FOREWORD

At the beginning of each year I always have a real pleasure in welcoming new students into the faculty, renewing old acquaintances, and farewelling those who successfully completed their courses. This year is no exception.

Further course changes have been introduced into our syllabus for this year, leading to a wider choice of service subjects from other faculties, as well as improving the options within our own. As I say each year, the increased choice must lead to increased discussion before a final decision is made, and all members of the departmental staff will be pleased to take part in these discussions with you.

Another new development this year will be the delivery and installation of a scanning electron microscope and microprobe analyser. This will be a worthwhile addition to the equipment in the department and at a cost of over $100,000 will add significantly to the analytical and observational techniques in the University. We therefore can maintain a course which is soundly based in theory and illustrated in practice by the best possible equipment.

I therefore hope you have an interesting and rewarding year with us.

E. O. Hall
Dean
Faculty of Applied Science
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PRINCIPAL DATES

1974

JANUARY

1 Tuesday

4 Friday

Last day for lodgement of Re-Enrolment Forms — Continuing Students

14 Monday

18 Friday

Deferred Examinations begin

25 Friday

28 Monday

Deferred Examinations end

PUBLIC HOLIDAY — Australia Day

FEBRUARY

8 Friday

Last day for lodgement of applications for residence in Edwards Hall.

22 Friday

25 Monday

New students required to attend the University in person to have their enrolment approved. Charges applicable may be paid immediately after the enrolment form is approved.

26 Tuesday

Last day for lodgement of enrolment approvals with the Cashier together with appropriate charges, scholarship vouchers, or warrants.

MARCH

4 Monday

FIRST TERM begins

15 Friday

Graduation Day
PRINCIPAL DATES

APRIL
22 Monday  Last day for withdrawal without academic penalty from Type A subjects in the Faculty of Engineering.
12 Friday  Public Holiday — Good Friday
13 Saturday to
16 Tuesday  Easter Recess
25 Thursday  Public Holiday — Anzac Day

MAY
18 Saturday  FIRST TERM ends

JUNE
10 Monday  SECOND TERM begins
14 Friday  Last day for acceptance of applications for examinations.
17 Monday  Public Holiday — Queen’s Birthday

JULY
15 Monday  Last day for withdrawal without academic penalty from courses in all faculties, except half year subjects in the Faculty of Engineering.

AUGUST
17 Saturday  SECOND TERM ends

SEPTEMBER
9 Monday
16 Monday  Last day for withdrawal without academic penalty from Type B subjects in the Faculty of Engineering.

OCTOBER
7 Monday  Public Holiday — Eight Hour Day

NOVEMBER
1 Friday
9 Saturday  Third Term Lectures and other classes cease.
30 Saturday  Annual Examinations begin

1975

JANUARY
20 Monday  Deferred Examinations begin
31 Friday  Deferred Examinations end

MARCH
3 Monday  FIRST TERM begins
FACULTY OF APPLIED SCIENCE

Dean
Professor E. O. Hall

Sub-Dean
Associate Professor W. A. Oates

METALLURGY

Professor

Associate Professor
W. A. Oates, B.Met.(Sheffield), M.Sc.

Senior Lecturers
J. D. Browne, B.Sc.(London), M.Sc.(New South Wales), Ph.D.(Monash), A.A.I.P.
R. D. Holliday, B.A., Ph.D.(Cambridge), A.C.S., A.I.M.E.
J. E. McLennan, M.Sc.(New South Wales), A.S.T.C., A.I.M.(Lond.)
N. A. Molloy, B.E.(Queensland)

Lecturer
D. Jaffrey, B.Sc.(Queensland), M.Sc.(McMaster), Ph.D.(Cambridge)

Professional Officers
J. A. Grahame, A.S.T.C.

Honorary Associate
G. B. Johnston, M.Sc.(New South Wales), Ph.D., A.S.T.C., A.I.M.

STUDENT ADVISOR
Associate Professor W. A. Oates

ADMINISTRATIVE STAFF

Vice-Chancellor and Principal

Vice-Principal and Deputy Vice-Chancellor
Professor B. Newton-John, M.A.(Cambridge), F.R.S.A. (To 5 March 1974)
Professor A. D. Tweedie, M.A.(New Zealand) (From 6 March 1974)

Deputy Vice-Chancellor

Personal Assistant to Vice-Chancellor
A. Nell Emanuel, B.A.(New South Wales)

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BURSAR'S DIVISION

Bursar
L. W. Harris, A.A.S.A.(Senior), A.B.I.A.

Deputy Bursar
L. F. Norberry, A.A.S.A.

Accountant
G. W. Walker, A.A.S.A.

Assistant Bursar — Staff
R. J. Goodbody
ADMINISTRATIVE STAFF

SECRETARY’S DIVISION

Secretary
P. D. Alexander, B.A., Dip. Ed.(Sydney)

Student Administration
P. H. Beckett, B.A.(Sydney)

Examinations
Glennie Jones, B.A.(New South Wales)
R. Weir, B.A.

Faculty Secretariat
J. S. Boydell, M.A.(Cambridge)
F. C. Hawkins, B.Com.
Christine Samojluk, B.A.(Sydney)

Publications and Publicity
J. W. Armstrong, B.A.
E. Joan Bale, B.A.(New South Wales)

Statistics and Systems
D. L. Farmer, B.Sc., Dip.Ed.(Sydney)
D. S. Dunlop

PLANNER’S DIVISION

University Planner
Associate Professor E. C. Parker, A.S.T.C., F.R.A.I.A.

Deputy Planner
D. D. Morris, B.Arch., Dip.L.D.(New South Wales), A.S.T.C.,
F.R.A.I.A., A.A.I.L.A.

Staff Architect
W. J. Crook, B.Arch.(New South Wales), A.R.A.I.A.

Assistant Staff Architect
A. Lee, A.S.T.C.

Staff Engineer

Assistant to Staff Engineer
J. D. O’Donohue

UNIVERSITY COUNSELLING SERVICE

Senior Student Counsellor
A. P. T. Loftus, B.A.(Melbourne), M.A., M.A.Ps.S.

Student Counsellors
B. E. Hazell, M.A.(Sydney), M.A.Ps.S.
(Seconded to the University of the South Pacific)
(Temporary Appointment)

OVERSEAS STUDENT ADVISOR

Overseas Student Advisor
Robin Loftus, B.A.(Adelaide)

AMENITIES OFFICE

Amenities Officer
H. Bradford

CAREERS AND STUDENT EMPLOYMENT OFFICE

Careers Officer
H. Floyer, B.Ec.(Sydney)
ADMINISTRATIVE STAFF

COMPUTER CENTRE

Director
J. A. Lambert, B.Sc.(Sydney), M.Sc.(New South Wales), M.B.C.S.

Programmers
M. Capek
F. C. P. Huang, B.Sc.(National University, Taiwan), Ph.D.(Australian National), A.A.I.P.
A. Loo Jansen, B.App.Sc.(Adelaide)
M. Wiseman, B.Sc., Ph.D.(Adelaide)

EDWARDS HALL

Warden

THE LIBRARY STAFF

University Librarian
E. Flowers, M.A.(Sydney), A.L.A.A.

Assistant University Librarian (Technical Services)
M. Elizabeth Guilford, B.A.(New England), A.L.A.A.

Assistant University Librarian (Reader Services)
Joan E. Murray, B.A.(New England), A.L.A.A.

Assistant University Librarian (Acquisitions)
Barbara R. Cook, B.A.; Dip.Lib.(New South Wales), A.L.A.A.

Assistant University Librarian (Serials)
B. Mitcheson, B.A., A.L.A.A.

Assistant Librarians
L. Faidiga, B.A.
Winifred Murdoch, B.Sc.(New England), A.L.A.A.
Mary E. Rabbitt, B.A.(New South Wales), A.L.A.A.
Barbara E. Samojluk, B.A., A.L.A.A.
C. I. Walsh, B.A.(Western Ontario), Dip.Lib.(New South Wales)

Graduate Library Staff
G. Baxter, B.A.
M. J. Fauchon, B.A.
Janet Fisher, B.A.(Hull)
The University of Newcastle began its existence as the Newcastle University College of the University of New South Wales, then known as the New South Wales University of Technology. The College was formally opened on 3rd December, 1951, and the first students were enrolled in the 1952 academic year. By the University of Newcastle Act of 1964 it became an autonomous institution on 1st January, 1965.

Enrolments in the first year of the College's existence totalled 370 of whom only five were starting degree courses — the others were seeking a diploma or were converting their diplomas into degrees. In 1954 courses in the Faculty of Arts were offered for the first time. As the New South Wales University of Technology, whose courses were given in the College, had no Faculty of Arts, supervision of these courses was entrusted to the University of New England. This relationship continued until 1959 by which time the New South Wales University of Technology had become the University of New South Wales and was empowered to offer courses in the Faculty of Arts. Enrolments have steadily increased, reaching 1000 in 1960 and 3871 in 1973.

The Newcastle University College was established on the site of the Newcastle Technical College at Tighe's Hill. In 1960 an area of some 200 acres was acquired at Shortland and building commenced in 1964. The transfer of the University began at the end of 1965. Courses in all faculties are now given on the Shortland Campus.

The University is governed by a Council of twenty-four members. The Chancellor, who acts as chairman, is chosen either within the twenty-four members or from outside, the size of the Council being increased to twenty-five in the latter instance. The Council comprises representatives of the University staff, Convocation, the students, the Legislative Council and the Legislative Assembly; nominees of the Governor; and the Vice-Chancellor, who is the chief executive officer of the University.

The By-laws governing matriculation and admission to courses are set out below. The University does not conduct its own matriculation examination but recognises the New South Wales Higher School Certificate Examination and the University of Sydney Matriculation Examination for this purpose.

By-law 5.1 — Matriculation

1. (1) Except as provided in By-law 5.3.3, a candidate, before being admitted to matriculation, shall:
   (a) have passed in the New South Wales Higher School Certificate Examination or the University of Sydney Matriculation Examination in at least five recognised matriculation subjects, one of which shall be English and any three of which shall be passed at least at second level; and
   (b) have attained in that examination the aggregate of marks prescribed by the Senate from time to time and calculated in the manner determined by the Senate.

2. The recognised matriculation subjects shall be:

   - English
   - Greek
   - Chinese
   - Mathematics
   - Latin
   - Japanese
   - Science
   - French
   - Hebrew
   - Agriculture
   - German
   - Dutch
   - Modern History
   - Italian
   - Art
   - Ancient History
   - Bahasa Indonesia
   - Music
   - Geography
   - Spanish
   - Industrial
   - Economics
   - Russian
   - Arts

3. Mathematics and Science, both passed as full courses, together shall, for the purpose of sub-section (1) (a) of this section, be counted as three subjects, but otherwise, each shall count as one subject.

