at least 14 weeks prior to the date of such ceremony.

† For the specifications currently approved for the preparation and binding of theses, see p. 123.

10. For each candidate there shall be two examiners appointed by the Professorial Board, one of whom shall, if possible, be an external examiner.

CONDITIONS FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE

1. An application to register as a candidate for the degree of Master of Science shall be made on the prescribed form which shall be lodged with the Registrar at least one full calendar month before the commencement of the term in which the candidate desires to register.

2. An applicant for registration for the degree of Master shall have been admitted to the degree of Bachelor of Science in the University of New South Wales, or other approved University, in an appropriate School.

3. (i) In exceptional cases persons may be permitted to register as candidates for the degree of Master if they submit evidence of such academic and professional attainments as may be approved by the Professorial Board.

(ii) The registration of diplomates of the New South Wales Department of Technical Education as candidates for the degree of Master of Science shall be determined in each case by the Professorial Board. Normally, such applicants shall be required to produce evidence of academic and professional progress over a period of five years from the time of gaining the diploma.

4. Notwithstanding any other provisions of these regulations the Professorial Board may require an applicant to demonstrate his fitness for registration by carrying out such work and sitting for such examinations as the Board may determine.

5. In every case, before permitting an applicant to register as a candidate, the Professorial Board shall be satisfied that adequate supervision and facilities are available.

6. An applicant approved by the Professorial Board shall register in one of the following categories:

(i) Student in full-time attendance at the University.

(ii) Student in part-time attendance at the University.

(iii) Student working externally to the University.

7. An approved applicant shall be required to pay the undermentioned fees:

(i) a registration fee of $4 (£2);

(ii) the appropriate laboratory and supervision fee according to the category in which the student is registered;

(iii) a fee of $30 (£15) when submitting the thesis for examination.

The combined laboratory and supervision fee shall be—

(a) $60 (£30) p.a. for students in full-time attendance at the University.

(b) $30 (£15) p.a. for students in part-time attendance at the University.

(c) $20 (£10) p.a. for students working externally to the University.

Fees to be paid in advance.

8. (i) Every candidate for the degree shall be required to submit a thesis embodying the results of an original investigation or design, to take such examinations and to perform such other work as may be prescribed by the Professorial Board. The candidate may submit also for examination any work he has published, whether or not such work is related to the thesis.

(ii) The investigation, design and other work as provided in paragraph 8 (i) shall be conducted under the direction of a supervisor appointed by the Board or under such conditions as the Board may determine.

(iii) Every candidate shall submit three copies of the thesis as provided under paragraph 8 (i).* All copies of the thesis shall be in double-spaced typescript, 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 higher degree to any other University or institution. The *original* copy of the thesis for deposit in the Library shall be prepared and bound in a form approved by the University.† The other two copies of the thesis shall be bound in such manner as allows their transmission to the examiners without possibility of their disarrangement.

* The thesis and other relevant work may be submitted to the Registrar at any time during the year, within the provisions of paragraph 9 of the Master of Science Regulations.
In order that a successful candidate may have a reasonable chance of having his degree conferred at one of the formal degree conferring ceremonies, the candidate should arrange for his thesis and other relevant work to be in the hands of the Registrar at least 14 weeks prior to the date of such ceremony.

† For the specifications currently approved for the preparation and binding of theses, see p. 123.

(iv) It shall be understood that the University retains the three copies of the thesis and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act*, 1912-1950, the University may issue the thesis in whole or in part in photostat or micro-film or other copying medium.

9. No candidate shall be considered for the award of the degree until the lapse of six complete terms from the date from which the registration becomes effective, save that in the case of a candidate who has obtained the degree of Bachelor with Honours or who has had previous research experience, this period may, with the approval of the Professorial Board, be reduced by up to three terms.

10. For each candidate there shall be two examiners appointed by the Professorial Board, one of whom shall, if possible, be an external examiner.

CONDITIONS FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE OR ENGINEERING WITHOUT SUPERVISION

Where it is not possible for candidates to register under the existing regulations for the degree of Master of Science or Master of Engineering by reason of their location at centres which are distant from University Schools or where effective supervision is not practicable, registration may be granted in these categories under the following conditions:

(1) An application to register as an external candidate for the degree of Master of Science or Master of Engineering without supervision shall be lodged with the Registrar not less than six months before the intended date of submission of the thesis.* With such application the candidate shall submit the topic of his thesis and a synopsis in sufficient detail to enable the appointment of examiners.

(2) The subject of the thesis must be approved as being suitable by the Professorial Board.

(3) An applicant for registration shall have been admitted to a Bachelor's Degree of the University of New South Wales.

* Candidates are advised to seek registration as early as possible.

(4) An approved applicant shall be required to pay the following fees:

(i) a registration fee of $4 (£2);

(ii) a fee of $60 (£30) when submitting thesis for examination.

(5) (i) Every candidate for the degree shall be required to submit a thesis of a satisfactory literary standard embodying the results of an original investigation or design. The candidate may also submit for examination any work he has published, whether or not such work is related to the thesis.

(ii) Every candidate shall submit three copies of the thesis as provided under paragraph 5 (i). All copies of the thesis shall be in double-spaced typescript, 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 higher degree to any other University or institution. The *original* copy of the thesis for deposit in the Library shall be prepared and bound in a form approved by the University.* The other two copies of the thesis shall be bound in such manner as allows their transmission to the examiners without possibility of disarrangement.

(iii) Every candidate shall submit with the thesis a statutory declaration that the material contained is his own work, except where otherwise stated in the thesis.

(iv) It shall be understood that the University will retain the three copies of the thesis and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act*, 1912-1950, the University may issue the thesis in whole or in part in photostat or micro-film or other copying medium.

(6) No candidate shall be considered for the award of the degree until the lapse of nine terms in the case of Honours graduates and twelve terms in the case of Pass graduates from the date of graduation.

* For the specifications currently approved for the preparation and binding of theses, see p. 123.

(7) For each candidate the Professorial Board shall appoint at least two examiners one of whom shall be an internal examiner.

(8) If the thesis reaches the required standard the candidate shall be required to attend for an oral examination at a time and place nominated by the University. The examiners may also arrange at their discretion for the examination of the candidate by written papers and/or practical examinations on the subject of the thesis and/or subjects related thereto.

CONDITIONS FOR THE AWARD OF DEGREE OF MASTER OF TECHNOLOGY IN THE FACULTY OF APPLIED SCIENCE

1. An application to register as a candidate for the degree of Master of Technology shall be made on the prescribed form which shall be lodged with the Registrar at least one full calendar month before the commencement of the course.

2. An applicant for registration for the degree of Master of Technology shall have been admitted to the degree of Bachelor with Honours in the University of New South Wales, or other approved University, in an appropriate School. A pass graduate may be admitted on the recommendation of the Head of the School and with the confirmation of Faculty.

3. In exceptional cases a person may be permitted to register as a candidate for the degree of Master of Technology if he submits evidence of such academic and professional attainments as may be approved by Faculty.

4. Notwithstanding any other provisions of these regulations Faculty may require an applicant to demonstrate his fitness for registration by carrying out such work and sitting for such examinations as Faculty may determine.

5. An approved applicant shall be required to pay the fee for the course in which he desires to register. Fees shall be paid in advance.

6. A candidate for the degree shall be required to undertake the appropriate course of study, to pass any prescribed examinations and, in addition, to submit a report on a project specified by the Head of the School. The format of the report shall accord with the instructions of the Head of the School.

7. A candidate may submit the report on the project at the completion of the formal part of the course, but in any case shall submit it not later than one year after the completion of such course.

8. The report on the project shall be examined by two examiners appointed by the Professorial Board, one of whom shall, if possible, be an external examiner.

9. A candidate may be required to attend for an oral examination at a time and place fixed by the examiners.

PREPARATION AND BINDING OF HIGHER DEGREE THESES

The specifications currently approved are as follows:

(a) The size of the paper shall be quarto (approximately 10 in. x 8 in.) except for drawings and maps on which no restriction is placed.

(b) The margins on each sheet shall be not less than 1½ in. on the left-hand side, ½ in. on the right-hand side, 1 in. at the top and ¾ in. at the bottom.

(c) There shall be a title sheet thesis title, author's name, degree and date of submission.

(d) Sheets shall be numbered consecutively.

(e) Diagrams, charts, etc., must not be submitted on the back of typed sheets.

Where possible, diagrams, charts, etc., should be included with the text, facing the page on which reference to them is made, otherwise they may be clearly referred to in the text, numbered and folded for insertion in a pocket on the back cover of the thesis binding. Folding diagrams or charts included in the text should be arranged so as to open out to the top and right.

(f) The thesis shall be bound according to specifications of which details may be obtained from the Examinations Branch.

CONDITIONS FOR THE AWARD OF GRADUATE DIPLOMAS

1. An application for admission to a graduate diploma course shall be made on the prescribed form which should be lodged with

the Registrar at least one full calendar month before the commencement of the course.

2. An applicant for admission to a graduate diploma course shall be—

(a) a graduate of the University of New South Wales or other approved university,

(b) a person with other qualifications as may be approved by Faculty.

3. Notwithstanding clause (2) above, Faculty may require an applicant to take such other pre-requisite or concurrent studies and/or examinations as it may prescribe.

4. Every candidate for a graduate diploma shall be required to undertake the appropriate course of study, to pass any prescribed examinations, and if so laid down in the course, to complete a project or assignment specified by the Head of the School. The format of the report on such project or assignment shall accord with the instructions laid down by the Head of the School.

5. An approved applicant shall be required to pay the fee for the course in which he desires to register. Fees shall be paid in advance.

POST-GRADUATE ENROLMENT PROCEDURE

Courses Requiring Attendance at Formal Lectures

Students wishing to enrol in Master Technology or Graduate Diploma courses must make application on the appropriate form to the Registrar at least one month before the commencement of the course.

Applicants will be advised whether they are eligible to enrol in the course concerned and of the subsequent procedure to be followed. Later year enrolments must be made during Enrolment Week in accordance with the special arrangements made by the individual Schools.

No enrolments will be accepted after March 31 without the express approval of the Registrar which will be given in exceptional circumstances only.

Fees may be paid without penalty up to the end of the second week of term.

Students who have completed the final examinations but have a thesis still outstanding are required to enrol for the period necessary to complete the thesis and to pay the requisite fees.

University Union Card

All students other than miscellaneous students are issued with a University Union membership card. *This card must be carried during attendance at the University and shown on request.*

The number appearing on the front of the card in the space at the top right-hand corner 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 borrowing from the University Libraries, when applying for Travel Concessions and when notifying a change of address. It must also be presented when paying fees on re-enrolment each year when it will be made valid for the year and returned. Failure to present the card could result in some inconvenience in completing re-enrolment.

A student who loses a Union Card must notify the University Union as soon as possible.

New students will be issued with University Union cards by mail to their term address as soon as possible after the payment. In the meantime, the fees receipt form should be carried during attendance at the University and shown on request. If the Union card is not received within three weeks of fee payment the University Union should be notified.

Research Degrees

Details of the procedure to be followed in order to enrol for a research degree are given in the statement of the conditions of award of the various higher degrees as set out earlier in this section.

POST-GRADUATE COURSE FEES*

MASTER OF TECHNOLOGY AND GRADUATE DIPLOMA COURSES

Completion of Enrolment

Students enrolling in post-graduate courses which include formal instruction are required to attend the appropriate enrolment centre during the prescribed enrolment period† for authorisation of course programme.

Fees should be paid during the prescribed enrolment period but will be accepted without incurring a late fee during the first two weeks of First Term. (For late fees see below.) No student is regarded as having completed an enrolment until fees have been paid. *Fees will not be accepted* (*i.e. enrolment cannot be completed*) *after March 31* except with the express approval of the Registrar, which will be given in exceptional circumstances only.

Payment of Fees by Term

Students who are unable to pay their fees by the year may pay by the term in which case they are required to pay First Term course fees and other fees for the year within the first two weeks of First Term. Students paying under this arrangement will receive accounts from the University for Second and Third Term fees. These fees must be paid within the first two weeks of each term.

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 fees. A refund of fees paid will be made when the enrolment voucher or letter of authority is subsequently lodged with the Cashier.

* Fees quoted in the schedule are current at time of publication and may be amended by the Council without notice.

† The enrolment periods for Sydney are prescribed annually in the leaflet "Enrolment Procedure for Students Re-enrolling".

Extension of Time

Any student who is unable to pay fees by the due date may apply in writing to the Registrar for an extension of time. Such application must give year of study, whether full-time or part-time and the course in which the applicant wishes to enrol, 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 fees is until March 31 for fees due in First Term and for one month from the date on which a late fee becomes payable in Second and Third Term.

Failure to Pay Fees

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 term, 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 course fees for the year is outstanding after the end of the fourth week of Third Term (September 30 in 1966).

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

Basis of Fee Assessment

Where course fees are assessed on the basis of term hours of attendance, the hours for each subject for purposes of fee assessment shall be those prescribed in the calendar. The granting of an exemption from portion of the requirements of a subject in which a student is enrolled does not carry with it any exemption from the payment of fees.

(a) Master of Technology Courses

(i) Registration Fee \$4 (£2)
(ii) Graduation Fee \$6 (£3)
(iii) Course Fee — calculated on the basis of a term's attendance at the rate of \$5 (£2/10/-) per hour per week. Thus the fee for a programme requiring an attendance of 24 hours

per week for the term is 24 x $5 (£2/10/-) = $120 (£60) per term.

(iv) Thesis or Project Fee—$30 (£15) (an additional fee of $20 (£10)* is payable by students who have completed their final examinations for the degree but have not completed the thesis or project for which they have been previously enrolled).

(b) Graduate Diploma Courses

(i) Registration Fee $4 (£2)

(ii) Award of Diploma Fee $6 (£3)

(iii) Course Fee — calculated on the basis of a term's attendance at the rate of $5 (£2/10/-) per hour per week. Thus the fee for a programme requiring an attendance of 24 hours per week for the term is 24 x $5 (£2/10/-) = $120 (£60) per term.

(iv) Thesis or Project Fee—$30 (£15) (an additional fee of $20 (£10)* is payable by students who have completed their final examinations for the diploma but have not completed the thesis or project for which they have been previously enrolled).

(c) Miscellaneous Subjects

Post-graduate subjects taken as "Miscellaneous Subjects" (i.e. not for a degree or diploma) or to qualify for registration as a candidate for a higher degree are assessed on the basis of a term's attendance at the rate of $5 (£2/10/-) per hour per week. Thus the fee for a subject requiring an attendance of 2 hours per week for the term is 2 x $5 (£2/10/-) = $10 (£5) per term.

Other Fees

In addition to the course fees set out above, students in categories (a) and (b) are required to pay:

Library Fee—Annual Fee, $10 (£5).

Student Activities Fees—

University Union†—$12 (£6)—annual subscription.

Sports Association†—$2 (£1)—annual subscription.

* Students paying this fee who are not in attendance at the University are not required to pay the Student Activities Fees or the Library Fee.

† Life members of these bodies are exempt from the appropriate fee or fees.

Students' Union†—$4 (£2)—annual subscription.
Miscellaneous—$6 (£3)—annual fee.
Total—$24 (£12).

Examinations conducted under special circumstances—$6 (£3) for each subject.

Review of examination result—$6 (£3) for each subject.

Late Fees

First Term

Fees paid from commencement of third week of term to March 31 ..... $10 (£5)
Fees paid after March 31 where accepted with the express approval of the Registrar (see above $20 (£10)

Second and Third Terms—

Fees paid in third and fourth weeks of term $10 (£5)
Fees paid thereafter $20 (£10)
Late lodgement of application for admission to examinations. (Late applications will be accepted for three weeks only after the prescribed dates.) $4 (£2)

Withdrawal

Students withdrawing from a course are required to notify the Registrar in writing. Fees for the course accrue until a written notification is received.

Where notice of withdrawal from a course is received by the Registrar before the first day of First Term a refund of all fees paid other than Registration Fee will be made.

Where a student terminates for acceptable reasons a course of study before half a term has elapsed, one half of the term's fee may be refunded. Where a student terminates a course of study after half a term has elapsed, no refund may be made in respect of that term's fees.

The Library Fee is an annual fee and is not refundable where notice of withdrawal is given after the commencement of First Term. On notice of withdrawal a partial refund of the Student Activities Fees is made on the following basis:

University Union—$2 (£1) in respect of each half term.

University of New South Wales Students' Union—where

† Life members of this body are exempt from the appropriate fee or fees.

notice is given prior to the end of the fifth week of First term $2 (£1), thereafter no refund.

University of New South Wales Sports Association—where notice is given prior to April 30 a full refund is made, thereafter no refund.

Miscellaneous—where notice is given prior to April 30 $2 (£1), thereafter no refund.

RESEARCH DEGREES — FEES

(a) Master of Science* and Master of Engineering*

Fees are payable from the commencement date of a candidate's registration and remain payable until the candidate's thesis is presented to the Examinations Branch.

(i) Qualifying Examination	$10	(£5)
(ii) Registration Fee	$4	(£2)
(iii) Internal full-time student annual fee	$60	(£30)
Internal full-time student term fee	$20	(£10)
(iv) Internal part-time student annual fee	$30	(£15)
Internal part-time student term fee	$10	(£5)
(v) External student annual fee†	$20	(£10)
(vi) Final Examination (including Graduation Fee)	$30	(£15)

(b) Doctor of Philosophy

(i) Qualifying Examination	$10	(£5)
(ii) Registration Fee	$4	(£2)
(iii) Annual Fee	$60	(£30)
(iv) Final Examination (including Graduation Fee)	$42	(£21)

(c) Miscellaneous Subjects

Post-graduate subjects taken as "Miscellaneous Subjects" (i.e. not for a degree or diploma) or to qualify for registration as a candidate for a higher degree are assessed on the basis of a term's attendance at the rate of $5 (£2/10/-) per hour per week. Thus the fee for a subject requiring an attendance of 2 hours per week for the term is 2 x $5 (£2/10/-) = $10 (£5) per term.

* Candidates registered under the conditions governing the award of this degree without supervision will pay the following fees: Registration fee $4 (£2); Examination of thesis $60 (£30). They are not required to pay the Student Activities Fees or the Library fee.

† Students in this category are not required to pay the Student Activities Fees or the Library fee.

Research

(a) One day per week—$20 (£10) per annum.

(b) Two or three days per week—$40 (£20) per annum.

(c) Four or five days per week—$60 (£30) per annum.

OTHER FEES

In addition to the fees set out above, all students in the above categories are required to pay:

Library Fee—Annual fee, $10 (£5).

Student Activities Fees—

University Union†—$12 (£6)—annual subscription.

Sports Association†—$2 (£1)—annual subscription.

Students' Union†—$4 (£2)—annual subscription.

Miscellaneous—$6 (£3)—annual fee.

Total—$24 (£12).

LATE FEES

Initial Registration

Fees paid from commencement of sixth week after date of offer of registration to end of eighth week	$10	(£5)

Renewal at Commencement of each Academic Year

Fees paid from commencement of third week of term to March 31	$10	(£5)
Fees paid after March 31 where accepted with the express approval of the Registrar	$20	(£10)

† Life members of these bodies are exempt from the appropriate fee or fees.

POST-GRADUATE SCHOLARSHIPS TENABLE AT THE UNIVERSITY OF NEW SOUTH WALES

Brief particulars of scholarships tenable at this University are listed below. Additional scholarships in a variety of fields become available from time to time, and the Dean of the Faculty of Applied Science and the Heads of the Schools in the Faculty will be pleased to receive inquiries concerning the availability of such scholarships.

Students completing the final year of a course may apply but, in general, applicants should hold degrees with honours or equivalent qualifications.

Applications should be lodged with the Registrar, P.O. Box 1, Kensington, New South Wales, on forms available from the University's Post-Graduate Scholarships Unit. Each applicant from outside this University must arrange for a transcript (in triplicate) of his academic record to be forwarded by his University to reach the Registrar at about the same time as his application. He must also arrange for reports (in triplicate) by three referees, to be forwarded direct to the Registrar. If possible, one of the reports should be from a professor, and all three should be from people familiar with the applicant's academic and professional performance.

Unless otherwise stated, the annual stipends for all scholarships range from $2,350 (£1,175) per annum for scholars without dependants to $2,650 (£1,325) per annum for a scholar wholly maintaining a wife and one or more children.

Commonwealth Post-Graduate Awards

The Commonwealth Government is providing each year a number of awards for post-graduate study and research. The awards will be tenable for one year but may be extended for a period of up to four years.

Persons domiciled in Australia or who intend to establish domicile, and who are University graduates or who will graduate in the current academic year, are eligible.

University Post-Doctoral Research Fellowships

From time to time the University offers Fellowships in specified fields to enable advanced research to be undertaken by graduates holding the degree of Doctor of Philosophy or equivalent qualifications. Salary will range from $4,400 (£2,200) to $5,800 (£2,900) per annum, and will be subject to income tax. The fellowships will normally be awarded for two years but may be extended for a third year.

The Broken Hill Pty. Co. Ltd. Post-Graduate Scholarship in Metallurgy

This scholarship is designed to promote study and research for a higher degree in some branch of Metallurgy which has a direct relation to the activities of the donor Company. Graduates in Science or Engineering are eligible to apply. The scholarship is tenable for one to four years.

G. J. Coles & Co. Ltd. Research Scholarship in Engineering, Science or Applied Science

This scholarship is available to graduates or graduands of any Australian University domiciled in Australia who wish to undertake post-graduate study and research leading to the degree of Doctor of Philosophy in the Faculties of Engineering, Science or Applied Science. It is tenable for one to four years.

The Imperial Chemical Industries of Australia and New Zealand Research Fellowship

Imperial Chemical Industries of Australia and New Zealand has established a Fellowship to help promote knowledge in fields which have a direct relation to the scientific interests of ICIANZ, such as pure and applied chemistry, biochemistry, agricultural science, chemotherapy, pharmacology, physics, engineering, mining and metallurgy. The Fellowships are open to British subjects who are graduates of a recognised University. They are tenable for two years.

Broken Hill Associated Smelters Pty. Ltd.

A number of scholarships are made available each year to enable graduates or diplomates in Metallurgy or an allied science to undertake post-graduate work connected with the donor Company's activities. The maximum tenure of the scholarship is three years. Applications should be made to Broken Hill Associated Smelters Pty. Ltd., Port Pirie, S.A.

The General Motors-Holdens Post-Graduate Research Fellowships

General Motors-Holdens provide annually a number of post-graduate research fellowships. Graduates in any Faculty may apply, but preference will be given to graduates in Engineering, Science, Commerce or Economics. The fellowships are normally tenable for one year but may be renewed to allow fellowship holders to complete their course of study.

Australian Wool Board Research Fellowships in Textile Technology

Several fellowships are provided by the Australian Wool Board for graduates in Physics, Chemistry or Engineering for research in the fields of wool textile physics, wool textile chemistry or wool textile engineering. The fellowships have a value of not less than $2,700 (£1,350) and are tenable for up to a maximum of four years subject to annual renewal.

OTHER POST-GRADUATE AWARDS WHICH MAY BE HELD AT THE UNIVERSITY OF NEW SOUTH WALES

Commonwealth Public Service Board Awards

The field of study is unrestricted. The awards are available only to officers of the Commonwealth Public Service. Enquiries should be directed to the Commonwealth Public Service Board, Canberra.

Rothmans Fellowships Award

The field of study is unrestricted. The range of value of the awards is: Junior, Grade 1—$2,200 to $3,200* (£1,100 to £1,600) p.a.; Junior, Grade 2—Not more than $6,000* (£3,000) p.a.; and Senior—Not more than $10,000* (£5,000) p.a. The duration of the awards is not specified. Applications should be lodged with the Secretary, Rothmans University Endowment Fund, Sydney University, by 11th September.

Commonwealth Scientific and Industrial Research Organization

The awards are given for study and research in fields concerned with science or engineering, or the cattle and beef industry (Australian Cattle and Beef Committee Award). The range of value of the awards is: Junior Studentships—$1,000 to $1,400* (£500 to £700) p.a., and allowances for one year; Senior Studentships —$2,000 to $2,400* (£1,000 to £1,200) p.a., and allowances

* Exempt University tuition fees.

for two years. Applications should be lodged with the Secretary, C.S.I.R.O., 314 Albert Street, East Melbourne, C.2, Victoria, by 25th October.

Conzinc Riotinto of Australia Limited

The award is given for post-graduate study and research in the fields of Mining, Chemical Engineering, Geology or Metallurgy. The value of the award is $1,600* (£800) p.a. for one to three years. Applications should be lodged with Conzinc Riotinto of Aust. Ltd., Box 384D, Melbourne, Victoria, by 1st December.

Zinc Corporation Ltd. and New Broken Hill Consolidated Ltd.

The award is given for post-graduate study and research in the fields of Mining, Metallurgy and allied fields. Its value is $1,200 (£600) for two years. Applications should be lodged with the Zinc Corporation Ltd., P.O. Box 444, Broken Hill, N.S.W.

Department of Supply Post-Graduate Studentships

Studentships for full-time study and research for the degree of Doctor of Philosophy are available in the fields of Science, Applied Science and Engineering. Candidates are expected to have graduated with first or second class honours. The salary per annum is: first year $3,344 (£1,672); second year $3,640 (£1,820); third year $3,976 (£1,988); fourth year $4,344 (£2,172). Candidates holding a Master's Degree will commence on the second year rate. A bond of service is required. Applications should be lodged with the Secretary, Department of Supply, Commonwealth Centre, Hunter Street, Sydney.

Wheat Industry Research Council Award

The range of value of the award is: Junior Studentships—$1,000 to $1,400* (£500 to £700) p.a. and allowances for one year; Senior Studentships—$2,000 to $2,400* (£1,000 to £1,200) p.a. for two years. Applications should be lodged with the Secretary, Wheat Industry Research Council, C/- Department of Primary Industry, Canberra, A.C.T.

* Exempt University Tuition Fees.

Australian Dairy Produce Board

The award is for post-graduate study and research in a field connected with the Dairy Industry. The range of value of the award is: Junior Studentships—$1,000 to $1,400* (£500 to £700) p.a., and allowances for one year; Senior Studentships: $2,000 to $2,400* (£1,000 to £1,200) p.a., and allowances for two years. Applications should be lodged with the Research Secretary, Australian Dairy Produce Board, 406 Lonsdale Street, Melbourne, C.1, Victoria, by 25th October.

* Exempt University Tuition Fees.

OUTLINES OF POST-GRADUATE COURSES

Facilities are provided for students to carry out research for the degrees of Doctor of Philosophy, Master of Engineering or Master of Science. A number of schools of the Faculty also offer courses leading to a Graduate Diploma (Grad. Dip.). The School of Applied Geology offers a diploma course in Applied Geophysics; the School of Chemical Engineering offers diploma courses in Process Chemical Engineering, Corrosion Technology, Food Technology and Fuel Technology, the School of Mining Engineering offers courses in Mineral Technology and Mining Engineering, and the School of Wool Technology a course in Wool Technology.

SCHOOL OF APPLIED GEOLOGY

Applied Geophysics Graduate Course (Graduate Diploma)

The aim of this course is to train suitable graduates in Applied Science, Science and Engineering who wish to become applied or exploration geophysicists. The pre-requisites for the course are Physics and a Mathematics to second-year level, and Geology to first year level, in a first degree in Applied Science, Science or Engineering.

The Graduate Diploma in Applied Geophysics (Grad. Dip.) will be awarded on the successful completion of one year of full-time study.

30 Weeks' Course

		Hours per week for three terms		
		Lec./Lab.		Private Study
6.168G	Potential and Systems Theory in Geophysics	2	—	4
6.841	Electronic Instrumentation	2	—	4
8.421S	Surveying*	3	—	3
10.351	Statistics†	1½	—	2
25.571G	Geophysics	6	—	12
25.572G	Geology	4	—	3
		18½	—	28

* A survey camp of one week in third term is part of this course.
† Students who have satisfactorily completed a statistics course equivalent to 10.351 may elect to take the statistics component of 10.061G in the M.Tech. course in Electrical Engineering.

SCHOOL OF CHEMICAL ENGINEERING

Process Chemical Engineering Graduate Course (Graduate Diploma)

The Graduate Diploma course in Process Chemical Engineering is a new course designed to provide professional training at an advanced level in the development and applications of chemical reactor engineering theory and design. It is intended primarily for graduates in Chemical Engineering though graduates in Science and Engineering may be admitted, provided that qualifying subjects are completed where necessary.

Two years of study on a part-time basis are required for the completion of this course, which leads to the Graduate Diploma in Process Chemical Engineering (Grad. Dip.).