4. The qualification for matriculation must be obtained at one examination.

2. A person who has applied to undertake a course of study as a matriculated student shall upon —
   (a) the approval of his admission to a Faculty and the payment of such fees as may from time to time be determined by the Council; and
   (b) signing the Matriculation Register of the University become a matriculated student of the University and shall be deemed to have accepted the privileges and obligations of membership of the University.

By-law 5.2 — Courses and Degrees

1. The Council may by resolution determine —
   (a) the requirements for courses of study in the University; and
   (b) the requirements for fellowships, scholarships, prizes, exhibitions, degrees and diplomas and the granting thereof.

By-law 5.3 — Admission to Courses

1. (1) A candidate for any first degree of the University shall satisfy the conditions for admission to matriculation set out in By-law 5.1.1 or shall have been admitted to matriculation under section 3 of this By-law before entering on any course for such degree. Compliance with the conditions for admission to matriculation shall not in itself entitle a person to enter upon a course.

   (2) A person who has satisfied the conditions for admission to matriculation may on the payment of such fees as may be determined by the Council from time to time be provided with a statement to that effect.

2. A candidate for any degree shall before entering on the course for that degree have satisfied any special conditions prescribed under By-law 5.2.

3. The Council may, with the advice of the Senate, admit as a matriculated student, under such conditions and with such standing as it may determine, any person who has satisfied the Council that he has reached a standard of education sufficient to enable him to pursue his proposed course.

4. The Council may, with advice of the Dean of the Faculty concerned, permit any person to enrol in a subject or subjects on payment of such fees as may be determined from time to time by the Council. Such a person, not being a matriculated student, shall not have the privileges of a matriculated student and shall not be eligible to proceed to a degree.
**MATRICULATION**

**PREREQUISITES**

Although prerequisites are not prescribed, lectures in the following faculties, courses or subjects will be given on the assumption that students will have studied for the New South Wales Higher School Certificate the subjects listed below to the level indicated:

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<tr>
<th>FACULTY</th>
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<td>Second level Short Course Mathematics and Science including Physics and Chemistry options.</td>
</tr>
<tr>
<td><strong>ARCHITECTURE</strong></td>
<td>Second level Short Course Mathematics and Science.</td>
</tr>
<tr>
<td><strong>ARTS</strong></td>
<td>Economics I — Second level Short Course Mathematics.</td>
</tr>
<tr>
<td></td>
<td>English I — Second level English.</td>
</tr>
<tr>
<td></td>
<td>French I — Second level French.</td>
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<td></td>
<td>German IN — Second level German.</td>
</tr>
<tr>
<td><strong>ECONOMICS AND COMMERCE</strong></td>
<td>Second level Short Course Mathematics.</td>
</tr>
<tr>
<td><strong>ENGINEERING</strong></td>
<td>Second level Short Course Mathematics and Science including Physics and Chemistry options.</td>
</tr>
<tr>
<td><strong>MATHEMATICS</strong></td>
<td>Second level Short Course Mathematics.</td>
</tr>
<tr>
<td><strong>SCIENCE</strong></td>
<td>Second level Short Course Mathematics and Science.</td>
</tr>
</tbody>
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**PROCEDURES**

**ENROLMENT**

All forms relating to enrolment are obtainable from the Student Administration Office, Room G.63, Building "A".

**PERSONS SEEKING ADMISSION TO AN UNDERGRADUATE COURSE**

Students seeking admission in the 1974 academic year will be required to lodge an "Application for Admission — 1974" with the Student Administration Office not later than

(a) **5.00 p.m. on Thursday, 1 November, 1973** in the case of:

- **PERSONS RESIDENT IN AUSTRALIA** who are seeking admission on the basis of qualifications which they already hold at 30 September, 1973;

- **PERSONS RESIDENT OUTSIDE AUSTRALIA** provided they already possess the results of the examination on which they are relying for admission in 1974.

**Persons resident outside Australia whose examination results will not be available by 1 November, 1973 will not be considered for admission in 1974. They may inquire in September, 1974 for admission in 1975.**
PROCEDURES

(b) 5.00 p.m. on Friday, 18 January, 1974 in the case of:

— Persons resident in Australia who

(i) are seeking admission on the basis of the results of examinations taken after 30 September, 1973;

(ii) in 1973 have been enrolled in another Australian University; or

(iii) have applied to attempt the University of Sydney Matriculation Examination February, 1974.

No guarantee can be given that applications received after the prescribed dates will be considered.

Applications sent by post should be addressed to The Secretary, The University of Newcastle, N.S.W. 2308.

Students proposing to attempt the University of Sydney Matriculation Examination in February, 1974 should indicate on the application for admission the subjects and levels proposed to be offered for examination, and must advise the Secretary of their results as soon as they are known.

Documentary evidence must accompany each application where studies have been carried out at secondary educational institutions outside New South Wales or where previous University studies have been undertaken.

Each student will be advised by letter of the outcome of his application and those accepted will be informed of the procedures to be followed for the completion of enrolment. However, it should be noted that new students will be required to attend the University in person to have their enrolment approved and to pay the charges applicable. The days Friday 22 and Monday 25 February, 1974 have been set aside for this purpose.

PERSONS RE-ENROLLING IN AN UNDERGRADUATE COURSE

Undergraduates re-enrolling will be required to complete a re-enrolment form and lodge it with the Student Administration Office on or before Friday, 4 January, 1974. Students enrolled in 1973 will be sent a re-enrolment form with the advice of their examination results in December.

A student who has taken a deferred examination or special examination will be required to lodge a re-enrolment form with the Student Administration Office within one week from the day of publication of the examination results.

Approval of Re-Enrolment

When a student's re-enrolment programme has been approved the authorised re-enrolment form will be posted to the student at his home address unless he indicates that it should be posted to any other address.

PERSONS SEEKING READMISSION TO AN UNDERGRADUATE COURSE

Any student not enrolled in 1973 who wishes to re-enrol in 1974 should apply to the Student Administration Office for an Application for Readmission form.

DESIGNATION OF STUDENTS

FULL-TIME STUDENTS

A Full-Time Student is a student who enrols in more than half the subjects of a normal first year course and such a student remains classified as a full-time student until the written approval of the Dean of the Faculty is given that he be re-classified as a part-time student. This re-classification would be exceptional.

PART-TIME STUDENTS

A Part-Time Student is either one who enrols in half or less than half of the subjects of a normal first year course or one who enrols in a part-time course. In subsequent years, the enrolment as a part-time student requires the approval of the Dean of the Faculty.

NON-DEGREE STUDENTS

A Non-Degree Student is a student who is permitted to enrol in one or more subjects of a first degree course. Such a person is not eligible to proceed to a degree and cannot enjoy the privileges of a matriculated student. A student enrolled in the Professional Accounting Studies course in the Faculty of Economics and Commerce is classified as a Non-Degree student taking one subject.
CANDIDATES FOR POSTGRADUATE DIPLOMA COURSES

Intending candidates for the Postgraduate Diploma courses in Business Studies, Computer Science, Education and Industrial Engineering will be required to complete an Application To Register Form and lodge it with the Student Administration Office on or before Friday, 18 January, 1974.

Applicants for admission to the Diploma in Psychology are selected biennially. No new candidates will be accepted in 1974.

Each student whose undergraduate studies were undertaken in another University, will be required to provide a full transcript of his academic record with his application.

For further information, intending candidates should consult the entry for the appropriate Diploma course.

CANDIDATES FOR HIGHER DEGREES (DOCTOR OF PHILOSOPHY OR MASTER DEGREES)

Candidates Re-Enrolling

A letter will be sent by the University to each candidate whose re-registration is approved. A higher degree enrolment form will be enclosed with the letter and the candidate will be required to complete the form and return it to the Student Administration Office on or before Friday, 4 January, 1974.

Candidates Registering for the First Time

Doctor of Philosophy or Research Master’s Candidate

Candidates wishing to register for the degree of Doctor of Philosophy or a Research Master’s degree must lodge an Application to Register Form no later than one month prior to the commencement of the term in which registration is sought.

Dates by which Applications to Register must be Lodged

Friday, 1 February, 1974
Friday, 10 May, 1974
Friday, 9 August, 1974

Course Work Master’s Candidates

Candidates wishing to register for a Course Work Master’s degree must lodge an Application to Register Form no later than Friday, 18 January, 1974.

NON-ACCEPTANCE

A student whose enrolment is not accepted will be notified in writing.

LATE ENROLMENTS

(i) Students who are unable to lodge their Re-Enrolment Form by the prescribed date, shall make written application to the Secretary for an extension of time. This application must be received by the Secretary on or before Friday, 4 January, 1974, otherwise the University reserves the right not to accept the student’s enrolment.

(ii) No enrolments will be accepted after 31 March of each academic year without the approval of the Secretary which shall be given only in exceptional circumstances.

(iii) Deferred Examinations

A student who has taken a deferred examination or special examination will be required to lodge an Enrolment Form with the Student Administration Office within one week from the day of publication of the examination results.

“SHOW CAUSE” STUDENTS

Students who, after failure at the annual examinations, are required to “show cause” why they should be allowed to continue in a course will be informed of this fact in writing after notification of examination results in December. Such a student will be provided with a form on which he must state his “show cause” case.

A student who wishes to re-enrol in any subject which he has failed more than once shall be required to show cause why he should be allowed to re-enrol in the subject and must submit a “show-cause” statement with his re-enrolment form.

The student’s “show cause” statement and completed re-enrolment form must be lodged with the Student Administration Office on or before Friday, 4 January, 1974.

UNIVERSITY SKILLS ASSESSMENT

As part of its service to students, the University Counselling Service holds a voluntary half day session in which a variety of skills relevant to university work, such as Reading Speed, Note-Taking, Study Skills etc. are tested. Attendance is voluntary and the results are held in confidence in the Counselling Service. This year it is intended to hold the University Skills Assessment on 15 March (Graduation Day). An evening session will be held for Part-Time students on the same date. Many students derive benefit from later discussing their results with a
counsellor. Some students are later invited (on the basis of a weak result) to participate in a course designed to overcome their particular difficulty.

ENROLMENT IN CORRECT SUBJECTS

Considerable inconvenience is caused to the University and to the student if he attends classes in a subject in which he has not enrolled. It is essential that the student consider carefully the subjects he is required, or wishes, to enrol in before submitting his Enrolment Form.