First Year
(30 weeks' part-time course)

		Hours per week for three terms		
		Lec./Lab.		Private Study
Introductory Stage				
3.191G	Chemical Reactor Engineering I	3	—	6
22.131G	Industrial Process Kinetics	2	—	4
	Co-requisites*	4	—	4
		9	—	14

* Co-requisites will be determined by the Head of the School offering the course. In general, a standard equivalent to completion of the following undergraduate courses will be required:—

3.111 Chemical Engineering I
3.121 Chemical Engineering IIA—Thermodynamics and Kinetics
3.122 Chemical Engineering IIB—Design I
22.111 Industrial Chemistry I—Processes

Students who have attained this standard prior to entry may be permitted to enrol for an equivalent period of undergraduate instruction in an appropriate area of interest with the approval of the Head of the School.

Second Year
(30 weeks' part-time course)

		Hours per week for three terms		
		Lec./Lab.		Private Study
Advanced Stage				
3.192G	Chemical Reactor Engineering II	2	—	4
3.193G	Reactor Design Project	3	—	6
22.132G	Kinetic Models and Parametric Studies	2	—	4
		7	—	14

In addition to the formal course work set out above, it is expected that students will be involved in tutorial, experimental, and/or computer work throughout the course.

Corrosion Technology Graduate Course (Graduate Diploma)

The Graduate Diploma course in Corrosion Technology has been designed as a post-graduate course for graduates in Engineering, Applied Science and Science, who may be faced with corrosion problems in industry.

Two years of study on a part-time basis are required for the completion of this course which leads to the Graduate Diploma in Corrosion Technology (Grad. Dip.).

FIRST YEAR

(30 weeks' part-time course)

		Hours per week for three terms		
		Lec./Lab.		Private Study
Introductory Stage				
3.161G	Corrosion Technology I	1	—	2
3.171G	Corrosion Literature Assignment	2	—	4
4.111G	Corrosion Metallurgy I	1	—	2
	In addition, candidates not sufficiently qualified may be required to complete one of the following subjects:			
2.002	Chemistry IIS	9	—	7
4.911	Materials for Engineers	2	—	4

SECOND YEAR

(30 weeks' part-time course)

		Hours per week for three terms		
		Lec./Lab.		Private Study
Advanced Stage				
3.162G	Corrosion Technology II	2	—	4
3.172G	Corrosion Assignments	2	—	4
4.112G	Corrosion Metallurgy	2	—	4
22.351G	Organic Surface Coatings	2	—	4
		8	—	16

Food Technology Graduate Course (Graduate Diploma)

The graduate diploma course in Food Technology is designed to provide professional training at an advanced level in food technology for graduates in science, applied science or engineering who have not had previous training in this field.

In addition to a first degree, candidates may also be required to undertake assignments or complete successful examinations as directed by the Head of the School.

The course is a blend of formal lectures and laboratory work at the undergraduate and post-graduate levels. The Diploma in Food Technology (Grad. Dip.) is awarded on the successful completion of one year full-time study (18 hours a week), or two years of part-time study (9 hours a week). It involves the following programme:

30 Weeks' Course

		Hours per week for three terms		
		Lec./Lab./Tut.		Private Study
2.271	Chemistry and Analysis of Foods	3	—	3
3.231	Chemical Engineering	2	—	4
3.241G	Food Technology	4	—	7
17.901G	Biology	1	—	1
17.902G	Biochemistry and Microbiology	8	—	10
		18	—	25

Students who have successfully completed 3.211 and 3.212 Food Technology towards the award of a degree must substitute an approved undergraduate programme of an equivalent number of hours.

Fuel Technology Graduate Course (Graduate Diploma)

The Graduate Diploma Course in Fuel Technology has been designed to provide professional training and specialization in fuel science and engineering for graduates in Science, Applied Science or Engineering who have not had previous training in this field.

Applicants holding an appropriate degree or equivalent qualification in Science, Applied Science or Engineering are eligible for admission to the course. They may also be required to undertake assignments or complete successfully examinations as directed by the Head of the School.

The Graduate Diploma in Fuel Technology is awarded on the successful completion of one year of full-time study (18 hours per week) or two years of part-time study (9 hours per week). The course is a blend of formal lectures and laboratory work at undergraduate and post-graduate levels and allows of elective specializations in various branches of Fuel Science or Fuel Engineering, viz., Combustion Engineering, Gas Engineering, Coal

Science, Coal Preparation, Carbonization, Liquid Fuels, and Fuel Plant Design. It involves the following programme:

30 Weeks' Course

		Hours per week for three terms		
		Lec./Lab.		Private Study
A. *Introductory Stage (up to nine hours per week)*				
3.381	Principles of Fuel Technology	3	—	4
3.382	Combustion Engineering	3	—	4
3.383	Fuel Plant Evaluation and Assignments	3	—	4
		9	—	12
B. *Advanced Stage (up to nine hours per week)*				
3.390G	Post-graduate Seminar	1	—	2
	Advanced Electives*	8	—	13
		9	—	15

* Subjects to be selected from the following according to availability and specialisation required:—

3.391G	Atmospheric Pollution and Control	2	—	2
3.392G	Fuel Science	3	—	4
3.393G	Fuel Engineering Plant Design	3	—	5
3.394G	Thermal Engineering and Fuel Processing	3	—	5
3.395G	Research Techniques and Extension Methods	2	—	3

When appropriate, up to three hours per week may be selected from approved courses, e.g., Coal Preparation, Instrumention and Automatic Control, Ceramics, Nuclear Engineering, etc., offered by other Schools within the University.

SCHOOL OF METALLURGY

Although at present the main graduate activity of the School of Metallurgy is research, formal lecture courses for graduates in Metallurgy or related fields are presented from time to time.

Courses which have been conducted in previous years are listed below. Other courses will be introduced from time to time as required.

(i) X-ray diffraction and its application in metallurgy.
(ii) Reactor materials and fuel elements.
(iii) Nuclear materials.
(iv) Corrosion.
(v) Refresher course in physical metallurgy.
(vi) Refresher course in chemical and extractive metallurgy.
(vii) Welding technology.
(viii) Metallurgical microscopy.

A new graduate course in non-destructive testing was introduced in 1964, and graduates who wish to obtain information about this and other formal courses should contact the Head of the School.

Graduates in Metallurgy, Science or Engineering who are interested in doing research in the field of metallurgy may apply for registration as candidates for the degrees of Master of Science or Doctor of Philosophy.

The Head of the School will be pleased to give information about research scholarships, fellowships and grants-in-aid. Graduates are advised to consult him before making a formal application for registration.

SCHOOL OF MINING ENGINEERING

The School offers two post-graduate courses, one in Mineral Technology and the other in Mining Engineering, leading to the award of a Graduate Diploma (Grad. Dip.).

Mineral Technology Graduate Course (Graduate Diploma)

The Graduate Diploma Course in Mineral Technology is designed to provide professional training for graduates in Science, Applied Science or Engineering who wish to specialize in the fields of mineral processing, including coal preparation. The course is concerned primarily with instruction in the scientific and engineering principles associated with processes for the physical and physico-chemical separation and concentration of minerals or coal for subsequent use.

The Graduate Diploma in Mineral Technology (Grad. Dip.) will be awarded on the successful completion of one year of full-time or two years of part-time study. The course is a blend of lecture and laboratory work and allows the choice of elective specialization in either the beneficiation of minerals or the preparation of coal.

30 Weeks' Course

		Hours per week for three terms		
		Lec./Lab.		Private Study
STAGE A.	*Introductory component*			
7.311	Mineral Processing I	4	—	4
7.151	Mining Engineering	2	—	2
25.551	Mineralogy	2	—	2
		8	—	8

STAGE B. *Advanced component*				
7.391G	Mineral Processing II	6	—	11
7.392G	Mineral Engineering—Laboratory	4	—	4
		10	—	15

When appropriate, up to 3 hours per week may be selected from approved courses offered by other Schools within the University.

Mining Engineering Graduate Course (Graduate Diploma)

The post-graduate course leading to a Graduate Diploma in Mining Engineering (Grad. Dip.) has been established to provide graduate students in the fields of engineering, surveying, and some areas of applied science with advanced training in the following aspects of mining engineering:

Tunnelling and quarrying.
Metalliferous and coal mining.
Petroleum engineering and other non-entry methods.

It should be noted that some degree of specialization will be possible in the mining engineering laboratory investigations.

The following programme may be completed in one year of full-time study or over two years on a part-time basis.

30 Weeks' Course

		Hours per week for three terms		
		Lec./Lab.		Private Study
STAGE A. *Undergraduate component*				
7.121	Mine Surveying	2	—	3
7.331S	Mining and Mineral Process Engineering*	4	—	3
25.532/1	Geology for Mining Engineers	4	—	4
		10	—	10
STAGE B. *Advanced component*				
7.191G	Mining Engineering	6	—	10
7.192G	Mining Engineering Laboratory Investigations	3	—	5
		9	—	15

SCHOOL OF WOOL TECHNOLOGY

Wool Technology Graduate Course (Graduate Diploma)

The Graduate Diploma Course in Wool Technology is specially designed for graduate students preparing themselves for careers

* This course extends over 24 weeks only.

in the pastoral industry. One of the principal functions of the course is to provide a bridge from other disciplines such as Agriculture, Veterinary Science and Pure Science, for graduates who wish to study and work in the field of Wool Technology, which is of such overall importance to Australia.

Recently the course was made more flexible to permit prospective students to specialize in particular graduate aspects of Wool Technology, and at the same time, to do supporting work in related undergraduate fields which they may not have covered in their undergraduate training, or which they may have covered and wish to revise.

The normal requirement for admission to the course is a degree in Agriculture, Veterinary Science or Science, in an appropriate field. In addition, students may be required to take a qualifying examination in the basic disciplines of the Wool Technology B.Sc. degree course, viz. General Biology, Agronomy and/or Livestock Production. Such qualifying examination will be of a standard which will ensure that the student has sufficient knowledge of the subject and the principles involved to profit by the course.

The following programme may be completed either in one year on a full-time basis or over two years on a part-time basis:

(30 weeks' course)

		Hours per week for three terms		
		Lec.	Lab.	Private Study
9.503G	Wool Study	2	4	4
	Plus one of the following optional subjects:			
9.105G	Advanced Livestock Production	4	0	6
9.711G	Advanced Wool Technology	2	2	6
9.902G	Techniques of Laboratory and Field Investigation	2	2	6
	Approved undergraduate subjects	4	4	8
		8	10	18

The undergraduate subjects may be chosen to suit the requirements of the student, subject to their availability. The Graduate Diploma students are expected to work at the level of honours students in the undergraduate course and to carry out prescribed study of current research material in the field.

Successful completion of the course leads to the award of a Graduate Diploma (Grad.Dip.).

SCHOOLS OF INSTRUCTION IN THE UNIVERSITY

This Handbook has outlined the courses available in the Faculty of Applied Science. A wide range of courses is offered by the other six Faculties of the University. The Schools and Departments offering courses are listed below:

Identifying Number	School or Department
1	School of Physics.
2	School of Chemistry.
3	*School of Chemical Engineering.
4	*School of Metallurgy.
5	School of Mechanical Engineering.
6	School of Electrical Engineering.
7	*School of Mining Engineering.
8	School of Civil Engineering.
9	*School of Wool Technology.
10	School of Mathematics.
11	School of Architecture and Building.
12	School of Applied Psychology.
13	*School of Textile Technology.
14	School of Accountancy.
15	School of Economics.
16	School of Hospital Administration.
17	School of Biological Sciences.
18	Department of Industrial Engineering, School of Mechanical Engineering.
19	School of Traffic Engineering.
20	School of Highway Engineering.
21	Department of Industrial Arts.
22	*School of Chemical Technology.
23	School of Nuclear Engineering.
24	School of Business Administration.
25	*School of Applied Geology.
26	Department of General Studies.
50	School of English.
51	School of History.
52	School of Philosophy.
53	School of Sociology.
54	School of Political Science.
55	School of Librarianship.
56	School of Western European Languages.
57	Department of Drama.
70	School of Anatomy.
71	School of Medicine.
72	School of Pathology.
73	School of Physiology.
74	School of Surgery.
75	School of Obstetrics and Gynaecology.
76	School of Paediatrics.
77	School of Psychiatry.
78	Human Genetics.
79	Public Health and Social Medicine.

* Schools of the Faculty of Applied Science.

TEXT AND REFERENCE BOOKS FOR 1966

SCHOOL OF APPLIED GEOLOGY

25.511 Geology I

TEXT BOOKS

Holmes. *Principles of Physical Geology.* Revised ed. Nelson & Sons, London, 1965.

Read. *Rutley's Elements of Mineralogy.* Murby, London.

Dana's Minerals and How to Study Them. 1963 Third Science Ed. Revised by C. S. Hurlbut, Jr.

McElroy. *Explanatory Notes to accompany the Sydney 4-mile Geological Map* (with map). Bureau of Mineral Resources, Canberra.

REFERENCE BOOKS

Ford. *Dana's Textbook of Mineralogy.* Wiley.
Dunbar. *Historical Geology.* Wiley.
Longwell and Flint. *Introduction to Physical Geology.* Wiley.
Morley Davies. *An Introduction to Palaeontology.*

25.512 Geology II

TEXT BOOKS *Petrology I*

Kerr. *Optical Mineralogy.* McGraw-Hill, 1959.
Williams, Turner and Gilbert. *Petrography,* Freeman, 1954.

REFERENCE BOOKS

Harker. *Petrology for Students.*
Hatch, Wells and Wells. *The Petrology of the Igneous Rocks.*
Tyrrell. *The Principles of Petrology.*
Turner and Verhoogen. *Igneous and Metamorphic Petrology.*
Harker. *Metamorphism.*
Wahlstrom. *Theoretical Igneous Petrology.* Wiley.

TEXT BOOKS *Palaeontology I*

Moore, Lalicker and Fischer. *Invertebrate Fossils.* McGraw-Hill, 1952 *or*
Beerbower. *Search for the Past.* Prentice-Hall, 1960.

REFERENCE BOOKS

Arnold. *An Introduction to Palaeobotany.* McGraw-Hill, 1947.
Woods. *Palaeontology Invertebrate.* Cambridge University Press.
Schrock and Twenhofel. *Principles of Invertebrate Palaeontology.* McGraw-Hill.

TEXT BOOKS *Stratigraphy I*

Krumbein and Sloss. *Stratigraphy and Sedimentation.* 2nd ed.

REFERENCE BOOKS

Kuenen. *Marine Geology.*
David and Browne. *Geology of the Commonwealth of Australia.* 3 vols. Arnold, 1950.
Schrock. *Sequence in Layered Rocks.*

TEXT BOOKS—*Mineralogy*
Phillips. *An Introduction to Crystallography.*
Hurlbut (edited by). *Dana's Manual of Mineralogy.*

REFERENCE BOOKS
Wahlstrom. *Optical Crystallography.* 3rd ed.

25.513 Geology III

TEXT BOOKS *Petrology II*
Kerr. *Optical Mineralogy.* McGraw-Hill, 1959.

REFERENCE BOOKS
Turner and Verhoogen. *Igneous and Metamorphic Petrology.*
Harker. *Metamorphism.* Methuen.

TEXT BOOKS *Stratigraphy II*
Gignoux. *Stratigraphic Geology* (English Translation).
David and Brown. *Geology of the Commonwealth of Australia.* 3 vols., 1950.
Hills. *Elements of Structural Geology.* Methuen.

TEXT BOOKS *Stratigraphical Palaeontology*
Colbert. *Evolution of the Vertebrates.*
Von Koenigswald. *The Evolution of Man.*

REFERENCE BOOKS *Mineralogy*
Azaroff and Buerger. *The Powder Method.* McGraw-Hill.
Buerger. *X-ray Crystallography.* Wiley.
Henry, Lipson and Wooster. *The Interpretation of X-ray Diffraction Photographs.* Macmillan.
Bunn. *Chemical Crystallography.* Oxford.
Wahlstrom. *Optical Crystallography.* 3rd ed, Wiley.
Evans. *Crystal Chemistry.* Cambridge.

Geophysics 25.513/III, 25.533 and 25.532

TEXT BOOKS
Howell. *Introduction to Geophysics.* McGraw-Hill, 1959.

REFERENCE BOOKS
Bullen. *Introduction to Theory of Seismology.* Cambridge, 1963.
Encyclopedia of Physics, Vol. 47. *Geophysics I.* Springer-Verlag, 1956.
Garland. *The Earth's Shape and Gravity.* Pergamon, 1964.
Gutenberg. *Physics of the Earth's Interior.* Academic, 1959.
Heiskanen and Vening Meinesz. *The Earth and its Gravity Field.*
Jacobs. *The Earth's Core and Geomagnetism.* Pergamon, 1963.
Wilson. *The Earth's Crust and Geotectonics.* Pergamon.
Uffen. *The Earth's Mantle and Geothermometry.* Pergamon.

Structural Geology I

TEXT BOOKS
Hills. *Outlines of Structural Geology.* 3rd ed., 1953.
Phillips. *Use of Stereographic Projection in Structural Geology.* 1954.

REFERENCE BOOKS
De Sitter. *Structural Geology.* 1956.
Billings. *Structural Geology.* 1954.
Turner. *Mineralogical and Structural Evolution of the Metamorphic Rocks.* Mem. No. 30 Geol. Soc. America, 1948.
Turner and Weiss. *Structural Analysis of Metamorphic Tectonics.* McGraw-Hill, 1963.
Hills. *Elements of Structural Geology.* 1963.

Economic Geology

TEXT BOOK
(i) *COAL*
Raistrick and Marshall. *The Nature and Origin of Coal and Coal Seams*, 1952.

REFERENCE BOOK
Francis. *Coal, Its Formation and Composition.*

TEXT BOOK
(ii) *OIL*
Levorsen. *Petroleum Geology*. 1954.

REFERENCE BOOK
LeRoy. *Subsurface Geologic Methods.*
(iii) *ORE DEPOSITS*

REFERENCE BOOKS
Lindgren. *Mineral Deposits*. 4th ed., 1933.
Fiftieth Anniversary Volume of Economic Geology. Vol. I and II, Society of Economic Geologists, Urbana, Illinois.
Edwards. *Textures of the Ore Minerals*. 2nd ed., 1954.
Geology of Australian Ore Deposits. 2nd ed., Melbourne, 1965. Aust. Inst. Min. and Met.

25.514 Geology IV

TEXT BOOK *Mining Geology*
Lawrence (edited by). *Exploration and Mining Geology*. Melbourne, 1965. Aust. Inst. Min. Met.

REFERENCE BOOK
McKinstry. *Mining Geology*. Prentice Hall.

REFERENCE BOOKS *Photogeology*
Miller. *Photogeology*. McGraw-Hill, 1961.
Leuder. *Aerial Photo Interpretation*. McGraw-Hill, 1959.
Manual of Photographic Interpretation. Am. Soc. of Photogrammetry, Washington, 1960.

25.521/a and 25.514/2 Geophysics

TEXT BOOKS
Dobrin. *Introduction to Geophysical Prospecting*. McGraw-Hill, 1960.
Parasnis. *Principles of Applied Geophysics*. Methuen, 1962.

REFERENCE BOOKS
Dix. *Seismic Prospecting for Oil*. Harper, 1952.
Edge and Laby. *The Principles and Practice of Geophysical Prospecting*. Cambridge, 1931.
Grant and West. *Interpretation Theory in Applied Geophysics*. McGraw-Hill, 1964.
Heiland. *Geophysical Exploration*. Prentice Hall, 1940.
Jakosky. *Exploration Geophysics*. Trija, 1950.
Wyllie. *The Fundamentals of Electric Log Interpretation*. Academic, 1957.

Engineering Geology
See list for Geology for Engineers (25.531).

REFERENCE BOOK *Petroleum Engineering*
Uren. *Petroleum Production Engineering Development.*

25.521 Geology IIIA (Science)

TEXT BOOK *Oceanography*
Pickard. *Descriptive Physical Oceanography*. Pergamon, 1964.

REFERENCE BOOKS
King. *Introduction to Oceanography*. McGraw-Hill.
Kuenen. *Marine Geology*. Wiley.

TEXT BOOK *Palaeontology II*
Glaessner. *Principles of Micro-palaeontology*. Melbourne University Press, 1945. Hafner reprint ed., 1963.

REFERENCE BOOKS
Cushman. *Foraminifera*. Harvard University Press, 1950.
Beebower. *Search for the Past*. Prentice Hall, 1960.
Mayr, Linsley and Usinger. *Methods and Principles of Systematic Zoology*. McGraw-Hill.
Simpson. *Principles of Animal Taxonomy*. Columbia University Press, 1961.

REFERENCE BOOKS *Stratigraphy III*
See list for Stratigraphy II (25.513).

TEXT BOOK *Structural Geology II*
De Sitter. *Structural Geology*. 1956.

REFERENCE BOOK
As for Structural Geology I.

TEXT AND REFERENCE BOOKS *Geophysics II*
As for Geophysics II in Geology IV.

TEXT BOOK *Geochemistry*
Mason. *Principles of Geochemistry*. 2nd ed.

REFERENCE BOOK
Abelson. *Researches in Geochemistry*.
Rankama and Sahama. *Geochemistry*. 1950.
Goldschmidt. *Geochemistry*.
Smales and Wager. *Methods in Geochemistry*. 1960.

TEXT BOOKS *Mineragraphy*
Edwards. *Textures of the Ore Minerals*. 2nd ed., 1954.
Hallimond. *1953 Manual of the Polarizing Microscope*.

REFERENCE BOOKS
Cameron. *Ore Microscopy*. 1961.
Ramdohr. *Die Erzmineralien und ihre Verwachsungen*. 3rd ed, 1960.

REFERENCE BOOKS *Clay Mineralogy*
Grim. *Clay Mineralogy*. 1953.
Grim. *Applied Clay Mineralogy*. 1962.

25.531 Geology for Engineers

TEXT BOOK
Blyth. *Geology for Engineers*. 4th ed.

REFERENCE BOOKS
Dapples. *Basic Geology*. Wiley, 1959.
Krynine and Judd. *Principles of Engineering Geology and Geotechnics*. McGraw-Hill, 1957.
Schultz and Cleaves. *Geology in Engineering*. Wiley, 1952.
Application of Geology to Engineering Practice. Geol. Soc. of America, N.Y., 1950.

25.551 Mineralogy for Metallurgists

TEXT BOOK
Read. *Rutley's Elements of Mineralogy, or*
Dana. *Manual of Mineralogy*.

25.562 Geology II for Arts

TEXT BOOKS

Moore, Lalicker and Fischer. *Invertebrate Fossils.* McGraw-Hill.
Colbert. *Evolution of the Vertebrates.* Wiley. Reprinted by Science Editions, N.Y., 1961.
Von Koenigswald. *The Evolution of Man.* Univ. of Michigan Press. Aust. ed. by Ure Smith, Sydney.
Dury. *The Face of the Earth.* Pelican.

SCHOOL OF CHEMICAL ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

3.111 Chemical Engineering I

3.111/1 Principles I

TEXT BOOKS

Perry. *Chemical Engineers' Handbook.* McGraw-Hill.
Coulson and Richardson. *Chemical Engineering.* Vol. I. Pergamon, *or*
Foust, Wenzel, Clump, Maus and Andersen. *Principles of Unit Operations.* Wiley.

REFERENCE BOOKS

McCabe and Smith. *Unit Operations of Chemical Engineering.* McGraw-Hill.
Eckert and Drake. *Heat and Mass Transfer.*
Knudson and Katz. *Fluid Dynamics and Heat Transfer.*
Badger and Banchero. *Introduction to Chemical Engineering.* McGraw-Hill.

3.111 Chemical Engineering

TEXT BOOKS *Calculations*

Himmelblau. *Basic Principles and Calculations in Chemical Engineering.* Prentice Hall.

REFERENCE BOOKS

Hougen, Watson and Ragatz. *Chemical Process Principles.* Vol. 1. Wiley.
Langhaar. *Dimensional Analysis and the Theory of Models.*
Lewis Radasch and Lewis. *Industrial Stoichiometry.* McGraw-Hill.
Johnson. *Nomography and Empirical Equations.*
Allcock and Jones. *The Nomogram.* Pitman.
Mickley, Sherwood and Reed. *Applied Mathematics in Chemical Engineering.* McGraw-Hill.
Lipka. *Graphical and Mechanical Computations.*
Haslam and Russell. *Fuels and their Combustion.* McGraw-Hill.
Davies. *Statistical Methods in Research and Production.*
Worthing and Geffner. *Treatment of Experimental Data.*
Johnstone and Thring. *Pilot Plant Models and Scale-up Methods in Chemical Engineering.* McGraw-Hill.
Corcoran and Lacey. *Introduction to Chemical Engineering Problems.*
Schmidt and List. *Material and Energy Balances.* Prentice Hall.

3.121 Chemical Engineering IIA

TEXT BOOKS *Thermodynamics and Kinetics*

Smith and Van Ness. *Introduction to Chemical Engineering Thermodynamics.* McGraw-Hill.
Hougen, Watson and Ragatz. *Chemical Engineering Principles.* Vol. 2. Wiley.
Smith. *Chemical Engineering Kinetics.* McGraw-Hill.
Levenspeil. *Chemical Reaction Engineering.* Wiley.
Walas. *Chemical Engineering Kinetics.* McGraw-Hill.

REFERENCE BOOKS
Weber and Meissner. *Thermodynamics for Chemical Engineers.*
Dodge. *Chemical Engineering Thermodynamics.* McGraw-Hill.
Guggenheim. *Thermodynamics.*
Hinshelwood. *Kinetics of Chemical Change.*
Frost and Pearson. *Kinetics and Mechansim.* Wiley.
Denbigh. *Principles of Chemical Equilibrium.* Cambridge.

3.121 Management and Data Processing

TEXT BOOKS
Edward Sykes. *The Employer, Employee and the Law.* Law Book Co.
Yorstan and Fortesque. *Australian Mercantile Law.* 11th ed.
Colman, Smallwood and Brown. *Computer Language.*

3.122 Chemical Engineering IIB

TEXT BOOKS *Principles II*
Norman. *Absorption and Distillation.*
Coulson and Richardson. *Chemical Engineering.* Vol. 2, Pergamon.
Sherwood and Pigford. *Absorption and Extraction.* McGraw-Hill.
Bird, Stewart and Lightfoot. *Transport Phenomena.* Wiley.

REFERENCE BOOKS
Perry. *Chemical Engineers' Handbook.* McGraw-Hill.
Badger and Banchero. *Introduction to Chemical Engineering.* McGraw-Hill.

3.122 Chemical Engineering

TEXT BOOKS *Design I*
A.S. No. CB.1, Part V—1951 S.A.A. Boiler Code, Part V—Welding. Standards Association of Australia.
S.A.A. Int. 351. Structural Steel in Building. Standard Association of Australia.
Buchanan and Sinclair (edited by). *Costs and Economics of the Australian Process Industries.* West.
Peters. *Plant Design and Economics for Chemical Engineers.* McGraw-Hill.
A.S. No. A1—1956 Structural Steel and Rolled Steel Sections. Standards Association of Australia.

REFERENCE BOOKS
A.S.M.E. *Boilers and Pressure Vessel Code.* Section 8 (1962).
B.S. 1500: 1958. *Fusion Welded Pressure Vessels.* British Standards Institution.
A.S. No. CA.2—(1958) S.A.A. Code for Concrete in Buildings. Standards Association of Australia.
A.S. No. CA.10—(1938) Platforms, Gangways, etc. Standards Association of Australia.
S.A.A. Int. 350. *Minimum Design Loads in Buildings.* Standards Association of Australia.
Vilbrandt and Dryden. *Chemical Engineering Plant Design.* 4th ed. McGraw-Hill.
B.S. 1387. *Steel Tubes and Tubulars, British Platforms.* British Standards Institute.
Rase and Barrow. *Project Engineering of Process Industries.* Wiley.
Brownell and Young. *Process Equipment Design.* Wiley.
Kern. *Process Heat Transfer.* McGraw-Hill.
Tema. *Heat Exchangers Design Manual.* 3rd and 4th editions.
B.H.P. *Catalogue of Rolled Steel Sections.*
Tyler and Winter. *Chemical Engineering Economics.*
Dept. of Trade. *Income Tax for the Manufacturer.*
Rase. *Piping Design for Process Plants.* Wiley.

Hirschhorn. *Materials and Structures.* UNSW Students' Union.
Morris and Jackson. *Absorption and Stripping Towers.* Butterworths.
Leva. *Packed Towers.* U.S. Stoneware.
Kellog. *Design of Piping Systems.*
Siemon. *Pressure Vessel Manual.* 6th ed. Edwards Bros.

TEXT BOOKS *Corrosion and Materials*
Evans. *Introduction to Metallic Corrosion.*
Rollason. *Metallurgy for Engineers.* 4th ed.
Hepner. *Materials of Construction for Chemical Plant.*

REFERENCE BOOKS
Rumford. *Chemical Engineering Materials.*
Uhlig. *Corrosion Handbook.*
Speller. *Corrosion, Causes and Prevention.*
Society of Chem. Ind., 1950. *Materials of Construction in the Chemical Industry.*

3.131S Chemical Engineering

TEXT BOOKS *Principles III*
Coulson and Richardson. *Chemical Engineering.* Vols. 1 and 2. Pergamon.
Bird, Stewart and Lightfoot. *Transport Phenomena.*
Foust, Clump, Wenzel, Maus and Andersen. *Principles of Unit Operations.* Wiley.
Holland. *Multicomponent Distillation.* Prentice Hall.