Withdrawal from course or subject regarded as failure

Approval to withdraw from a course or a subject is not automatic. It should be noted that a student is regarded as having failed in a course if he enrols in it and does not sit for the examination — i.e. not sitting for the examination is regarded as not passing the examination (unless withdrawal without penalty has been approved).

A student is required to notify the Secretary to the University in writing of his withdrawal and the withdrawal shall take effect from the date of receipt of such notification in writing. Unless the Dean of his Faculty grants him permission to withdraw without penalty, a student who withdraws after the date shown below will be deemed to have failed in the subject or subjects from which he withdraws.

All Faculties except the Faculty of Engineering
Sixth Monday in Second Term

Faculty of Engineering
Type A Subjects
Eighth Monday in First Term

Type AB Subjects
Sixth Monday in Second Term

Type B Subjects
Second Monday in Third Term.

AMENDMENTS

Any action taken by a student which involves an amendment to or a variation in his course programme or enrolment status is required to be documented.

A student must formally apply for permission to do any of the following:

(a) completely withdraw from course
(b) withdraw from a subject or subjects
(c) substitute one subject for another
(d) add a subject to existing programme
(e) transfer from F/T to P/T within degree course
(f) transfer from P/T to F/T within degree course
(g) transfer from one degree course to another
(h) transfer from a degree course in one Faculty to a degree course in another Faculty

If the variation sought is not listed above, a brief indication of the nature of the change sought is required.

Notes

1. Exemption in a subject unit or units, the substitution of a unit or units within a subject and exemption from practical work, is the responsibility of the Head of the Department concerned who will authorise such exemption or substitution.

2. Students are reminded that compliance with the degree or Diploma Requirements governing their courses is their responsibility. Approval of a Variation Application does not of itself entitle the applicant to any rights or privileges to which the completion of his previous programme might have entitled him.

HOW TO DOCUMENT WITHDRAWALS AND AMENDMENTS

All withdrawals and amendments should be recorded on a Variation Application Form.

It is essential that students notify the Student Administration of variations in their courses promptly. Automatic approval is not given; the student must have valid and sufficient reasons for making the change and these reasons should be stated on the Variation Form.

Variation Forms are available from the Student Administration Office.
PROCEDURES

CHANGE OF ADDRESS

Students are responsible for notifying the Student Administration Office in writing of any change in their address as soon as possible. A Notification of Change of Address Form should be used. It is available from the Student Administration Office.

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 Student Administration Office of a change of address.

It is essential that all students inform the University of an address for all correspondence from the end of the examination period to the end of the long vacation.

This is particularly important for students intending to travel overseas during this period.

A special form for this purpose will be available in October of each year.

IDENTITY CARDS

Each student wishing to obtain a travel concession, to borrow a book from the Library or to confirm his membership of the Newcastle University Union is required to produce on demand his identity card.

Identity cards will be issued to students at the Student Administration Office and should be available for collection soon after the commencement of First Term. The student will be required to produce his enrolment receipt issued by the cashier before an identity card will be issued to him.

A notice will be displayed on notice boards and inserted in "University News" advising students when identity cards are available for collection.

Loss of Identity Card

If a student loses his identity card he should pay to the University Cashier the sum of 50 cents and present the receipt to the Student Administration Office for the purpose of obtaining a replacement card.

Return of Identity Card

Each student who during the academic year withdraws completely from his course will be required to hand his Identity Card to the Student Administration Office before leaving the University.

PROCEDURES

TRAVEL CONCESSIONS

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

Application forms for these concessions may be obtained at the Student Administration Office.

The Student's Identity Card has to be produced each time a concession is required.

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 who are 18 but under 30 years of age and who are not in employment nor 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 under the Tertiary Allowances Scheme, or to holders of Teacher Education Scholarships or Bursaries granted by the State Bursary Endowment Board.

(c) Concessions are not available to students who are 30 years of age or over; or to married women or ordained clergymen.

TRAIN —

(a) Periodical tickets are available during term to full-time students not in employment nor in receipt of any remuneration.

(b) Daily concession fare tickets are available to part-time students, whether employed or otherwise, for the purpose of travelling to and from classes held in connection with their course of instruction.

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

AIRCRAFT —

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

LOST PROPERTY

Inquiries regarding lost property should be directed to the Attendant (Patrol) between 9 a.m. and 5 p.m. Monday to Friday at the Attendants' Office. This office is located in the north-eastern corner of the lowest floor of the Library building and may be reached from the pathway leading from the lower plaza to the footbridge.
CHARGES

GENERAL INFORMATION

COMPLETION OF ENROLMENT

Charges are determined by the University Council and are subject to alteration without notice. The due date for payment of charges for 1974 is 26 February, 1974.

Enrolment is not effective until appropriate charges have been paid. Enrolments will not be accepted after 31 March, 1974 without the Secretary's special written approval. This will be given only in exceptional circumstances.

PAYMENT OF CHARGES

The Entrance fee and General Services fee must be paid in full at the time of enrolment.

Payment by mail is encouraged. Money Orders should be made payable at the Newcastle University Post Office, New South Wales 2308. The Cashier's Office is located on the first floor of the Administration Building. A continuous service will apply from 9.00 a.m. to 4.30 p.m. Monday to Friday throughout the year with the exception of vacation periods when the Cashier's Office will be closed between 12.30 p.m. and 1.30 p.m.

Any alterations to the Cashier's hours during enrolment periods will be published in the press and displayed on selected University notice boards.

SCHOLARSHIP HOLDERS AND SPONSORED STUDENTS

Students holding scholarships or receiving other forms of financial assistance must attach to their authorised enrolment forms submitted to the Cashier, warrants or other forms of documentary evidence that charges will be paid by sponsors. The University looks to sponsors to provide a separate voucher, warrant or letter for each student sponsored.

HIGHER DEGREE CHARGES

General Services Fee

Higher Degree candidates are required to pay the General Services fee, and Entrance fee if applicable. Where the enrolment for a Higher Degree candidate is effective from first or second term, the General Services fee covers a period of registration from the first day of the term to the Friday immediately preceding the first day of first term in the following academic year. Where a Higher Degree candidate enrolls on or after the first day of third term, the General Services fee paid will cover liability in respect of this fee to the end of the long vacation following the next academic year.

1. General Services

(a) Students Proceeding to a Degree or Diploma

All registered students must pay a General Services fee of $52.00 per annum. In addition, students joining Newcastle University Union for the first time, are required to pay an amount of $12.00. These charges must be paid by the prescribed date.

(b) Non-Degree Students

Non-degree students must pay a Union annual fee of $32.00. This fee must be paid by the prescribed date. Non-degree students are not required to pay the General Services fee or the Union Entrance fee.

2. Late Enrolment and Re-enrolment Payments

(a) Late re-enrolment charge where a continuing student fails to lodge an enrolment form with the Student Administration office by the date approved by the Vice-Chancellor $14

(b) Late enrolment charge where a student does not lodge the approved section of the enrolment form with the Cashier by the time approved by the Vice-Chancellor $14

(c) Late payment charge where an application to sit for examination is accepted after closing date $6

(d) Late payment charge if relevant fees under (1) above are not paid within stipulated times approved by the Vice-Chancellor $8

(e) Additional amount payable if relevant fees under (1) above are not paid within an extended time approved by the Vice-Chancellor $6

3. Other

(a) Examination under special supervision, per paper $10

(b) Review of examination results, per subject $8

(c) Statement of matriculation status for non-members of the University $8

(d) Academic statements in excess of six per annum 15c a copy

(e) Replacement of student identity cards 50c each
GENERAL REQUIREMENTS

The University tries to function with a minimum of formal regulations. It is obvious, however, that there must be standard practice throughout the University in such diverse matters as examination procedures and car parking and an acceptance of certain requirements which are described in the following pages.

GENERAL CONDUCT

In accepting membership of the University the student undertakes to observe the by-laws and other requirements of the University. 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 forbidden.

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

ACADEMIC REQUIREMENTS

The student is responsible for informing himself as to, and for complying with, University requirements, especially the requirements relating to admission and to the award of the degree to which he is proceeding.

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.

NOTICE BOARDS

EXAMINATIONS

A notice board has been placed on the wall opposite the entrance to the Main Lecture Theatre (B01) for the specific purpose of displaying examination timetables and notices concerning all procedural matters pertaining to examinations. Students are specifically requested to be acquainted with the notices periodically displayed thereon.

STUDENT MATTERS GENERALLY

The main notice board is the display point for notices concerning enrolment matters, scholarships, University rules and travel concessions, etc. This notice board is located on the first floor at the top of the main staircase in Building “A”.

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 Head of the appropriate Department. If term examinations have been missed this fact should be noted in the application.

In the case of illness or of absence for some other unavoidable cause a student may be excused by the Head of the appropriate Department for non-attendance at classes.

Applications for exemption from re-attendance at classes, either for lectures or practical work, may only be approved on the recommendation of the Head of the appropriate Department. The granting of an exemption from attendance does not carry with it exemption from payment of fees. Where a student has attended less than 80 per cent. of the possible classes, he may be refused permission to sit for the annual examination in that subject.

OWNERSHIP OF STUDENTS WORK

Unless other arrangements have been agreed upon 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.

PARKING OF CARS

TRAFFIC REGULATIONS

1. “Authorised Person” means a person authorised in writing by the Vice-Chancellor for the purposes of these Regulations. “Notice” means a written advice signed by an authorised person on behalf of the Vice-Chancellor.

2. Any student, a member of staff of the University, or other person employed on the University site who wishes to bring a motor vehicle on to the Shortland site shall obtain a University parking permit. Upon receipt of a parking permit sticker the driver will fix this to the top left hand corner of the windscreen or in the case of a motorcycle in a prominent location on the cycle. Vehicles without this sticker may be refused entry to the campus.
GENERAL REQUIREMENTS

3. No person shall park or leave any vehicle on the Shortland site except in places set aside from time to time for parking.

4. A person in charge of a vehicle entering or upon any part of the site shall:
   (a) Stop his vehicle at any manned control point or any other part of the site when signalled to do so by a Patrol Attendant.
   (b) Give to any such officer such information as he may reasonably require.
   (c) Obey any direction a Patrol Attendant may reasonably give in relation to the driving or parking of such vehicle.
   (d) Not drive at a speed greater than 20 m.p.h. or such speed limit as may be indicated by an appropriate sign for that section of road or part of the site.
   (e) Not commit or do any act which would be a breach of any Act or regulation of the State of New South Wales if he were driving or in charge of a vehicle upon a public road.
   (f) Not drive or park a vehicle on any lawn, grassed area, oval, garden, builders access road or undeveloped area of the site.
   (g) Comply with all other directions related to traffic indicated by appropriate signs installed on the site.