REFERENCE BOOKS
Treybal. *Mass Transfer Operations.*
Robinson and Gilliland. *Elements of Fractional Distillation.*
Eckert. *Introduction to the Transfer of Heat and Mass.*
Othmer. *Fluidization.*
Ipsen. *Units, Dimensions and Dimensionless Numbers.*
Johnstone and Thring. *Pilot Plants, Models and Scale-up Methods.*
Langhaar. *Dimensional Analysis and Theory of Models.*

3.132S Chemical Engineering

TEXT BOOKS *Design II*
Buchanan and Sinclair (edited by). *Costs and Economics of the Australian Process Industries.* West.
Gascoyne. *Analysis of Pipe Structures for Flexibility.* Pitman.
Comings. *High Pressure Technology.* McGraw-Hill.

REFERENCE BOOKS
Tongue. *Design of High Pressure Chemical Plant.* 2nd ed.
Kern. *Process Heat Transfer.* McGraw-Hill.
Brownell and Young. *Process Equipment Design.* Wiley.
Timoshenko. *Theory of Elastic Stability.* McGraw-Hill.
Kellog. *Design of Piping Systems.* Kellog.
Rase. *Piping Design for Process Plants.* Wiley.
Roark. *Formulas for Stress and Strain.* McGraw-Hill.

3.132S Instrumentation and Automatic Control

TEXT BOOKS
Shilling. *Process Dynamics and Control.* Holt, Rinehart and Winston.

REFERENCE BOOKS
Caldwell, Coon and Zoss. *Frequency Response for Process Control.* McGraw-Hill.
Campbell. *Process Dynamics.*
D'Azzo and Houpis. *Feedback Control System Analysis and Synthesis.* McGraw-Hill.

Del Toro and Parker. *Principles of Control System Engineering.* McGraw-Hill.
Eckman. *Automatic Process Control.* Wiley.
Smith and Wood. *Principles of Analog-Computation.* McGraw-Hill.

3.181G Biochemical Engineering

REFERENCE BOOKS *Heat, Mass and Momentum Transfer*
Badger and Banchero. *Introduction to Chemical Engineering.* McGraw-Hill.

3.182G Biochemical Engineering

REFERENCE BOOKS *Thermodynamics and Kinetics*
Webb. *Biochemical Engineering.*
Smith. *Chemical Engineering Kinetics.* McGraw-Hill.
Smith and Van Ness. *Introduction to Chemical Engineering Thermodynamics.* McGraw-Hill.
Levenspiel. *Chemical Reaction Engineering.* Wiley.
Bray and White. *Kinetics and Thermodynamics in Biochemistry.* Churchill.

3.183G Biochemical Engineering

REFERENCE BOOKS *Process Equipment and Design*
Webb. *Biochemical Engineering.*
Badger and Banchero. *Introduction to Chemical Engineering.* McGraw-Hill.

TEXT BOOKS
Shilling. *Process Dynamics and Control.* Holt, Rinehart and Winston.

DEPARTMENT OF FOOD TECHNOLOGY

3.211 Food Technology Part I

REFERENCE BOOKS
Baumgartner and Hersom. *Canned Foods.*
Tressler and Evans. *The Freezing Preservation of Foods.* 2 Vols.
Blanck. *Handbook of Food and Agriculture.*
Tressler and Joslyn. *Fruit and Vegetable Juice Production.*
Van Arsden and Copley. *Dehydration.* 2 Vols.
Howard. *Canning Technology.*
Cruess. *Commercial Fruit and Vegetable Products.*
Morris. *Principles of Fruit Preservation.*
Frazier. *Food Microbiology.*
Ball and Olsen. *Sterilisation in Food Technology.*
Hlynka. *Wheat Chemistry and Technology.*

3.212 Food Technology I Part II

REFERENCE BOOKS
Honig. *Principles of Sugar Technology.*
Jensen. *Meat and Meat Foods.*
Jensen. *Microbiology of Meats.*
Bailey. *Industrial Oil and Fat Products.*
Jacobs. *Food and Food Products.* 3 Vols.
Bate-Smith and Morris. *Food Science.*
Mrak and Stewart. *Advances in Food Research.*
Davis. *Dictionary of Dairying.*
Tressler and Lemon. *Marine Products of Commerce.*
Frazier. *Food Microbiology.*
Romanoff and Romanoff. *The Avian Egg.*
Tanner. *Microbiology of Foods.*
Borgstrom. *Fish as Food.* Vols. 1-3.

3.221 Food Technology II

REFERENCE BOOKS

U.S.A. Quartermaster Food and Container Institute. 1. *Colour in Foods.* 2. *Food Acceptance Testing Methodology.* 3. *Chemistry of Natural Food Flavours.*
Crocker. *Flavour.*
Little. *Flavour Research and Food Acceptance.*
Harris and Von Loesecke. *Nutritional Evaluation of Food Processing.*
MacKinley and Little. *Colour of Food.* A.V.I.
Karrer and Jucker. *Caretenoids.*
Goodwin. *The Comparative Biochemistry of the Caretenoids.*
Peach and Tracey. *Modern Methods of Plant Analysis.* 4 Vols.
Mrack and Stewart. *Advances in Food Research.*
Meyer. *Food Chemistry.*
Charm. *Fundamentals of Food Engineering.*
Webb. *Biochemical Engineering.*

DEPARTMENT OF FUEL TECHNOLOGY

3.311 Fuel Science and Engineering I

TEXT BOOKS

Brame and King. *Fuel: Solid, Liquid and Gaseous.* Arnold, *or*
H.M.S.O. (London), Ministry of Power. *The Efficient Use of Fuel.*
Gilchrist. *Furnaces.* Pergamon.

REFERENCE BOOKS

Himus. *Elements of Fuel Technology.* Hill.
Himus. *Fuel Testing.* Hill.
Australian Standards Association. *The Coal Resources of Australia.* Power Survey Report No. 3.
Commonwealth of Australia. *Report of the Coal Utilization Research Advisory Committee.* Govt. Printer. CURAC Report.
Cambell (Ed. Gibb). *Methods of Analysis of Fuels and Oils.* Constable.
Gilchrist. *Fuels and Refractories.* Pergamon.
Lowry. *Chemistry of Coal Utilization.* Supplementary Vol. Wiley.
Francis. *Coal: Its Formation and Composition.* 2nd ed. Arnold.
Shell Internat. Pet. Co. Ltd. *The Petroleum Handbook.* 4th ed.
British Petroleum Co. Ltd. *Gasmaking.*
B.S. 1017. *Methods for the Sampling of Coal and Coke.* 1960.
B.S. 1016. *Methods for the Analysis and Testing of Coal and Coke.* 1957-1961.
B.S. 1756. *Code for the Sampling and Analysis of Fuel Gases.*
Inst. of Petroleum. *I.P. Standards for Petroleum and Its Products.*
Standardisation of Tar Products Tests Committee (S.T.P.T.C.). *Standard Methods for Testing Tar and Its Products.*
Huxtable. *Coal Tar Fuels.* Assoc. of Tar Distillers.
Spiers. *Technical Data on Fuel.* World Power Conference, London.

3.321 Fuel Engineering II

TEXT BOOKS

Smith and Stinson. *Fuels and Combustion.* McGraw-Hill.
*Thring. *The Science of Flames and Furnaces.* Chapman and Hall.
*Gaydon and Wolfhard. *Flames.* Chapman and Hall.
*Also needed in later courses.

REFERENCE BOOKS

Spiers. *Technical Data on Fuel.* W.P.C., London.
Dehnel. *Fundamentals of Boiler House Technique.*

Lewis and Von Elbe. *Combustion, Flames and Explosions of Gases.* Academic.
Lowry. *Chemistry of Coal Utilization.* Supplementary volume. Wiley, 1963.
A.S.M.E. Research Report. *Corrosion and Deposits in Coal—and Oil-fired Boilers and Gas Turbines.* Pergamon.
Inst. of Fuel (Australian Membership). *Symposium on the Inorganic Constituents of Fuel (Origin, Influence and Control).* 1964.

3.331S Fuel Engineering IIIA

TEXT BOOKS
Kern. *Process Heat Transfer.* McGraw-Hill.
Spiers. *Technical Data on Fuel.* W.P.C., London.

REFERENCE BOOKS
Griswald. *Fuels, Combustion and Furnaces.* McGraw-Hill.
Etherington. *Modern Furnace Technology.* 3rd ed. Griffin.
Trinks. *Industrial Furnaces.* Vols. 1 and 2. Wiley.
Lyle. *The Efficient Use of Steam.* H.M.S.O., London.
Norton. *Refractories.*

3.332S Fuel Engineering IIIB

TEXT BOOKS
McAdams. *Heat Transmission.* McGraw-Hill.
*Spiers. *Technical Data on Fuel.* W.P.C., London.
*Thring. *The Science of Flames and Furnaces.* 2nd ed. Chapman and Hall.
Van Krevelen. *Coal. Typology, Chemistry, Physics and Constitution.* Elsevier.
*Gaydon and Wolfhard. *Flames.* 2nd ed. Chapman and Hall.
Institute of Petroleum. *Modern Petroleum Technology.*
*Texts from previous subject which should already be in the students' possession.

REFERENCE BOOKS
Karplus. *Analogue Simulation.* McGraw-Hill.
Spalding. *Some Fundamentals of Combustion.* Butterworth.
Griswald. *Fuels, Combustion and Furnaces.* McGraw-Hill.
Etherington. *Modern Furnace Technology.* 3rd ed. Griffin.
Trinks. *Industrial Furnaces.* Vol. 1 and 2. Wiley.
Kern. *Process Heat Transfer.* McGraw-Hill.
Sach (edited by). *Coal Tar Fuels.* Association of Tar Distillers, London.
Gumz. *Gas Producers and Blast Furnaces.* Wiley.
Francis. *Boiler House and Power Station Chemistry.* Arnold.
Drinker and Hatch. *Industrial Dusts.* McGraw-Hill.
Nelson. *Petroleum Refinery Engineering.* McGraw-Hill.
Lowry. *Chemistry of Coal Utilization.* Supplementary Vol. Wiley.
Francis. *Coal: Its Formation and Composition.* 2nd ed. Arnold.
B.C.U.R.A. *Proceedings of a Conference on the Ultrafine Structure of Coals and Cokes.* 1944.
Institute of Fuel. *Residential Conference on Science in the Use of Coal.* Sheffield, 1958.
The Central Fuel Research Institute, India. *Proceedings of the Symposium on the Nature of Coal.* Jealgora, 1959.
Van Nes and Van Westen. *Aspects of the Constitution of Mineral Oils.* Elsevier.

3.333 Fuel Engineering IIIM

The text and reference books for this subject are selected from those for 3.332S above.

3.340 Fuel Engineering Project

No books are recommended. Students are supplied with reading lists appropriate to individual requirements.

3.371 Fuel Science for Applied Geology

Text and reference books are as for 3.311 Fuel Science and Engineering I.

3.381 Principles of Fuel Engineering

Text and reference books are as for 3.311 Fuel Science and Engineering I.

3.382 Combustion Engineering

As for 3.321 Fuel Engineering II.

3.383 Fuel Plant, Evaluation and Assignments

Students are supplied with reading lists appropriate to individual requirements.

3.391G Atmospheric Pollution and Control

TEXT BOOKS

Magill, Holden and Ackley. *Air Pollution Handbook.* McGraw-Hill.

REFERENCE BOOKS

Meetham. *Atmospheric Pollution.* 2nd ed. Pergamon.
Faith. *Air Pollution Control.* Wiley.
McCabe (edited by). *Air Pollution.* McGraw-Hill.
Drinker and Hatch. *Industrial Dust.* 2nd ed. McGraw-Hill.
Thring (edited by). *Air Pollution.* Butterworth.
Orr and Dalla Valle. *Fine Particle Measurement.* MacMillan.
Davies. *Dust is Dangerous.* Faber and Faber.
Davies. *Breathing and Irrespirable Atmospheres.*

3.392G Fuel Science

TEXT BOOKS

Van Krevelen. *Coal: Typology, Chemistry, Physics and Constitution.* Elsevier.

REFERENCE BOOKS

Lowry (edited by). *Chemistry of Coal Utilization.* Supplementary Vol. Wiley.

B.C.U.R.A. *Utrafine Structure of Coals and Cokes.* Proceedings of a Conference in London, 1943.

The Institute of Fuel. *Residential Conference on Science in the Use of Coal.* Sheffield, 1958.

Francis. *Coal: Its Formation and Composition.* 2nd ed. Arnold.

The Central Fuel Research Institute, India. *Proceedings of the Symposium on the Nature of Coal.* Jealgora, 1959.

Raistrick and Marshall. *The Nature and Origin of Coal Seams.* English University Press.

Van Nes and Van Westen. *Aspects of the Constitution of Mineral Oils.* Elsevier.

Freund (edited by). *Handbuch der Mikroskopie in der Technik.* Band II, Teil I, Kohle und Koks.

Stach. *Lehrbuch der Kohlen Mikroskopie.*

Anon. *Atlas Fur Angewanete Steinkohlenpetragraphy.* Essen.

3.393G Fuel Engineering Plant Design

TEXT BOOKS
Kern. *Process Heat Transfer.* McGraw-Hill.
Spiers. *Technical Data on Fuel.* W.P.C., London.

REFERENCE BOOKS
Griswald. *Fuels, Combustion and Furnaces.* McGraw-Hill.
Etherington. *Modern Furnace Technology.* 3rd ed. Griffin.
Trinks. *Industrial Furnaces.* Vols. 1 and 2. Wiley.
Lyle. *The Efficient Use of Steam.* H.M.S.O., London.

3.394G Thermal Engineering and Fuel Processing

TEXT BOOKS
Wilson and Wells. *Coal, Coke and Coal Chemicals.* McGraw-Hill.
Inst. of Petroleum. *Modern Petroleum Technology.*
McAdams. *Heat Transmission.* McGraw-Hill.

REFERENCE BOOKS
Gayden and Wolfhard. *Flames.* 2nd ed. Chapman and Hall.
Karplus. *Analogue Simulation.* McGraw-Hill.
Spalding. *Some Fundamentals of Combustion.* Butterworth.
Gumz. *Gas Producers and Blast Furnaces.* Wiley.