5. Any person who contravenes or fails to observe any of the above regulations may be advised in writing by a notice which may be posted or handed to the person or affixed to his vehicle by an authorised person.

6. Any person who contravenes or fails to observe any of these regulations shall be deemed guilty of a breach of regulations and may be dealt with accordingly.

7. The maximum penalty for the time being which may be applied under these regulations shall be the banning from the University site for a period of three months of any vehicle driven by the person concerned.

Note
Application forms for permits may be obtained from the Senior Attendant (Patrol) at the Attendants' Office. This office is located in the north-eastern corner of the lowest floor of the Library building and may be reached from the pathway leading from the lower plaza to the footbridge.

EXAMINATIONS

Examinations and other exercises may be held in any subject and at any time. In the assessment of a student’s progress in a University course, consideration will be given to laboratory work and class exercises and to any term or other tests conducted throughout the year. The results of such examinations and class work may be incorporated with those of the annual examinations.

ANNUAL EXAMINATIONS

(Students in the Faculty of Economics and Commerce are referred to material in the Faculty of Economics and Commerce Handbook.)

A student desiring to sit for an annual examination must lodge an application with the Secretary on the appropriate form by the prescribed date, 14 June, 1974.

A student who, because of religious convictions, would prefer not to sit for an examination on a particular day or particular day of the week should indicate this in writing when lodging his application to sit for examinations. While the University cannot guarantee to meet such requests it will be willing to co-operate where possible.

The cashier is authorised to receive application forms during the three weeks immediately following the prescribed closing date if they are accompanied by a late payment charge of $6.00. Applications submitted more than three weeks after the closing date will not be accepted except with the approval of the Secretary. Where an application is not accepted, the student concerned is not eligible to sit for the examination.

No student is eligible to attend the annual examination in any subject if any portion of fees or other charges due by him is outstanding by the end of the third week of third term.

The annual examinations take place in November-December. Timetables showing the time and place at which individual examinations will be held will be posted on the examinations notice board near the Main Lecture Theatre. Misreading of the timetable will not under any circumstances be an acceptable excuse for failure to attend an examination.

Examinations are conducted in accordance with the following rules and procedure:

(a) Candidates are required to obey any instruction given by a Supervisor for the proper conduct of the examination.

(b) Candidates are expected to be in their places in the examination room not less than ten minutes before the time for commencement of the examination.
c) No bag, writing paper, blotting paper, manuscript or book, other than a specified aid, is to be brought into the examination room.

d) No candidate shall be admitted to an examination after thirty minutes from the time for the commencement of the examination.

e) No candidate shall be permitted to leave the examination room before the expiry of thirty minutes from the commencement of the examination.

f) No candidate shall be re-admitted to the examination room after he has left it unless during the full period of his absence he has been under approved supervision.

g) A candidate shall not by any improper means obtain or endeavour to obtain assistance in his work, give or endeavour to give assistance to any other candidate, or commit any breach of good order.

h) Smoking is not permitted during the course of an examination.

i) A candidate who commits any infringement of the rules governing examinations is liable to disqualification at the particular examination and if detected at the time, to immediate expulsion from the examination room, and is liable to such further penalty as may be determined.

FURTHER EXAMINATIONS

After completion of the written annual examination papers, a student may be called upon by an examiner to complete further written, practical or oral tests as part of the annual examination. It is therefore important that the Examinations Section be advised of any change in address from that given on the Application for Admission to Examinations.

EXAMINATION RESULTS

Each student will be advised by mail of his examination results. A set of examination results will be offered to the newspapers for publication. No results will be given by telephone.

Examination results may be reviewed for a charge of $8.00 per subject, which is refundable in the event of an error being discovered. Applications for review must be submitted on the appropriate form together with the prescribed review charge by the date notified in the publication of results.

SPECIAL EXAMINATIONS

Special examinations may be granted according to the conditions contained in By-Law 5.9.3 which states:

5. When a candidate is prevented by illness or by any other serious cause from presenting himself for the annual examination the appropriate Faculty Board may order a special examination for that candidate in the subject or subjects in which he was unable to present himself. The result of a special examination may be graded.

6. When a candidate's studies during the academic year have been gravely hampered by illness or other serious cause, the appropriate Faculty Board upon application being made to the Secretary to the University before the commencing date of the examination supported by medical or other proper evidence may direct the examiners to take the circumstances into account in determining whether or not a special examination should be provided for the candidate in any subject in which he does not pass at the annual examination.

7. When a candidate at the annual examination is to a substantial degree affected by illness during the course of an examination in any subject the appropriate Faculty Board, upon application being made to the Secretary to the University within three days after such examination or within such further period as the Vice-Chancellor may consider reasonable in the circumstances supported by medical or other proper evidence, may direct the examiners in that subject to take the circumstances into account if the candidate does not pass therein in determining whether or not a special examination or test should be provided for him; provided that no such application shall be considered unless the candidate either during or immediately after such examination reports to the supervisor in charge the circumstances relied on in the application.

DEFERRED EXAMINATIONS

Deferred examinations may be granted in the Faculties of Applied Science, Architecture, Engineering, and Mathematics. The examinations will be held in January-February and results will be published in the same manner as for the annual examinations.
ACADEMIC PROGRESS REQUIREMENTS

GENERAL
The University has enacted certain By-laws relating to continuation in a course. The relevant By-laws are set out below.

BY-LAWS
By-law 5.4.1 — Unsatisfactory Progress
1. The Head of a Department in any Faculty may determine that a student taking a subject or course offered by the Department shall be excluded from any examination for which the Department is responsible for any or all of the following reasons:—
   (a) unsatisfactory attendance at lectures;
   (b) failure to complete laboratory work;
   (c) failure to complete written work or other assignments;
   or
   (d) failure to complete field work.

2. The Faculty Board may review the academic progress of any student enrolled in the Faculty concerned who fails in, or is absent from, or is excluded under section 1 of this By-law from any examination and may determine:—
   (a) that the student be excluded from further study in a subject;
   (b) that the student may enrol in that Faculty only in such subject or subjects as the Faculty Board shall specify; or
   (c) that the case be referred to the Admissions Committee if, in the opinion of the Faculty Board, the student should be excluded from a degree course, from the Faculty or from the University.

3. The Admissions Committee, in considering a referral under subsection (c) of section 2 and after giving the student an opportunity to be heard, may determine:—
   (a) that the student be excluded from a degree course or from the Faculty:

4. The Vice-Chancellor may, on the recommendation of the Admissions Committee exclude from the University any student whose academic record in the opinion of the Vice-Chancellor and the Admissions Committee demonstrates the student's lack of fitness to pursue University studies.

By-law 5.4.2 — Show Cause
1. 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 the annual examination counts for the purposes of this By-law as one examination.

2. (1) A full-time student shall show cause why he should be allowed to continue a course if all subjects of the first year of his course are not completed by the end of his second year of attendance.
   (2) A part-time student shall show cause why he should be allowed to continue a course if all subjects of the first two stages of his course are not completed by the end of his fourth year of attendance.

3. (1) A student who has a record of failure at another University shall show cause why he should be admitted to the University.
   (2) A student admitted to a course at the University following a record of failure at another University shall show cause, notwithstanding any other provision in this By-law, why he should be allowed to continue in that course if he is unsuccessful in the annual examinations in his first year of attendance at the University.

4. A student required to show cause shall have his application considered by the Admissions Committee which shall determine whether the cause shown is adequate to justify the student's being permitted to continue his course or to re-enrol as the case may be.
ACADEMIC PROGRESS REQUIREMENTS

By-law 5.4.3 — Re-Enrolment

1. Any student who has been excluded from a Faculty shall not be allowed to enrol in another Faculty without the permission of the Faculty Board concerned.

2. Any student excluded from a degree course or from a Faculty or from the University may apply after two academic years to the Admissions Committee for re-admission to any such Faculty or to the University. If the Admissions Committee is satisfied that the condition or circumstances of any such student have so changed that there is reasonable probability that he will make satisfactory progress in his studies it may authorise the re-admission of that student under such condition as it may determine.

By-law 5.4.4 — Appeal Against Exclusion

1. A student who is refused permission to enrol under the provisions of section 1 of By-law 5.4.3 may appeal to the Senate.

2. A student who has been excluded from any degree course or from a Faculty or from the University may appeal to the Council.

PROCEDURES

The onus is on a student required to “Show Cause” to take the appropriate action should he wish to re-enrol. Such a student must lodge his “Show Cause” statement and completed re-enrolment form by the date prescribed each year to ensure consideration of his case.

THE LIBRARY

The Library, totalling approximately 240,000 volumes and made up of monographs, pamphlets, serials, microform sets and audiovisual materials, exists to acquire, preserve and make available for use all research materials needed by the staff and students of the University. There is an almost complete freedom of access to the collections, and students are encouraged and aided to learn how to use, as soon as possible, the Library and its contents. On his first visit to the Library the student is provided with a brochure outlining the Library's resources, its services, such as the copying service, its special facilities, such as the microprint reading room, and its procedure for borrowing. The Library occupies the central position on the site, next to the Union.

HOURS OF OPENING

During academic year

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Monday-Friday</td>
<td>8.30 a.m. to 10.00 p.m. (long vacation excepted)</td>
</tr>
<tr>
<td>Saturday and Public Holidays</td>
<td>9.00 a.m. to 5.00 p.m. (all vacations excepted)</td>
</tr>
<tr>
<td>Sunday</td>
<td>1.00 p.m. to 5.00 p.m. (all vacations excepted)</td>
</tr>
</tbody>
</table>

The Library is closed for the Easter Weekend, i.e., April 12-16, 1974 inclusive.

During long vacation

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Monday, Wednesday, Friday</td>
<td>9.00 a.m. to 5.00 p.m.</td>
</tr>
<tr>
<td>Tuesday, Thursday</td>
<td>9.00 a.m. to 7.00 p.m.</td>
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</table>
UNIVERSITY SERVICES

AMENITIES

The Amenities Office is located in the temporary building adjacent to the main University building. The Amenities Officer and his Staff assist students in the following fields:

SPORT

The Amenities Officer, Mr. Bradford is liaison officer for all sporting matters between the Sports Union, the University and all outside sporting organisations. The Amenities Office assists student Sporting Clubs in the arranging of Inter-varsity contests and travel as well as giving help when required at club level.

SPORTING FACILITIES

Administration of all sporting facilities on campus, which at present include four squash courts, two tennis courts and two ovals is the responsibility of the Amenities Office. An outside basketball court, two further tennis courts and a Field House should be completed during 1974.

NON-COMPETITIVE PASTIMES AND DIVERSIONS

The Amenities Office arranges recreational activities on campus on behalf of the Non-Competitive Pastimes and Diversions Committee for both students and staff. Classes in Pottery, Keep Fit, Leatherwork and Yoga have been held and further activities are planned.

ACCOMMODATION

The Amenities Office conducts a student accommodation service for students requiring housing and will deal with any accommodation problems which students may encounter while attending the University. A register is maintained of rooms, flats and private board available in Newcastle. Do not hesitate to use this service which is operated for the convenience of students.

INSURANCE

The Amenities section on behalf of the Sports Union and the Students' Representative Council is responsible for the operation of the Personal Accident Insurance Scheme.

CAREERS AND STUDENT EMPLOYMENT OFFICE

The Careers and Student Employment Office (then the Appointments Office) was established in 1971 primarily to help students obtain information about careers and to assist graduating students to find employment.

Careers Counselling

All new students are invited to consult the Careers and Student Employment Office at some time during their first year at the University. Follow up consultations during second and third years may serve to bring the student to a state of mind where he or she feels confident that his or her chosen career is suitable and within the realms of possibility. The Careers and Student Employment Office would hope to have available or to obtain information for the student in order that by a little research in the early years, frustration and disappointment can be avoided after graduation. Students in the last year or stage of their degree, who may need help in finding suitable employment upon graduation, should consult the Careers and Student Employment Office during the July-September period prior to the final examinations.

Careers Library

1. A section of the Careers Library contains books, periodicals, articles, etc. giving general information about the various professional occupations.
2. Information is gradually being assembled about the manpower requirements of numerous employers - types of graduates needed, educational qualifications for appointment, experience gained, prospects etc.
3. Professional associations are being approached to supply information about the activities of their bodies, conditions of membership and application forms.

Employer Interviews

Some employers have representatives come to the University for the purpose of giving students first hand information about the kinds of graduates recruited, the job involvement, salaries, prospects etc. Students make appointments to interview the representatives singly or in small groups.

Employment Vacancies

Some Government Departments inform the University on a regular basis of vacancies within their organizations, other employers only as specific vacancies occur.
The 'Positions Vacant' columns of a major local newspaper are always on hand.

The Sydney University Appointments Board has indicated that where a Newcastle University student proves that he is a bona-fide student, he can obtain copies of the "Notices of Vacancies" prepared by that Board, upon payment of the current nominal fee.

Casual and Part-time Employment

Unfortunately, it is a fact of life that some students do not have enough money to sustain them during University studies, and have to supplement their financial resources by part-time or casual work. Students may call at the Careers and Student Employment Office at the commencement of each year and complete a card indicating their needs. As opportunities are notified to the Careers and Student Employment Office, appropriate students are informed.

Industrial Experience and Vacation Employment

The Careers and Student Employment Office will provide administrative assistance to the Faculties seeking professional vacation employment for their students. Vacation employment will be sought for those students seeking employment for financial reasons.

Graduate Careers Directory

The Graduate Careers Council of Australia prepares a Directory in three parts for distribution each year to graduating students. The Directory provides general background information on the types of appointments that will be available with a large number of employer organisations in the ensuing year. The Careers and Student Employment Office arranges distribution of this Directory; a few spare copies are available to undergraduates upon request.

All students are invited to consult and use the resources of the Careers and Student Employment Office; this service is free.

The Careers and Student Employment Office is located in Temporary Building, "T".

CHAPLAINCY SERVICE

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

The service offers personal counselling and guidance, and also assistance in biblical and doctrinal studies. Opportunities for liturgical worship are also provided.

The Chaplains' office is situated on the Lower Ground Floor of the Main Administration Building at Shortland.

The Chaplains are in regular attendance at the University but they may also be contacted at their private addresses.

Names and Addresses of Chaplains

**Anglican**
The Reverend Canon E. H. V. Pitcher, M.A.(Sydney), Th.Schol. (Acting Chaplain)
The Rectory, MEREWETHER. Telephone 63 1388

**Baptist**
The Reverend T. H. Binks, 133 Kemp Street, HAMILTON. Telephone 61 4048

**Methodist**
The Reverend W. D. Adams, B.A.(Sydney), B.D.(Melbourne) 23 William Street, HAMILTON. Telephone 61 4040

**Presbyterian**
The Reverend H. F. Kat, B.A., B.D.(Utrecht) 4 Gregory Parade, KOTARA. Telephone 57 1076

**Roman Catholic**

OR

The Presbytery, SHORTLAND. Telephone 55 9364
UNIVERSITY SERVICES

EDWARDS HALL

Edwards Hall is situated on the University Campus near the south-eastern boundary of the Sports Oval, close to the tennis and squash courts and is approximately one mile by road from the University Library. While the Hall is an integral part of the University and as such is subject to the decisions and directions of the University Council, major responsibility for the government of the Hall has been entrusted by Council to a Board of Trustees made up of three Council members, one Senate member, two senior resident students, one resident Subwarden and the Warden. Edwards Hall consists of three buildings, a central amenities building flanked by two identical residential buildings between them providing 222 residential places for students and staff of the University, including 6 positions for residential Subwardens.

The residential fees for 1974 have not been determined at the time of writing but as a guide to prospective applicants, the anticipated residential fees are as follows: Term 1 (11 weeks) $286; Term 2 (10 weeks) $260; Term 3 (12 weeks) $312. The term residential fee entitles a member to a bed/study room, the supply of all bedding and fresh linen, and maintenance of the room and 16 meals a week, being breakfast and dinner each day and lunch on Saturday and Sunday.

Application forms for residence may be obtained from and completed applications returned to the Warden, Edwards Hall, The University of Newcastle N.S.W. 2308. The closing date for applications for residence in 1974 will be February 8, 1974 and applications received after this date will not necessarily be considered.

WARDEN


OVERSEAS STUDENTS

The Overseas Student Advisor is on campus solely to help overseas students with any problems which may arise. Because of her specialized knowledge, she may be able to give direct assistance, may refer the student to someone in an appropriate field, (e.g., legal, health, insurance, etc.) or she may speak at the student's request and on his behalf with government officers, staff members or others.

Any discussion with the Overseas Student Advisor is completely confidential. She may be contacted either through the University Counselling Service or in the Temporary Building (T.10).

Overseas Student Advisor
Mrs. Robin Loftus, B.A.(Adelaide)

STUDENT LOAN FUND

The Council of the University has established a Student Loan Fund which is managed by a committee consisting of the Deputy Chairman of Senate, the Bursar and the Vice-Principal (Chairman). This loan is now supplemented by government grant.

Loans may be made to an undergraduate where the committee is of the opinion that his academic performance is of sufficient merit and his financial circumstances warrant a loan.

The total outstanding accommodation to any one undergraduate shall not normally exceed $600 at any one time and an undergraduate granted a loan is required to enter into an agreement.

Repayment must commence not later than twelve months after graduation or when the borrower fails or withdraws from his course or on demand as required by the University. No interest is charged while the borrower is an undergraduate but interest at a rate of not less than 5% per annum on the balance owing from time to time is charged from the date of graduation or the date on which an undergraduate fails or withdraws from a course.

In special circumstances the Committee may grant a loan to a student other than an undergraduate.

Any student wishing to seek assistance from the Fund may apply in person to the Vice-Principal or through the President of the Students' Representative Council or his nominee.
UNIVERSITY SERVICES

UNIVERSITY COUNSELLING SERVICE

The Student Counsellors assist students — past, present and future — in a wide variety of matters. Most students, whatever their academic level, at one time or another need help in dealing with difficulties which arise during the course of their University lives.

A student should not feel that he or she must have a major problem before consulting a Counsellor. Many worries take only a few minutes to clear up, and frequently the Counsellor's function is simply to direct a bewildered student to the right source of information.

Students who are worried about inadequate study methods, personal difficulties, choice of courses or career planning are invited to arrange an appointment with a Student Counsellor. All contacts with a counsellor are regarded as completely confidential.

The University Counselling Service is divided into three major divisions - Personal Counselling, Study Skills Training, and Research with some inevitable overlap between the sections. Apart from individual counselling, courses in an increasing number of areas are held for groups of students.

Counselling is now a thoroughly established and widely accepted part of University life throughout Australia, and at this University, approximately one-third of all students utilise it.

STUDY AT THE UNIVERSITY LEVEL

The University Counselling Service published a brief but comprehensive book on this subject in 1967 and although it was produced specifically for the students of this University, and reflects the attitudes of several Heads of Departments here, it is already widely used in other Universities and tertiary institutions throughout Australia. A Revised Edition was published in November, 1969 as the first printing had sold out. It may be purchased from the Cashier at 40 cents per copy.

LOCATION

The Secretary to the University Counselling Service and two Counsellors are located in the Administration Building (Room G75—entrance at the N.W. end of building). It is generally most satisfactory for students, both full-time and part-time, to make appointments through the U.C.S. Secretary. Counsellors are available for evening appointments.

UNIVERSITY HEALTH SERVICE

Pending the establishment of a Health Centre, an interim service, located in the Union, functions during term time. The medical officer, Dr. John Raschke attends each Tuesday and Thursday morning and qualified nurses are on duty on the other days.

The service, which is free, is essentially diagnostic and does not undertake continuing treatments.

UNIVERSITY STUDENT LEGAL REFERRAL SERVICE

Students sometimes have problems of a legal nature. As from the beginning of Third Term, 1973, members of the Department of Legal Studies have introduced for a trial period a Student Legal Referral Service. At least one member of the Department will be available on the days and at the times indicated on the Legal Studies Notice Board, to give students, without liability, free legal advice and to explain how and where they may obtain appropriate legal aid and representation.

UNIVERSITY COUNSELLING SERVICE STAFF

Senior Student Counsellor — A. P. T. Loftus, B.A.(Melbourne), M.A., M.A.Ps.S.

B. E. Hazell, M.A.(Sydney), M.A.Ps.S.
(Seconded to the University of the South Pacific)
(Temporary Appointment)

Secretary — Mrs. Joy Hoesli
Convocation provides an opportunity for graduates to maintain a positive interest and influence in University affairs. It has the right to discuss and to pronounce an opinion on any matter relating to the University, and to communicate directly with the Council or Senate of its own volition or at the request of either body.