3.395G Research Techniques and Extension Methods

Students to be supplied with reading lists appropriate to individual requirements.

SCHOOL OF CHEMICAL TECHNOLOGY

22.211 Ceramics I

22.211/1 Ceramics Ia

REFERENCE BOOKS
Findlay, Campbell and Smith. *Phase Rules.*
American Ceramic Society. *Phase Diagrams for Ceramists.*
Andrews. *Ceramic Tests and Calculations.*
Norton. *Elements of Ceramics.*
Heath and Green. *A Handbook of Ceramic Calculations.*
Salmang. *Ceramics—Physical and Chemical Fundamentals.*

22.211/2 Ceramics Ib

REFERENCE BOOKS
Green and Stewart. *Ceramics: A Symposium.*
Norton. *Refractories.*
Chesters. *Steelplant Refractories.*
Goldman. *Science of Engineering Materials.*
Campbell. *High Temperature Technology.*
Searle and Grimshaw. *The Chemistry and Physics of Clays and Other Ceramic Materials.*
Eitol. *Physical Chemistry of Silicates.*
Kingery. *Introduction to Ceramics.* Wiley, 1960.
Klug and Alexander. *X-ray Diffraction Procedures.* Wiley.
Andrews. *Porcelain Enamels.* Garrard Press, 1961.
Ryshkewitch. *Oxide Ceramics: Physical Chemistry and Technology.* 1960.
Parmelee. *Ceramic Glazes.*

22.212 Ceramics II

REFERENCE BOOKS
McKenzie. *Modern Aspects of the Vitreous State.*
Sinnott. *Solid State for Engineers.*
Gray. *The Defect Solid State.*
Smoluchowski. *Phase Transformations in Solids.*
Kingery. *Ceramic Fabrication Processes.*
Darken and Gurry. *Physical Chemistry of Metals.*
Kern. *Process Heat Transfer.*
Green. *Industrial Rheology and Rheological Structure.*
Evans. *Crystal Chemistry, Introduction to.*
Stanworth. *Physical Properties of Glass.*

22.111 Industrial Chemistry

22.111/1 Processes

TEXT BOOKS
Shreve. *Chemical Process Industries, or*
Kent-Riegel. *Industrial Chemistry.*

REFERENCE BOOKS
Kobe. *Inorganic Process Industries.*
Groggins. *Unit Processes in Organic Syntheses.*
Rogers. *Industrial Chemistry.*

REFERENCE BOOKS *Chemical Process Equipment*
Riegel. *Chemical Machinery.*
Brown. *Unit Operations.*
Badger and Banchero. *Introduction to Chemical Engineering.*

22.111/2 Industrial Chemistry I

TEXT BOOKS *Chemical Thermodynamics and Kinetics*
Smith and Van Ness. *Introduction to Chemical Engineering Thermodynamics.*
Smith. *Chemical Engineering Kinetics.*

REFERENCE BOOKS
Darken and Gurry. *Physical Chemistry of Metals.* McGraw-Hill.
Dodge. *Chemical Engineering Thermodynamics.*
Hougen, Watson and Ragatz. *Chemical Process Principles.* Vol. 2.
Guggenheim. *Thermodynamics.*
Walas. *Reaction Kinetics for Chemical Engineers.*
Kirkwood and Oppenheim. *Chemical Thermodynamics.*

TEXT BOOK *Data Processing*
Allcock and Jones. *The Nomogram.*

REFERENCE BOOKS
Johnson. *Nomography and Empirical Equations.*
Davies. *Statistical Methods in Research and Production.*
Worthing and Geffner. *Treatment of Experimental Data.*

22.112 Industrial Chemistry II

REFERENCE BOOKS *Processes*
Rochow. *An Introduction to the Chemistry of the Silicones.*
Salmang. *Ceramics: Physical and Chemical Fundamentals.*
Norton. *Refractories.*
Campbell. *High Temperature Technology.*
Comings. *High Pressure Technology.*
Dushman. *Scientific Foundations of Vacuum Technology.*
Seaborg and Katz. *The Actinide Elements.*
Glasstone. *Principles of Nuclear Reactor Engineering.*

McQuillan and McQuillan. *Titanium.*
Miller. *Zirconium.*
Shirley. *The Preparation of Organic Intermediates.*
Bawn. *The Chemistry of High Polymers.*
Billmeyer. *Textbook of Polymer Science.*
Schildknecht. *Polymer Processes.*
Schildknecht. *Vinyl and Related Polymers.*
Underkofler and Hickey. *Industrial Fermentations.*
Groggins. *Unit Processes in Organic Synthesis.*
Kortum-Bockris. *Electrochemistry.*
Friend and Gutmann. *Proc. Ist Australian Conference on Electrochemistry.* Pergamon.
Gerrard. *Proc. A.I.M.E. Symposia on Extraction of Aluminium,* Vol. 2. Interscience.
Fordham. *Silicones.* Newnes, 1960.
Kingery. *Introduction to Ceramics.* Wiley, 1960.
Ryshkewitch. *Oxide Ceramics: Physical Chemistry and Technology.* Academic, 1960.
Harrington and Ruehle. *Uranium Production Technology.* Van Nostrand. 1959.
Cuthbert. *Thorium Production Technology. Addison-Wesley,* 1958.
Chesters. *Steel Plant Refractories.* 2nd ed., 2nd impression. United Steel Companies, 1963.
Foley and Clegg (edited by). *Uranium Ore Processing.* Addison-Wesley, 1958.

TEXT BOOK *Instrumentation and Process Control*
Eckman. *Principles of Industrial Process Control.*

REFERENCE BOOKS
Del Toro and Parker. *Principles of Control Systems Engineering.* McGraw-Hill, 1960.
Caldwell, Coon and Zoss. *Frequency Response in Process Control.*
Johnson. *Analog Computer Techniques.*
Huskey and Korn. *Computer Handbook.*
Smith and Wood. *Principles of Analog Computation.*
Considine. *Process Instruments Handbook.*
Shilling. *Process Dynamics and Control.* Holt, Rinehart and Winston.

REFERENCE BOOKS *Advanced Kinetics*
Hougen, Watson and Ragatz. *Chemical Process Principles.* Vol. III.
Hinshelwood. *Kinetics of Chemical Change.*
Frank-Kamenetskii. *Diffusion and Heat Exchange in Chemical Kinetics.*
Rietema. *Chemical Reaction Engineering.*
Trotman-Dickinson. *Gas Kinetics.*
Lapidus. *Digital Computation for Chemical Engineers.*
Garner (edited by). *Chemistry of the Solid State.*
Rees. *Chemistry of the Defect Solid State — Advances in Catalysis.* Academic.
Griffith. *Contact Catalysis.*
Laidler. *Introduction to the Chemistry of Enzymes.*

22.311 Polymer Science I

TEXT BOOKS
Burnett. *Mechanisms of Polymer Reactions; or*
Flory. *Principles of Polymer Chemistry, and*
Allen. *Characterisation of High Polymers.*
Schmidt and Marlies. *Principles of High Polymers—Theory and Practice.*

REFERENCE BOOKS
Payne. *Organic Coating Technology.* Vol. I.

Schildknecht. *Vinyl and Related Polymers.*
Ott. *Cellulose.*
Houwink. *Elastomers and Plastomers.* Vols. I and II.
Treloar. *The Physics of Rubber Elasticity.*
Billmeyer. *Textbook of Polymer Science.*
Tompa. *Polymer Solutions.*
A.S.T.M. Standards. Part IX.
British Standards.
Frith and Tuckett. *Linear Polymers.*
Eirich. *Rheology Theory and Application.* Vols. I, II and III.
Reiner. *Deformation and Flow.*

22.312 Polymer Science II

TEXT BOOKS
Grassie. *The Chemistry of High Polymer Degradation Processes.* Butterworth.
Pinner. *A Practical Course in Polymer Chemistry.* Pergamon.
Tompa. *Polymer Solutions.*
Schmidt and Marlies. *Principles of High Polymers—Theory and Practice.*

REFERENCE BOOKS
Kappelmeyer. *Chemical Analysis of Resin-based Coating Materials.* Interscience.
Kline. *Analytical Chemistry of Polymers Part I.* Interscience.
Houwink. *Elastomers and Plastomers.* Vols. I and II.
Schildknecht. *Vinyl and Related Polymers.*
Eirich. *Rheology Theory and Application.* Vols. I, II and III.
A.S.T.M. Standard. Part IX.

SCHOOL OF METALLURGY

4.001 Metallurgy I

TEXT BOOKS
Bailey. *A Textbook of Metallurgy.* 2nd ed. Macmillan.
Schuhmann. *Metallurgical Engineering.* Vol. I. Addison-Wesley.
Brown. *Unit Operations.* Wiley.
Cottrell. *Theoretical Structural Metallurgy.* 2nd ed. Arnold.
Hume-Rothery and Raynor. *The Structure of Metals and Alloys.* The Institute of Metals, London.
Guy. *Elements of Physical Metallurgy.* Addison-Wesley.

REFERENCE BOOKS
Brown and Orford. *The Iron and Steel Industry.* Pitman.
Farwell. *Down Argent Street.* Johnson, Sydney.
Blainey. *The Peaks of Lyell.* Melbourne University Press.
Norton. *Elements of Ceramics.* Addison-Wesley.
Kubaschewski and Evans. *Metallurgical Thermochemistry.* Pergamon.
Darken and Gurry. *Physical Chemistry of Metals.* McGraw-Hill.
Boas. *Introduction to the Physics of Metals and Alloys.* Melbourne University Press.
Kehl, *Principles of Metallographic Laboratory Practice.* 3rd ed. McGraw-Hill.
Rhines. *Phase Diagrams in Metallurgy.* McGraw-Hill.
Hollomon and Jaffe. *Ferrous Metallurgical Design.* Wiley.
Van Vlack. *Elements of Materials Science.* Addison-Wesley.
Gensamer. *Strength of Metals under Combined Stress.* American Society for Metals.
Dieter. *Mechanical Metallurgy.* McGraw-Hill.

4.012 Metallurgy II

4.012/1 Metallurgy IIA

4.012/2 Metallurgy IIB

For Text and Reference Books for "Mineral Dressing" section of this subject, see under 7.311 Mineral Dressing (School of Mining Engineering)

TEXT BOOKS

As for 4.011 Metallurgy I, together with—

Darken and Gurry. *Physical Chemistry of Metals.* McGraw-Hill.
Barrett. *Structure of Metals.* 2nd ed. McGraw-Hill.
Cottrell. *Dislocations and Plastic Flow in Crystals.* Oxford.
Bain and Paxton. *Alloying Elements in Steel.* 2nd ed. American Society for Metals, 1961.
Dieter. *Mechanical Metallurgy.* McGraw-Hill.
Shewmon. *Diffusion in Solids.* McGraw-Hill. 1963.

REFERENCE BOOKS

As for 4.011 Metallurgy I, together with—

Hume-Rothery. *Atomic Theory for Students of Metallurgy.* The Institute of Metals, London.
Wagner. *Thermodynamics of Alloys.* Addison-Wesley.
Campbell. *High Temperature Technology.* Wiley.
Bockris, White and Mackenzie. *Physiochemical Measurements at High Temperatures.* Butterworth.
Read. *Dislocations in Crystals.* McGraw-Hill.
Grossman. *Elements of Hardenability.* American Society for Metals.
Birchenall. *Physical Metallurgy.* McGraw-Hill.
Cullity. *Elements of X-ray Diffraction.* Addison-Wesley.
Seminar. *Thermodynamics in Physical Metallurgy.* American Society for Metals.
Dekker. *Solid State Physics.* Macmillan.
Jevons. *The Metallurgy of Deep Drawing and Pressing.* Chapman and Hall.
Heine and Rosenthal. *Principles of Metal Casting.* McGraw-Hill.
Goetzel. *Treatise on Powder Metallurgy.* Interscience.
Underwood. *The Rolling of Metals.* Chapman and Hall.
Hinsley. *Non-Destructive Testing.* Macdonald and Evans.
Udin, Funk and Wulff. *Welding for Engineers.* Wiley.
Smallman. *Modern Physical Metallurgy.* Butterworth.

4.013 Metallurgy III

TEXT AND REFERENCE BOOKS

As for 4.012 Metallurgy II

4.911 Materials Science (Mechanical Engineering)

TEXT BOOK

Guy. *Elements of Physical Metallurgy.* Addison-Wesley.

REFERENCE BOOKS

Goldman. *The Science of Engineering Materials.* Wiley.
Clark and Varney. *Physical Metallurgy for Engineers.* Van Nostrand.
Van Vlack. *Elements of Materials Science.* Addison-Wesley.
**Moffett, Pearsall and Wulff. *The Structure and Properties of Materials,* Vol. 1. Wiley.

4.921 Materials Science (Electrical Engineering)

TEXT BOOK

Van Vlack. *Elements of Materials Science.* Addison-Wesley.

REFERENCE BOOKS
Goldman. *The Science of Engineering Materials.* Wiley.
Cottrell. *Theoretical Structural Metallurgy.* Arnold.
**As above.

4.931 Materials Science (Civil Engineering)

TEXT BOOK
Guy. *Elements of Physical Metallurgy.* Addison-Wesley.
REFERENCE BOOKS
Goldman. *The Science of Engineering Materials.* Wiley.
Clark and Varney. *Physical Metallurgy for Engineers.* Van Nostrand.
Van Vlack. *Elements of Materials Science.* Addison-Wesley.
**As above.

SCHOOL OF MINING ENGINEERING

DEPARTMENT OF MINING ENGINEERING

7.111S Mining Engineering I and
7.111/1 Mining Engineering I Part I
7.111/2 Mining Engineering I Part II
7.111/3 Mining Engineering I Part III

PRELIMINARY BACKGROUND READING
(Selected reading from this book list for First and Second Year Students)
Hoover. *The Memoirs of Herbert Hoover, 1874-1920 Years of Adventure.* Macmillan.
Lovering. *Minerals in World Affairs.* Prentice-Hall.
Morrell. *The Gold Rushes.* A. and C. Black.
Farwell. *Down Argent Street.* Johnson, Sydney.
Woodward. *A Review of the Broken Hill Lead, Silver and Zinc Industry.* A.I.M.M., Melbourne.
Blainey. *The Peaks of Lyell.* Angus & Robertson.

TEXT BOOKS
Lewis and Clark. *Elements of Mining.* Wiley, *or*
Young. *Elements of Mining.* McGraw-Hill, *or*
Higham. *An Introduction to Metalliferous Mining.* Griffin, *and*
Statham. *Coal Mining.* English University Press.