Public meetings at which topics of interest are discussed are conducted by Convocation as well as general meetings. Convocation is controlled through a Standing Committee of 14 elected members including the Chairman, who is called the Warden of Convocation, and the Immediate Past Warden, who is the Deputy Chairman.

Membership is automatic for graduates of this University, and for those graduates of the University of New England and of the University of New South Wales who spent at least three years as students of Newcastle University College; for present and past members of the University Council; and for present full time members of the academic staff and graduate permanent members of the administrative, library and technical staff.

Council may admit as members of Convocation upon payment of a fee determined by Council:

(a) Graduates of other Universities who are resident in the Hunter Valley or North Coast areas; and

(b) such other University graduates as the Council may approve.

Five members of the University Council are elected by Convocation.

OFFICE BEARERS

Warden — Mr. W. G. Derkenne, LL.B. (Sydney), B.A.

Secretary — Mr. E. J. Buckman, B.Sc. (New South Wales), M.Eng.Sc., A.S.T.C., M.I.E.Aust.

Treasurer — Mr. R. W. Gibbins, B.Com. (Queensland), A.C.A.

Immediate Past Warden — Mr. J. P. Talty, B.D.S. (Sydney)
NEWCASTLE UNIVERSITY UNION

The objects of the Union are to provide a common meeting ground and social centre for men and women who are members of the University; to promote the education and the intellectual culture of its members by debates and otherwise and generally, to secure the cooperation of University men and women in furthering the interests of the University.

The Union maintains a fine building on the campus and major extensions during 1973 have increased facilities for members. Such facilities include a complete range of catering services (a liquor licence is anticipated), recreational and common room areas, a reading room, rooms for meetings and functions of all kinds, for 16 m.m film projection, for T.V., and for music practice. A games complex on the lower level provides billiards, table tennis, chess, and music listening outlets. The Student Counsellor is on this lower level whilst a Student Health Centre with a doctor in attendance is located in the main building. The new commercial area includes the Union Shop which provides for the academic needs of members, a University Co-operative Bookshop, an A.U.S. Travel Service and A.U.S. Pharmacy together with premises operated by the Bank of New South Wales. The office of the Students' Representative Council is located within the new extensions, together with Union administrative offices.

Membership of the Union, obligatory for all registered students, is open to graduates, members of the University Council and the permanent staff of the University.

The conduct of the affairs of the Union is vested in the Board of Management comprising:

Two members appointed by the Council of the University
Ten members of the Union (at least two of whom must be graduates) elected by the members of the Union
Two members of the Union who are members of the Students' Representative Council
One member of the Union who is a committee member of the Sports Union
One representative of the staff of the Union elected by the Union Staff and
The Secretary Manager of the Union.

Elections for the Board are held in the month of April.

President — Mr. R. Robinson, B.A.
Secretary Manager — Mr. W. V. Bridgwater

THE UNIVERSITY OF NEWCASTLE COMPANY

The University of Newcastle Company is the Citizen Military Force's Unit affiliated with the University. The Company was formed in 1957 as a Sub-Unit of the University of Technology Regiment which is now called The University of New South Wales Regiment. The current strength of the Company is 100.

The function of the Company is to train graduates and undergraduates for commissioned rank in the C.M.F. and the training designed with this in view, is done on an Infantry basis and consists of:

(a) An Annual Camp for three weeks in February
(b) An optional camp of fourteen days in December
(c) Two weekend bivouacs a year
(d) Parades on Friday nights of two hours duration
(e) Weekend day parades

The training programme is designed to fit in with vacations, examinations, and deferred examinations and there is practically no commitment in third term. Leave is available from activities where a good reason exists.

Enlistment in the Company is voluntary and is open to all graduates or undergraduates who are 17 years of age or over.

Members of the University of Newcastle Company are eligible for the following benefits:

An opportunity to reach commissioned rank in 2-3 years.
Tax-free pay for all training undertaken.
Refund of travelling expenses.
Opportunities for attendance at Regular Army Courses and short time attachments to Army units in Malaysia or New Guinea.
Free meals and accommodation at camps and bivouacs.
Free Uniforms.

Enquiries regarding conditions of service, and enlistment procedure should be made at the Training Depot which is in King Street, Newcastle West (opposite Birdwood Park). Phone No. 612121.

OFFICERS AND STAFF

Officer Commanding — Capt. P. Groves
Full Time Staff — WO2 M. Grovenor
S/Sgt. P. Toohey
UNIVERSITY ORGANISATIONS

THE UNIVERSITY OF NEWCASTLE
SPORTS UNION

The Sports Union is the student organisation responsible for the promotion and control of sporting activities within the University. All students are automatically members of the Sports Union. There are twenty-six affiliated clubs: Athletics, Australian Rules, Badminton, Men’s Basketball, Women’s Basketball, Cricket, Fencing, Golf, Men’s and Women’s Hockey, Mountaineering, Netball, Men’s and Women’s Rowing, Rugby Union and Rugby League, Sailing, Ski-ing, Soccer, Softball, Squash, Surfriding, Swimming, Scuba, Table Tennis, Tae Kwon-Do, Tennis, Volleyball, most of which participate in local competitions and send teams to Inter-varsity contests each year. Inter-Faculty Contests conducted throughout the year aim to stimulate friendly rivalry among the various Faculties, and to encourage a higher student participation in sport. Each club has a student representative on the Sports Union Committee, which meets monthly. The Executive consists of the President, Vice-President, Secretary, Treasurer, a representative of the University Council and the Amenities Officer. The Sports Union’s annual income is derived from a portion of the General Services Fee and is used to meet such costs as equipment, affiliation fees and Inter-varsity contests.

For outstanding individual performances in sport, the University awards “Blues” each year at the Annual “Blues” Dinner.

The number of constituent clubs is increasing continually, and students interested in participating in any sport are urged to contact the Amenities Officer, Mr. Bradford, or one of the Sports Union Executive for further information. The Sports Union Amenities office is located in the temporary building adjacent to the main University building.

President — Professor R. G. Tanner,
M.A. (Melbourne & Cambridge)

Secretary — Mr. P. Hunt

Amenities Officer — Mr. H. Bradford

UNIVERSITY ORGANISATIONS

THE UNIVERSITY OF NEWCASTLE
STUDENTS’ ASSOCIATION

All students proceeding to a degree or a diploma are members of the Students’ Association.

Included in the General Services fee, which you all pay or have paid for you, is $8.00 subscription to the Newcastle University Students’ Association (N.U.S.A.). You are all financial members of this Association and have every right — and a duty to yourselves — to take part in the running of the Association and the administration of its collective assets.

Each year, the Students’ Association elects a number of students (22 at present) to the Students’ Representative Council. This Council’s purpose is:

1. to give money and other aid to the various clubs and societies, including religious, political and social groupings on campus;
2. when needed, to act as the students’ voice in submissions to the University administration, the mass media, and various government departments;
3. to work for student welfare. The S.R.C. provides automatic accident insurance cover for students. It is also responsible for printing various student publications such as OPUS, the student newspaper, the Orientation Handbook, Nimrod, the annual literary magazine and the weekly Bulletin;
4. to implement student association policy on matters academic, political or administrative. N.U.S.A. policy is decided at official lunchtime meetings where all students may attend and vote.

With its various committees, for example, the welfare and education committees, and its officers such as the education campaign director, the travel officer and so on, N.U.S.A. attempts to facilitate as many expressions of cultural activity as possible, as well as organizing action to effect student policy on environment, aboriginal rights, apartheid and so on.
UNIVERSITY ORGANISATIONS

Each year, the Association organises, with some help, Orientation week and early in July, Autonomy Day, which is the equivalent of Commem., Foundation Day, or similar activities at other universities.

As the Students' Association is a constituent member of the Australian Union of Students, students of the University may take part in the activities of this body. Some of these activities which affect students more directly are the several intervarsity cultural festivals, travel to New Zealand and many countries in Asia, village schemes in Papua/New Guinea, raising money for aboriginal scholarships and World University Service, national campaigns on education, and the national student newspaper, National 'U'.

The Association, via general student meetings, ad hoc committees, and its officers, pursues policy on a wide variety of social, political, educational and welfare activities both internal to the campus and affecting our society as a whole. Frequently, controversial issues are raised and discussed. The ultimate decision on what your Association does, and how your money is spent, depends on all of you. The executive officers of your association are not there to decide policy, but to carry out your decisions.

It is more important than ever that new students help run the association. At the moment too few students do much of the work, and as the older students leave, the new ones must fill the gap or the association will collapse as a functioning unit. How can you help? Come to the general student meetings and vote; vote also in the S.R.C. elections and stand for positions that interest you. In general, try not to be apathetic or disinterested.

President — Mr. D. Wallace
Secretary — Mr. M. Pavlovic

FACULTY OF APPLIED SCIENCE

COURSES AVAILABLE

The Faculty of Applied Science comprises the Department of Metallurgy in which two types of undergraduate courses are available.

The full-time course of four years leads to the degree of B.Met., an honours degree; while the part-time course of six years leads to the degree of B.Sc.(Met.).

Full-time students are required to obtain four months approved industrial experience before completion of their course.

The part-time courses are designed for students engaged in approved occupations in industry. Three concurrent years of approved industrial experience are required before completion of the course. The duration of the course may be reduced by one year by taking one year full-time in accordance with the scheduled "accelerated" course.

Before they can proceed to a higher degree, students who have obtained the B.Sc.(Met.), must complete the subjects normally offered in the fourth year of the full-time course. The Head of the Department should be consulted for particulars.

Provisions exist for transfer from full-time to part-time courses and vice versa and for some variation from the approved programmes for "accelerated" courses. Formal approval must be obtained from Senate. Students wishing to make such changes should consult the Head of the Department.

Postgraduate research leading to the degrees of M.Sc., M.E., Ph.D., D.Sc. and D. Eng. is offered. Full details may be obtained from the Head of the Department.
REQUIREMENTS FOR THE DEGREE OF BACHELOR OF METALLURGY IN THE FACULTY OF APPLIED SCIENCE

1. In these Requirements, "the Faculty" means the Faculty of Applied Science, "the Faculty Board" means the Faculty Board of the Faculty of Applied Science and "the Dean" means the Dean of the Faculty of Applied Science.

2. In order to qualify for admission to the degree of Bachelor of Metallurgy in the Faculty of Applied Science a candidate shall—
   (a) complete, normally by full-time study, the course prescribed by the Faculty Board; and
   (b) satisfy the requirements of industrial experience prescribed by the Faculty Board.

3. The Faculty Board shall publish a Schedule of Subjects prescribed for the course and the industrial experience requirements.

4. To complete a subject qualifying towards a degree a candidate shall attend such lectures, tutorials, seminars, laboratory classes, and field work and submit such written work and pass such examinations as the Department may require.

5. No candidate may enrol in any year in a combination of subjects which is incompatible with the time-table for that year.

6. A candidate shall normally progress by year except that, with the permission of the Dean he may enrol in a subject or subjects from another year provided he has met any prerequisites prescribed for the subjects.

7. A candidate may be granted standing in the course in recognition of work completed in another tertiary institution.

8. A candidate may withdraw from a subject in which he has enrolled only by informing the Secretary to the University in writing and the withdrawal shall take effect from the date of receipt of such notification.

9. A candidate who withdraws from a subject in which he has enrolled shall be deemed to have failed in that subject unless he has secured written permission from the Dean to withdraw without penalty. This permission is not normally granted beyond the sixth Monday of Second Term.

10. Honours may be awarded at graduation. There shall be three classes of Honours, namely, Class I, Class II and Class III. Class II shall have two divisions.

11. In each Department, the most distinguished candidate of candidates gaining First Class Honours may, if of sufficient merit, be awarded a University Medal.

12. In order to provide for exceptional circumstances arising in particular cases, the Senate, on the recommendation of the Faculty Board, may relax any Requirement.

STUDENT ACADEMIC PROGRESS

Students are reminded of the need to maintain satisfactory academic progress and, in particular, attention is drawn to By-Laws, 5.4.1. and 5.4.2 (refer page 38 of the Handbook).

Apart from the policy of the University which is self evident under the terms of By-law 5.4.2, the Faculty Board has laid down its policy for the operation of By-law 5.4.1.2. This policy follows:—

Full-time students must pass at least one subject in their first year of enrolment. Students who do not meet this provision will be recommended to the Admissions Committee for exclusion from the degree course.
REQUIREMENTS FOR THE DEGREE OF
BACHELOR OF SCIENCE (METALLURGY)
IN THE
FACULTY OF APPLIED SCIENCE

1. In these Requirements, "the Faculty" means the Faculty of Applied Science, "the Faculty Board" means the Faculty Board of the Faculty of Applied Science, and "the Dean" means the Dean of the Faculty of Applied Science.

2. In order to qualify for admission to the degree of Bachelor of Science (Metallurgy) in the Faculty of Applied Science a candidate shall—
   (a) complete, normally by part-time study, the course prescribed by the Faculty Board; and
   (b) satisfy the requirements of industrial experience prescribed by the Faculty Board.

3. The Faculty Board shall publish a Schedule of Subjects prescribed for the course and the industrial experience requirements.

4. To complete a subject qualifying towards a degree a candidate shall attend such lectures, tutorials, seminars, laboratory classes and field work and submit such written work and pass such examinations as the Department may require.

5. No candidate may enrol in any year in a combination of subjects which is incompatible with the time-table for that year.

6. A candidate may not enrol in a subject until he has completed any prerequisites prescribed in the Schedule of Subjects or is enrolled in or has completed any corequisites prescribed in the Schedule of Subjects.

7. A candidate may be granted standing in the course in recognition of work completed in another tertiary institution.

8. A candidate may withdraw from a subject in which he has enrolled only by informing the Secretary to the University in writing and the withdrawal shall take effect from the date of receipt of such notification.

9. A candidate who withdraws from a subject in which he has enrolled shall be deemed to have failed in that subject unless he has secured written permission from the Dean to withdraw without penalty. This permission is not normally granted beyond the sixth Monday of Second Term.

10. The degree of Bachelor of Science (Metallurgy) may be conferred either as a pass degree, or as a degree with merit.

11. In order to provide for exceptional circumstances arising in particular cases, the Senate, on the recommendation of the Faculty Board, may relax any Requirement.

STUDENT ACADEMIC PROGRESS

Students are reminded of the need to maintain satisfactory academic progress and, in particular, attention is drawn to By-Laws 5.4.1, and 5.4.2 (refer page 38 of the Handbook). Apart from the policy of the University which is self evident under the terms of By-law 5.4.2, the Faculty Board has laid down its policy for the operation of By-law 5.4.1.2. This policy follows:

Part-time students must pass at least one subject in their first two years of enrolment. Students who do not meet his provision will be recommended to the Admissions Committee for exclusion from the degree course.
### Bachelor of Metallurgy

#### Subject

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YEAR I</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MATERIALS SCIENCE I</strong></td>
<td>6</td>
</tr>
<tr>
<td>Mathematics I</td>
<td>6</td>
</tr>
<tr>
<td>Physics IA</td>
<td>6</td>
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<tr>
<td>AND EITHER</td>
<td></td>
</tr>
<tr>
<td>+Engineering I</td>
<td></td>
</tr>
<tr>
<td>OR Chemistry I</td>
<td>6</td>
</tr>
<tr>
<td>OR Geology I</td>
<td></td>
</tr>
<tr>
<td>OR any other subject</td>
<td></td>
</tr>
<tr>
<td>approved by the Head of</td>
<td></td>
</tr>
<tr>
<td>Department</td>
<td>24</td>
</tr>
<tr>
<td><strong>YEAR II</strong></td>
<td></td>
</tr>
<tr>
<td>Metallurgical Computations</td>
<td></td>
</tr>
<tr>
<td>Part A</td>
<td>6</td>
</tr>
<tr>
<td>Part B</td>
<td>6</td>
</tr>
<tr>
<td><strong>METALLURGY I</strong></td>
<td>6</td>
</tr>
<tr>
<td>AND EITHER</td>
<td></td>
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<tr>
<td>+Mathematics IIB</td>
<td>6</td>
</tr>
<tr>
<td>OR Engineering Metallurgy IA</td>
<td></td>
</tr>
<tr>
<td>OR Engineering Metallurgy IB</td>
<td></td>
</tr>
<tr>
<td><strong>YEAR III (for 1974 only)</strong></td>
<td></td>
</tr>
<tr>
<td>Engineering Technology (EE203, ME121)</td>
<td>3</td>
</tr>
<tr>
<td>Metallurgy IIA</td>
<td>7</td>
</tr>
<tr>
<td><strong>METALLURGY IIB</strong></td>
<td>12</td>
</tr>
<tr>
<td>*Elective Subject</td>
<td>3</td>
</tr>
<tr>
<td><strong>Subject</strong></td>
<td><strong>Hours</strong></td>
</tr>
<tr>
<td><strong>YEAR IV</strong></td>
<td></td>
</tr>
<tr>
<td><strong>METALLURGY III</strong></td>
<td>25</td>
</tr>
<tr>
<td>Metallurgy Project</td>
<td></td>
</tr>
<tr>
<td>*ELECTIVE SUBJECTS</td>
<td></td>
</tr>
<tr>
<td>Elective Mathematics</td>
<td></td>
</tr>
<tr>
<td>Geology IIZ (Mineralogy)</td>
<td></td>
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<tr>
<td>Microeconomics</td>
<td></td>
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<tr>
<td>(ME111 Graphics</td>
<td></td>
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<tr>
<td>(ME112 Engineering Drawing and Elementary Design</td>
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<tr>
<td>I(ME381 Methods Engineering</td>
<td></td>
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<tr>
<td>I(ME481 Engineering Administration</td>
<td></td>
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<tr>
<td>I(ME482 Engineering Economics</td>
<td></td>
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<tr>
<td>I(ME487 Operations Research — Deterministic Models</td>
<td></td>
</tr>
<tr>
<td>I(ME481 Engineering Administration</td>
<td></td>
</tr>
<tr>
<td>I(ME482 Engineering Economics</td>
<td></td>
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<tr>
<td>or any other subject, including First Year Arts subjects, approved by</td>
<td></td>
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<tr>
<td>the Head of the Department.</td>
<td></td>
</tr>
<tr>
<td>+Prerequisite is Mathematics IIB</td>
<td></td>
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<tr>
<td><strong>Note</strong></td>
<td></td>
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<tr>
<td>Topics above which are offered by the Faculty of Engineering may</td>
<td></td>
</tr>
<tr>
<td>have to be changed if unavailable or unsuitably timetabled in 1974.</td>
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<tr>
<td>+Engineering I comprises the following topics</td>
<td></td>
</tr>
<tr>
<td>ME111, ME112, CE111, ME131.</td>
<td></td>
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<tr>
<td>++excluding topics C, F and G</td>
<td></td>
</tr>
<tr>
<td>+Engineering Metallurgy IA comprises the following topics</td>
<td></td>
</tr>
<tr>
<td>ME121 Workshop Practice</td>
<td></td>
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<tr>
<td>EE203 Introduction to Electrical Information</td>
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<tr>
<td>ME222 Process Technology</td>
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<tr>
<td>CE212 Mechanics of Solids I or ME223</td>
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<tr>
<td>+Engineering Metallurgy IB comprises the following topics</td>
<td></td>
</tr>
<tr>
<td>EE203 Introduction to Electrical Information</td>
<td></td>
</tr>
<tr>
<td>ME251 Fluid Mechanics or CE231</td>
<td></td>
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<tr>
<td>ME372 Heat Transfer or approved subject</td>
<td></td>
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<tr>
<td>Mathematics II, Topic B, Complex Analysis.</td>
<td></td>
</tr>
</tbody>
</table>
# Bachelor of Science (Metallurgy)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STAGE 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MATHEMATICS I</strong></td>
<td>6</td>
</tr>
<tr>
<td>AND EITHER</td>
<td></td>
</tr>
<tr>
<td>+ Engineering I</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>Chemistry I</td>
<td>6</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>Geology I</td>
<td></td>
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<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>any other subject approved by the Head of Department</td>
<td>12</td>
</tr>
</tbody>
</table>

| **STAGE 2** | |
| **MATERIALS SCIENCE I** | 6 |
| Physics IA | 6 |

| **STAGE 3** | |
| **METALLURGICAL COMPUTATIONS** | |
| Part A | 6 |
| Part B | 6 |

| **STAGE 4** | |
| **METALLURGY I** | 6 |
| AND EITHER | |
| Physics II | |
| OR | |
| + Mathematics IIB | |
| OR | |
| +Engineering Metallurgy IA | |
| OR | |
| +Engineering Metallurgy IB | 12 |

| **STAGE 5 (for 1974 only)** | |
| Engineering Technology (EE203, ME121) | 3 |
| **METALLURGY IIA** | 7 |
| *Elective Subject | 3 |

| **STAGE 6** | |
| **METALLURGY IIB** | 12 |

*ELECTIVE SUBJECTS
- Elective Mathematics
- Geology IIZ (Mineralogy)
- Microeconomics
- (ME111 Graphics
- (ME112 Engineering Drawing and Elementary Design
- (ME381 Methods Engineering
- (ME481 Engineering Administration
- (ME482 Engineering Economics
- (ME487 Operations Research — Deterministic Models
- (ME401 Systems Analysis
- (ME402 Systems Planning, Organization and Control
- (ME481 Engineering Administration
- (ME482 Engineering Economics
- or any other subject, including First Year Arts subjects, approved by the Head of the Department.