REFERENCE BOOKS
(i) STATISTICS
Brooks and Dick. *Introduction to Statistical Method.* Heinemann.
Deming. *Some Theory of Sampling.* Wiley.
(ii) DRILLING
Cumming. *Diamond Drill Handbook.* Smith.
Brantly. *Rotary Drilling Handbook.* Palmer Publications.
(iii) GEOPHYSICS
Howell. *Introduction to Geophysics.* McGraw-Hill.
Dobrin. *Introduction to Geophysical Prospecting.* McGraw-Hill.
(iv) ECONOMICS
Truscott. *Mine Economics.* Mining Publications Ltd.
(v) EXPLOSIVES
Dupont de Nemours. *Blaster's Handbook.*
McAdam and Westwater. *Mining Explosives.* Oliver and Boyd.
Atlas Copco Ltd. *Manual of Rock Blasting.* Stockholm.
Gregory. *Explosives for Engineers.* Queensland University Press.

(vi) MINE EQUIPMENT
Bryson. *Mining Machinery.* Pitman.
Compressed Air and Gas Institute, N.Y. *Compressed Air Handbook.*
(vii) MINING PRACTICE
5th Empire Mining and Metallurgical Congress, 1953. *Coal in Australia.* A.I.M.M. Melbourne.
Jackson and Hedges. *Metal Mining Practice.* U.S. Bureau of Mines Bulletin, No. 419.
Beringer. *Underground Practice in Mining.* Mining Publications Limited.
Stoces. *Introduction to Mining.* 2 Vols. Pergamon.
Eaton. *Practical Mine Development and Equipment.* McGraw-Hill.
Whitaker and Willet. *Colliery Explosion and Recovery Work.* Pitman.
5th Empire Mining and Metallurgical Congress, 1953. *Mining Methods in Australia and Adjacent Territories.* A.I.M.M. Melbourne.
Sinclair. *Winning Coal.* Pitman.
(viii) TUNNELLING
Proctor and White. *Rock Tunnelling with Steel Supports.* Commercial Shearing and Stampling Co.
Howett and Johannesson. *Shield and Compressed Air Tunnelling.* McGraw-Hill.
Atlas Copco. *Manual of Rock Blasting.*
Symposium on Shaft Sinking and Tunnelling, 1959. Inst. of Mining, London.
(ix) ALLUVIAL MINING
Harrison. *Examination, Boring and Valuation of Alluvial Deposits.* Mining Publications.
Griffith. *Alluvial Prospecting and Mining.* Mining Publications.
(x) OIL
Uren. *Petroleum Production Engineering. Oil Field Exploitation,* Vol. I. *Development,* Vol. II. *Economics,* Vol. III. McGraw-Hill.
Pirson. *Elements of Oil Reservoir Engineering.* McGraw-Hill.

7.112 Mining Engineering II

7.113 Mining Elective and

and

7.112/1 Mining Engineering II

PRELIMINARY BACKGROUND READING
Jenkin. *The Cornish Miner.* Allen and Unwin.
Rickard. *Man and Metals.* Vols. I and II. McGraw-Hill.
Rickard. *Technical Writing.* Wiley or A.I.M.E. Series.
Spalding. *Deep Mining.* Mining Publications.
Hoover. *Principles of Mining.* McGraw-Hill.
Blainey. *Mines in The Spinifex.* Angus and Robertson.

TEXT BOOKS
Baxter and Parks. *Examination and Valuation of a Mineral Property.* Addison-Wesley.
Peele. *Mining Engineer's Handbook.* 3rd ed. Vols. I and II. Wiley.
Staley. *Mine Plant Design.* McGraw-Hill.
Standards Association of Australia. *Steel Wire Rope for Winding and Haulage Purposes in Mines.* As No. M/4. 1955.
Fritzsch and Potts. *Horizon Mining.* Allen and Unwin.

REFERENCE BOOKS
(i) STATISTICS
Lambe. *Elements of Statistics.* Longmans.
Walker and Lev. *Statistical Inference.* Constable or Holt.
Schaifer. *Probability and Statistics for Business Decisions.* McGraw-Hill.

(ii) HOISTING
Inst. of Mining and Metallurgy. *Wire Ropes in Mines.*
Broughton. *Electric Winders.* Spon.
Price. *Winding Calculations for the Mining Engineer.* The General Electric Co.
(iii) MINE VENTILATION
Roberts. *Mine Ventilation.* Cleaver-Hume.
Buffalo Forge Co. *Fan Engineering.*
Penman. *Principles and Practice of Mine Ventilation.* Griffin.
Weeks. *Ventilation of Mines.* McGraw-Hill.
Rayner. *A Guide to Mine Ventilation Calculations.* Mine Ventilation Society of South Africa.
Transvaal Chamber of Mines. *Quality of Mine Air.*
Barenburg. *Psychometry and Psychometric Charts.* South African Inst. of Mining and Metallurgy.
BSS 848. *Testing of Fans.*
Bulletin 385 U.S. Bureau of Mines. *Engineering Factors in the Ventilation of Metal Mines.*
Hartman. *Mine Ventilation and Air Conditioning.* Ronald Press.
(iv) ECONOMICS
Hoover. *The Economics of Mining.* Stanford and Oxford.
Chambers. *Financial Management.* Law Book Co.
Myers. *Financial Statement Analysis.* Prentice Hall.
Wilcox. *Mine Accounting and Financial Administration.* Pitman.
Court. *Budgetary Control.* Sweet and Maxwell.
Dobb. *Wages.* Nisbet and Cambridge.
(v) MINING LAW
Mining Acts. N.S.W., W.A., TAS., QUEENSLAND, VIC. and S.A.
(vi) SAFETY HEALTH
Drinker and Hatch. *Industrial Dust.* McGraw-Hill.
Gill. *Dust, Its Effect on the Respiratory System.* Lewis.
Institute of Mining Engineers and Institution of Mining and Metallurgy. *Silicosis, Pneumoconiosis and Dust Suppression in Mines. 1947.*
Transvaal Chamber of Mines. *Safety Code.*
McAdam and Davidson. *Mine Rescue Work.* Oliver and Boyd.
Davies. *Dust is Dangerous.* Faber.
Davies. *Breathing and Irrespirable Atmospheres.* St. Catherine Press.
(vii) MINING PRACTICE
Jeppe. *Gold Mining on the Witwatersrand.* Transvaal Chamber of Mines.
Mitke. *Mining Methods.* McGraw-Hill.
Tillson. *Mine Plant.* A.I.M.E.
Carton Publishing Co. *Coal Mining Practice.* 4 vols.
Spruth Fritz. *Face Supports in Steel and Light Metal.* Colliery Guardian.
Isaacson. *Rock Pressure in Mines.* Mining Publications Ltd.
(viii) GENERAL
Nelson. *Writing the Technical Report.* McGraw-Hill.

7.121 Mining Surveying and

7.121/1 Mine Surveying

TEXT BOOKS
Students should provide themselves with seven-figure logarithmic tables, such as Chambers' *Mathematical Tables.*
REFERENCE BOOKS
Metcalfe. *Mining Engineers' Survey Manual.* Electrical Press.
Winiberg. *Metalliferous Mine Surveying.* Mining Publications Ltd.
Winiberg. *Surveying Calculations.* Mining Publications Ltd.

Staley. *Introduction to Mine Surveying.* Stanford U.P.
Haddock. *Deep Borehole Surveys and Problems.* McGraw-Hill.
Haddock. *The Basis of Mine Surveying.* Chapman and Hall.

7.311/1
7.311 Mineral Dressing

TEXT BOOKS
Gaudin. *Principles of Mineral Dressing.* McGraw-Hill, *or*
Taggart. *Elements of Ore Dressing.* Wiley.

REFERENCE BOOKS
Taggart. *Handbook of Mineral Dressing.* Wiley.
Gaudin. *Flotation.* 2nd ed. McGraw-Hill.
Sutherland and Wark. *Principles of Flotation.* Aust. I.M.M.
Brown. *Unit Operations.* Wiley.
Pryor. *An Introduction to Mineral Dressing.* Mining Publications.
Herdan. *Small Particle Statistics.* Butterworths.

7.312G Mineral Dressing Parts I and II

TEXT BOOKS
Gaudin. *Flotation.* 2nd ed. McGraw-Hill.
Taggart. *Handbook of Mineral Dressing.* Wiley.
Rose and Sullivan. *Ball Tube and Rod Mills.* Constable.

REFERENCE BOOKS
Sutherland and Wark. *Principles of Flotation.* Aus. I.M.M.
Herdan. *Small Particle Statistics.* Butterworth.
Feurstenau. *Froth Flotation.* A.I.M.E.
Robie. *Economics of the Mineral Industries.* A.I.M.E.
Brown. *Unit Operation.* Wiley. *International Mineral Processing Congress.* I.M.M. 1960.
Alexander and Johnson. *Colloid Science.* Oxford.
Dorr and Bosqui. *Cyanidation and Concentration of Gold and Silver Ores.* McGraw-Hill.

7.341G Coal Preparation Parts I and II

TEXT BOOKS
Mitchell. *Coal Preparation.* A.I.M.E.

REFERENCE BOOKS
Sinclair. *Coal Preparation and Power Supply at Collieries.* Pitman.
Brown. *Unit Operations.* Wiley.
Gaudin. *Flotation.* 2nd ed. McGraw-Hill. *International Coal Preparation Congress.* N.C.B. 1962.

7.352 Mineral Economics

TEXT BOOKS
Robie. *Economics of the Mineral Industries.* A.I.M.E.

REFERENCE BOOKS
Baxter and Parks. *Examination and Valuation of a Mineral Property.* Addison-Wesley.
Pryor. *Economics for the Mineral Engineer.* Pergamon.

7.321G Mineral Engineering

TEXT BOOKS
Taggart. *Handbook of Mineral Dressing.* Wiley.

REFERENCE BOOKS
Rabone. *Flotation Plant Practice.* Mining Publications.
Michell. *The Practice of Mineral Dressing.* Elect. Press.
Modern Mineral Processing Flow Sheets. Denver Equipment Co.
Handbook on Belt Conveyor Design. G.E.C.

7.331G Applied Mineragraphy

TEXT BOOK
Cameron. *Ore Microscopy.* Wiley.

REFERENCE BOOKS
Short. *Microscopic Determination of the Ore Minerals.* U.S. Government Printing Office.
Uytenbogaardt. *Tables for Microscopic Identification of Ore Minerals.* Princeton University Press.
Schonten. *Determination Tables for Ore Microscopy.* Elsevier.

SCHOOL OF TEXTILE TECHNOLOGY

13.111 Textile Technology I

REFERENCE BOOKS
Mathews. *Textile Fibres.*
Moncrieff. *Man-made Fibres.*
Morton. *Introduction to the Study of Spinning.*
Radcliffe. *Woollen and Worsted Yarn Manufacture.*
Bennett. *Introduction to Automatic Weaving.*
Bradbury. *Modern Looms.*
Thompson. *Narrow Fabric Weaving.*
Shinn. *Principles of Knitting.* Vols. I and II.
Watson. *Textile Design and Colour.*
Robinson. *Rayon Fabric Construction.*
Textile Institute. *Manual of Cotton Spinning.* Vol. IV, Part I, *Principles of Roller Drafting.*
Nissan. *Textile Engineering Processes.*
Walker. *Worsted Drawing and Spinning.* Part I, *Drawing.*
Seydel. *Warp Sizing.*
Middlebrook. *Primary Aspects of the Power Loom. Secondary Aspects of the Power Loom.*
Paling. *Warp Knitting Technology.*
Reichman. *Principles of Knitting Outerwear Fabrics and Garments.*
Chamberlain. *Principles of Machine Knitting.*
Crossland. *Modern Carpet Manufacture.*
Griffin. *Practical Worsted Carding.*
Griffin. *Practical Worsted Combing.*

13.112 Textile Technology II

REFERENCE BOOKS
W.I.R.A. Wool Research. Vls. 4 and 6. *Carding and Drawing and Spinning.*
W.I.R.A. Collected Practical Problems.
Wray. *Modern Yarn Production from Man-Made Fibres.*
A.S.T.M. Standards on Textile Materials.
Methods of Test for Textiles. B.S. Handbook.
Textile Institute. *Identification of Materials.*
Luniak. *Identification of Textile Fibres.*
Booth. *Principles of Textile Testing.*
Koch. *Microscopic and Chemical Testing of Textiles.*
Watson. *Advanced Textile Design.*
Giles. *Laboratory Course in Dyeing.*

Bird. *The Theory and Practice of Wool Dyeing.*
Marsh. *Introduction to Textile Bleaching.*
Marsh. *Introduction to Textile Finishing.*
Marsh. *Mercerising.*
Marsh. *Self Smoothing Fabrics.*
Garner. *Textile Laboratory Manual.*
Brearly and Cox. *An Outline of Statistical Methods for Use in the Textile Industry.*
Caldwell. *Rayon Staple Fibre Spinning.*
Schmidlin. *Preparation and Dyeing of Synthetic Fibres.*

13.113 Textile Technology III

REFERENCE BOOKS
Society of Dyers and Colourists. *Colour Index.*
Vickerstaff. *The Physical Chemistry of Dyeing.*

13.211 Textile Science I

REFERENCE BOOKS
Peters. *Textile Chemistry.*
Hill. *Fibres from Synthetic Polymers.*
Moore. *An Introduction to Polymer Chemistry.*
Ward. *Chemistry and Chemical Technology of Cotton.*
Ott and Spurlin. *Cellulose.*
Hearle and Peters. *Fibre Structure.*
Hermans. *Physics and Chemistry of Cellulose Fibres.*
Alexander, Hudson and Earland. *Wool: Its Chemistry and Physics.*
Mercer. *Keratin and Keratinization.*
Stoves. *Fibre Microscopy.*
Woods. *Physics of Fibres.*
Schwartz and Perry. *Surface-Active Agents.*
Moilliet, Collie and Black. *Surface Activity.*
Hearle and Peters. *Moisture in Textiles.*
Meredith and Hearle. *Physical Methods of Investigating Textiles.*
Eirich. *Rheology.* Vols. I and II.
Morton and Hearle. *Physical Properties of Textile Fibres.*

13.212 Textile Science II

REFERENCE BOOKS
Wright. *Measurement of Colour.*
Optical Society of America. *The Science of Colour.*
Textile Inst. and Soc. Dyers and Colourists. *Review of Textile Progress.* Annual.
Howell, Mieszkis and Tabor. *Friction in Textiles.*
Meredith. *Mechanical Properties of Textile Fibres.*

13.311 Textile Engineering I

REFERENCE BOOKS
Kent. *Mechanical Engineers Handbook Power.* Edited by J. K. Salisbury.
Cook and Carr. *Elements of Electrical Engineering.*
Swale. *Electricity in the Textile Industry.*
Greenhut. *Plant Location in Theory and Practice.*
Clifford. *Textile Organisation and Production.*
Illumination Engineering Society Lighting Handbook.
Staniar, edited by. *Plant Engineers Handbook.*
Wrangham. *Theory and Practice of Heat Engines.*
Lyle. *The Efficient Use of Steam.*
Enrich. *Engineering Manual for the Textile Industry.*

13.312 Textile Engineering II

REFERENCE BOOKS

Kent. *Mechanical Engineers Handbook Design and Production.*
Michell. *Lubrication, Its Principles and Practice.*
Eckman. *Industrial Instrumentation.*
Young. *An Introduction to Process Control System Design.*
Kern. *Process Heat Transfer.*
The Efficient Use of Fuel. H.M.S.O.

13.511 General Textiles I

REFERENCE BOOKS

Mathews. *Textile Fibres.*
Moncrieff. *Man-made Fibres.*
Morton. *Introduction to the Study of Spinning.*
Radcliffe. *Woollen and Worsted Yarn Manufacture.*
Bradbury. *Calculation in Yarns and Fabrics.*
Textile Institute. *Identification of Textile Materials.*
Luniak. *Identification of Textile Fibres.*
B.S. Handbook. *Methods of Test for Textiles.*

13.512 General Textiles II

REFERENCE BOOKS

Bennett. *Introduction to Automatic Weaving.*
Bradbury. *Modern Looms.*
Bird. *The Theory and Practice of Wool Dyeing.*
Marsh. *Introduction to Textile Finishing.*

SCHOOL OF WOOL TECHNOLOGY

9.101, 9.122, 9.123 Livestock Production

TEXT BOOKS

Ashton. *Dairy Farming in Australia.* N.S.W. ed. Dept. Commerce and Industry.
Belschner. *Sheep Management and Diseases.* 7th ed. A & R. 1962.
Cole. *Sheep Management for Wool Production.* Grazcos, Sydney, 1963.
Hammond, edited by. *Progress in the Physiology of Farm Animals.* 3 vols. Butterworth.

REFERENCE BOOKS

*Allee et al. *Principles of Animal Ecology.* Saunders.
American Meat Inst. Foundation. *Science of Meat and Meat Products.* Freeman, 1960.
American Society of Animal Production. *Techniques and Procedures in Animal Production Research.* ASAP.
Beattie. *Beef Cattle Breeding and Management.* Past. Rev.
Beattie. *Beef Cattle Industry of Australia.* CSIRO Bull. No. 278.
*Bostock. *Pig Husbandry in Australia.*
*Briggs. *Modern Breeds of Livestock.*
Brody. *Bioenergetics and Growth.*
Charleton and Leach. *Schafer's Essentials of Histology.*
Cole and Cupps. *Reproduction in the Domestic Animals.* 2 vols. Academic.
Downey. *Pig Raising.* 2nd ed. A. & R.
*Drabble. *Textbook of Meat Inspection.* A. & R.
*Dukes. *Physiology of Domestic Animals.* Comstock.
Folley. *Physiology and Biochemistry of Lactation.* Cliver and Boyd.
Foust and Getty. *Anatomy of Domestic Animals.* Iowa University Press, 1960.
*Fraser. *Beef Cattle Husbandry.* Crosby Lockwood

*Fraser. *Sheepfarming.* Crosby Lockwood.
Fraser and Stamp. *Sheep Husbandry and Disease.* Crosby Lockwood.
Hafez, edited by. *Reproduction in Farm Animals.* Lea and Febieger, 1962.
*Hammond. *Farm Animals.* Edited by Arnold. 1960.
Hammond. *Growth and Development of Mutton Qualities of Sheep.*
Hungerford. *Diseases of Livestock.* Grahame.
*Kammlade and Kammlade. *Sheep Science.* Lippincott.
*Kelley. *Sheep Dogs (Breeding, Care and Management).* A. & R.
Kent. *Comparative Anatomy of the Vertebrates.* McGraw-Hill.
McGregor. *Structure of Meat Animals.*
McMeekan et al. *Principles of Animal Production.* Whitcombe and Tombs.
Miller and Robertson. *Practical Animal Husbandry.*
Miller and West. *Encyclopaedia of Animal Care.* Williams & Wilkins.
Nicholls. *Livestock Improvement in Relation to Heredity and Environment.* Oliver & Boyd.
*O'Loughlin, edited by. *Beef Cattle in Australia.* Country Life Newspaper.
Parkes. *Marshall's Physiology of Reproduction, Parts I and II.* Longmans.
*Patten. *Foundations of Embryology.*
*Pearse. *Sheep Farm and Station Management.* Past. Rev.
*Phillips. *Breeding Animals Suited to Unfavourable Environments.* FAO.
*Roberts. *Insects Affecting Livestock.*
Sisson. *Anatomy of Domestic Animals.*
*Smith. *Practical Poultry Husbandry in Australia.*
Snapp. *Beef Cattle.*
*Taylor. *Regional and Applied Anatomy of Domestic Animals.*
*Thomas et al. *Sheep.*
Trautmann and Fiebiger. *Fundamentals of the Histology of Domestic Animals.*
*Trow-Smith. *History of the British Livestock Industry.* 2 vols. Standish.
*Turner. *Anatomy of the Udder.* Columbia.
*Waddington. *Principles of Embryology.* Allen & Unwin.
*Not on Reserve.

9.311 Economics, 9.312 Farm Management

TEXT BOOKS
Black. *Introduction to Economics for Agriculture.* Macmillan.
Castle and Becker. *Farm Business Management.* Macmillan.

REFERENCE BOOKS
Agriculture, Fish and Food Ministry. *The Farm as a Business.* H.M.S.O.
Barnard. *Growth of the Australian Wool Market, 1840-1900.* Melbourne University Press.
Blagburn. *Farm Planning and Management.* Longmans.
Bradford and Johnson. *Farm Management Analysis.* Chapman & Hall.
Emery and Oeser. *Information, Decision and Action.* Melbourne University Press.
Heady and Candler. *Linear Programming Methods.* Iowa State College Press.
Heady and Jensen. *Farm Management Economics.* Prentice Hall.
Hopkins and Heady. *Farm Records and Accounting.* Iowa State College Press.
King. *Outline of Closer Settlement in N.S.W.* Govt. Printer.
Mallyon. *Principles and Practice of Farm Management Accounting.* Law Book Co.
Shannon. *Rural Industries in the Australian Economy.*
Wadham and Wood. *Land Utilisation in Australia.* Melbourne University Press.
Yang. *Methods of Farm Management Investigations.* FAO Agricultural Development Paper No. 64.

9.421 Animal Nutrition

TEXT BOOKS

Lewis. *Digestive Physiology and Nutrition of the Ruminant.*
Maynard and Loosli. *Animal Nutrition.*

REFERENCE BOOKS

Annison and Lewis. *Metabolism in the Ruminant.* Methuen.
*British Ministry of Agriculture. *Rations for Livestock.* H.M.S.O. Bull. No. 48.
Crampton. *Applied Animal Nutrition.*
*Halnan and Garner. *Principles and Practice of Feeding Farm Animals.* Longmans.
*Ivins. *Measurement of Grassland Productivity.*
Morrison. *Feeds and Feeding.* Henry Morrison.
National Research Council (U.S.A.). *Recommended Nutrient Allowances Domestic Animals.*
**Proc. 7th International Congress Animal Husbandry, Madrid, 1956.*
**Proc. 16th International Vet. Congress, Madrid, 1959.*
*Sheehy. *Animal Nutrition.*
Underwood. *Trace Elements in Human and Animal Nutrition.* Academic.

9.801, 9.802 Genetics

TEXT BOOKS

Falconer. *Introduction to Quantitative Genetics.* Oliver & Boyd, 1960.
Lerner. *Genetic Basis of Selection.* Wiley, 1958.
Sinnott, Dunn and Dobzhansky. *Principles of Genetics.* McGraw-Hill, Kogasuka.

REFERENCE BOOKS

*Bogart. *Improvement of Livestock.*
*Dunn. *Genetics in the 20th Century.*
Fisher. *Statistical Methods for Research Workers.*
Fisher. *The Design of Experiments.*
*Goldschmidt. *Understanding Heredity.* Wiley.
*Goldschmidt. *Theoretical Genetics.* Cambridge.
*Hagerdoon. *Animal Breeding.*
Kempthorne. *Introduction to Genetic Statistics.* Wiley.
Lerner. *Genetic Homeostasis.* Oliver & Boyd.
Lerner. *Population Genetics and Animal Improvement.*
Lush. *Animal Breeding Plans.* Iowa State College Press.
*Mather. *Biometrical Genetics.*
*Scheinfeld. *The New You and Heredity.* Chatto-Windos.
Snedecor. *Statistical Methods.* Iowa State College Press.
Snyder and Davis. *Principles of Heredity.*

9.811 Biostatistics

TEXT BOOK

*Steel and Torrie. *Principles and Procedures of Statistics.* McGraw-Hill.

REFERENCE BOOKS

*Anderson and Bancroft. *Statistical Theory in Research.* McGraw-Hill, 1952.
Cochran and Cox. *Experimental Designs.* 2nd ed. Wiley, 1956.
Cox. *Planning of Experiments.* Wiley, 1958.
Fisher. *Statistical Methods for Research Workers.* 13th ed. Oliver & Boyd, 1958.
Fisher. *The Design of Experiments.* 7th ed. Oliver & Boyd, 1960.
*Goulden. *Methods of Statistical Analysis.* 2nd ed. Wiley, 1952.
Snedecor. *Statistical Methods.* 5th ed. Iowa State College Press, 1956.
Williams. *Regression Analysis.* Wiley, 1959.
*Not on Reserve

9.011 Sheep Production

TEXT BOOK

McMeekan. *Principles of Animal Production.* 4th ed. Whitcombe & Tombs, 1960.

REFERENCE BOOKS

American Meat Institute Foundation. *The Science of Meat and Meat Products.* Freeman, 1960.
*Barnard, edited by. *The Simple Fleece.* Melbourne University Press.
*Cole and Cupps (edited by). *Reproduction in Domestic Animals.* 2 vols. Academic.

9.531, 9.532, 9.533, 9.534 Wool Technology

TEXT BOOKS

Alexander and Hudson. *Wool—Its Chemistry and Physics.* Chapman & Hall. 9.534 only.
Barnard. *The Simple Fleece.* A.N.U.
Onions. *Wool.* Benn & Co., 1961. 9.532 only.

REFERENCE BOOKS

**American Wool Handbooks.*
*Austen. *The Merino. Past, Present and Probable.* A. & R.
Barnard. *Growth of the Australian Wool Market, 1840-1900.* Melbourne University Press.
*Bowen. *Wool Away.*
British Wool Manual.
Burgess et al. *Mechanical Properties of Textile Fibres.* North Holland Publishing Co.
C.I.B.A. *The Wool Fibre.* Review No. 113. C.I.B.A.-Basle.
*Fegan. *Merino Wool.* Grahame.
*Guthrie. *A World History of Sheep and Wool.* Pastoral Review.
International Wool Secretariat. *Wool Science Reviews.* I.W.S.
Luniak. *Identification of Textile Fibres.* Pitman.
Meredith. *The Mechanical Properties of Textile Fibres.*
Preston. *Fibre Science.* Textile Inst.
Proceedings of the International Wool Textile Res. Conf. Aust., 1955.
*Ryan. *Sheep Shearing Experting.*
Stoves. *Fibre Microscopy.* Heywood & Co.
Reviews of Textile Progress. Textile Institute and Society of Dyers & Colourists.
Truter. *Wool Wax.* Cleaver-Hume.
Urquhart and Howitt. *Structure of Textile Fibres.* Textile Inst.
Wildman. *Microscopy of Animal Textile Fibres.* W.I.R.A.
Woods. *Physics of Fibres.* Inst. Physics.

9.601, 9.602 Animal Physiology

TEXT BOOK

Sampson Wright. *Applied Physiology.* 10th ed. Oxford University Press.

REFERENCE BOOKS

Best and Taylor. *Physiological Basis of Medical Practice.*
*Benzie and Phillipson. *The Alimentary Tract of the Ruminant.*
*Brachet. *Biochemical Cytology.*
Dukes. *Physiology of Domestic Animals.*
Fulton. *Textbook of Physiology.*
*Hall. *The Functions of the Endocrine Glands.*
Hammond, edited by. *Progress in the Physiology of Farm Animals.* 3 vols. Butterworth.

*Not on Reserve

*Hawker. *Synopsis of Endocrinology.*
*Maximow and Bloom. *A Textbook of Histology.*
*Prosser and Brown. *Comparative Animal Physiology.* Saunders, 1962.
Scheer. *Comparative Animal Physiology.*
*Short. *The Bio-synthesis and Secretion of Adrenal Steroids.*
Spector. *Handbook of Biological Data.* Saunders.
Trautman and Fiebiger. *Fundamentals of the Histology of Domestic Animals.*
Turner. *General Endocrinology.* Saunders. 3rd ed.
West and Todd. *Textbook of Biochemistry.* MacMillan.
Hafez, edited by. *Reproduction in Farm Animals.* Lea & Febiger, 1962.
*Hammond, edited by. *Progress in the Physiology of Farm Animals.* 3 vols. Butterworth.

9.111 Sheep Husbandry

TEXT BOOKS
Belschner. *Sheep Management and Diseases.* 7th ed. A. & R., 1962.
Cole. *Sheep Management for Wool Production.* Grazcos, 1963.

REFERENCE BOOKS
*Austen. *The Merino. Past Present and Probable.* A. & R.
*Barnard, edited by. *The Simple Fleece.* Melbourne University Press.
*C.S.I.R.O. *The Australian Environment.* 3rd ed. Melbourne University Press, 1960.
*Guthrie. *A World History of Sheep and Wool.* Pastoral Review.
*Molnar, edited by. *A Manual of Australian Agriculture.* Heineman.
*Villee. *General Biology.*

9.221 Agronomy, 9.231 Pastoral Agronomy

TEXT BOOKS
Black. *Flora of South Australia.* Parts I-IV. Sth. Aust. Govt. Printer.
C.S.I.R.O. *The Australian Environment.* A. & R., 1959.
Leeper. *Introduction to Soil Science.*
Molnar, edited by. *Manual of Australian Agriculture.* Heineman.
Wadham and Wood. *Land Utilisation in Australia.*
Whittet. *Weeds.* N.S.W. Department of Agriculture.

*Not on Reserve