*Prerequisite is Mathematics IIB

Note
- Topics above which are offered by the Faculty of Engineering may have to be changed if unavailable or unsuitably timetabled in 1974.

+ Engineering I comprises the following topics:
  - ME111, ME112, CE111, ME131

++ Excluding topics C, F and G

† Engineering Metallurgy IA comprises the following topics:
  - ME121 Workshop Practice
  - EE203 Introduction to Electrical Information
  - ME222 Process Technology
  - CE212 Mechanics of Solids I or ME223

‡ Engineering Metallurgy IB comprises the following topics:
  - EE203 Introduction to Electrical Information
  - ME251 Fluid Mechanics or CE231
  - ME372 Heat Transfer or approved subject

ACCELERATED COURSE

A student reading for the degree of Bachelor of Science (Metallurgy) B.Sc.(Met.) may reduce the time required to complete the academic requirements by undertaking the following programme of combined part-time full-time study.

Stage 1 — 30 weeks Part-time Course (as for Stage 1 B.Sc. (Met.) Course).

Stage 2 — 30 weeks Part-time Course (as for Stage 2 B.Sc. (Met.) Course).

Stage 3A — 30 weeks Full-time Course (as for Year II of Full-time B.Met. Course).

Stage 4A — 30 weeks Full-time Course (as for Year III of Full-time B.Met. Course).

Stage 5A — 30 weeks Part-time Course (as set out below).

STAGE 5A

30 WEEKS PART-TIME COURSE

<table>
<thead>
<tr>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
</tr>
<tr>
<td>Metallurgy</td>
</tr>
<tr>
<td>Project</td>
</tr>
</tbody>
</table>

Project

Project may involve laboratory work or a report on a literature survey or a combination of these by arrangement with the Head of Department.

In the event that it is elected to make a report on a literature survey, this is to be submitted not later than the end of the fifth week of third term. The survey is to be of approximately 10,000 words on a topic of relevance to the student's employment and which has been approved by the Head of Department. The topic proposed must be submitted to the Head of Department for approval before the end of the third week of first term.

PREREQUISITES AND COREQUISETES FOR THE COURSES IN METALLURGY

<table>
<thead>
<tr>
<th>Subject</th>
<th>Prerequisite</th>
<th>Pre or Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metallurgical Computations</td>
<td>Materials Science I Mathematics I</td>
<td></td>
</tr>
<tr>
<td>Metallurgy I</td>
<td>Materials Science I</td>
<td>Metallurgical Computations</td>
</tr>
<tr>
<td>Metallurgy IIA) Metallurgy IIB)</td>
<td>(Metallurgy I) (Metallurgical Computations)</td>
<td></td>
</tr>
<tr>
<td>Metallurgy III</td>
<td>(Metallurgy IIA) (Metallurgy IIB)</td>
<td></td>
</tr>
</tbody>
</table>

INDUSTRIAL EXPERIENCE REQUIREMENTS

Full-time students are required to obtain four months approved industrial experience before completion of their course.

The part-time courses are designed for students engaged in approved occupations in industry. Three concurrent years of approved industrial experience are required before completion of the course. The duration of the course may be reduced by one year by taking one year full-time in accordance with the scheduled “accelerated” course.
DESCRIPTION OF SUBJECTS

MATERIALS SCIENCE I
A unified introductory treatment of the structure and properties of materials generally.
Atomic arrangements in solids and errors in the regularity of stacking. The structure of liquids and gases. The physical properties of materials primarily dependent on atomic structure.
The electronic structure of atoms, molecular and condensed materials. The physical properties of materials primarily dependent on electronic structure.
Generation of microstructure and phase transformations in solid materials using simplified thermodynamic concepts as a unifying principle. Composite materials of all types where the microstructure is specifically controlled.
The deformation characteristics of materials including explanations based on dislocation theory. Environmental effects such as time and temperature.
The durability of materials with regard to surface effects and internal changes.
At all stages reference is made to technologically important materials in the illustration of principles.

METALLURGICAL COMPUTATIONS part A (6 hours per week)
Topics C, F & G (including tutorials) of Mathematics IIB.
Application of the material contained in Topics C, F & G to Metallurgical problems.

METALLURGICAL COMPUTATIONS part B (6 hours per week)
Mass, Momentum and Energy balances.
Stoichiometry of metallurgical processes.
Thermochemistry and Electrochemistry calculations.
Thermodynamics of metallurgical processes.
Statistics and Experimental Design.

TOPIC C — CALCULUS AND VECTOR CALCULUS —
W. T. F. Lau
Text
Theory and Problems of Advanced Calculus M. R. Spiegel
( McGraw-Hill 1963)
Reference
Calculus Vol. II 2nd ed. T. Apostol
(Xerox 1969)

TOPIC F — NUMERICAL ANALYSIS AND COMPUTING —
D. L. S. McElwain
Texts
The Elements of Fortran Style C. B. Kreitzberg & B. Shneiderman
(N.Y., Harcourt, Brace & Jovanovich, Inc. 1972)
Applied Numerical Methods B. Carnahan, H. A. Luther & J. O. Wilkes
(Wiley 1969)

TOPIC G — FOURIER SERIES, PARTIAL DIFFERENTIAL EQUATIONS AND SPECIAL FUNCTIONS
Texts

A First Course in Partial Differential Equation  H. F. Weinberger
(Ginn Blaisdell 1965)

AND

Fourier Series  I. N. Sneddon
(Routledge 1961)

Reference

Advanced Calculus  W. Kaplan
(Addison-Wesley 1965)

METALLURGY I

A course of lectures on the operations and equipment, the scientific and engineering principles used in the production of metals from ores. Fuels, furnaces and combustion. The structure, properties and use of refractories. The structure, properties and technique of examination of metals and alloys, with a consideration of the common alloy types, binary and ternary diagrams. Instrumentation in metallurgical techniques. Industrial alloys and metallurgical aspects of their fabrication. Transformations in metallic systems, including generally used heat treatment processes, characteristics of martensite formation. Theories of strength of metals, effect of stress state, temperatures and strain rate, metallurgical aspects of creep and fatigue, fracture types, effect of heating cold worked metals, mechanical testing of metals.

METALLURGY II

The first half of the year consists of the following obligatory lecture courses:
Industrial Metallurgy — an advanced treatment of crystallisation and the design and selection of engineering materials.
Metallurgy Seminar — a series of lectures on the presentation of verbal reports and papers. Each student delivers a paper on a topic of his choice, followed by a discussion of its technical aspects.
Statistical Methods — frequency distributions, sampling, errors, curve fitting, correlation and significance tests.
During the latter half of the year several courses are offered from which students may make selections according to their individual interests. Details of the courses being offered are made available by the Head of Department during 1st term.

METALLURGY III

An advanced series of lectures on a wide range of topics is offered. From these and from any other approved course offered in other Departments the student may select areas of particular interest to himself.
A research project is carried out in First Term under the supervision of a member of staff.
Course topics offered within the Metallurgy Department are:
Advanced dislocation theory — its applications to creep, fatigue, recovery and fracture
The determination of crystal structures using X-ray and neutron diffraction
Electron Microscopy
Thermodynamics of Alloys
Solidification Mechanisms
Physical Chemistry of Extraction Processes
Analysis of Metallurgical Reactors
Advanced Strengthening Mechanisms
Fracture Mechanics

Prescribed Texts

*Electrodeposition and Corrosion Processes 2nd ed.  West, J.
(Van Nostrand Reinhold 1970)

Kinetics of Phase Transformations  Burke, J.
(Pergamon)

* Denotes available as a paperback.
An introductory course on the elementary structure and properties of industrially important metals. The topics covered include lattice arrangement of atoms, strengthening mechanisms, fracture, fatigue, corrosion and welding, with the emphasis on current civil engineering problems and practices.

An introduction to the structure, properties and behaviour of metals. The fundamental relationships between atomic structure, microstructure and mechanical properties is developed. The microstructural and strength characteristics of steels, brasses bronzes, aluminium alloys, titanium alloys, and cast irons are described. The special features of and difficulties associated with the techniques of welding are also covered.

**Prescribed Text**


**Reference**

Economics


**Reading Guide**

- *Microeconomic Theory*
  
  Bilas, R. A.
  
  (2nd ed. McGraw-Hill 1971)

- *Readings in Microeconomics*
  
  Breit, W. & Hochman, H. M.
  
  (2nd ed. Holt, Rinehart & Winston 1971)

- *Theory of Economic Statics*
  
  Brennan, M. J.
  
  (2nd ed. Prentice-Hall 1970)

- *Microeconomics*
  
  Clower & Due
  
  (Irwin 1972)

- *Economic Analysis*
  
  Ferguson, C. E. & Maurice, S. G.
  
  (Irwin 1970)

- *Readings in Microeconomics*
  
  Kamerschen, D. R.
  
  (Wiley 1969)

- *The Price System and Resource Allocation*
  
  Leftwich, R. H.
  

- *Microeconomic Problems, Concepts, Cases and Tests*
  
  Mansfield, E. (N.Y., Norton 1971)

- *Microeconomics — Selected Readings*
  
  Mansfield, E.
  
  (Norton 1971)

- *Microeconomics, Theory and Applications*
  
  Mansfield, E.
  
  (Norton 1970)

- *Microeconomics Analysis and Policy*
  
  Reynolds, Lloyd G.
  
  (Irwin 1973)

- *Microeconomics*
  
  Shows, E. Warren & Burton, Robert H.
  
  (Heath 1972)

* Recommended for purchase.
### CE111 STATICS

- **Two-dimensional force systems; equilibrium funicular polygon; rigid bars, shear force, axial force, bending moment; pin-jointed frames, analytical and graphical treatment; equilibrium of three-dimensional force systems, cables under distributed loads.**

**Prescribed Text**

*Principles of Statics*  
Hall, A. S. & Archer, F.  
(University of New South Wales Students Union)

**Reference Texts**

*Statics*  
Meriam, J. L.  
(Wiley 1966)

*Mechanics for Engineers: Statics*  
Beer & Johnston  

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### CE212 MECHANICS OF SOLIDS I

- **56 Hours**

**Prerequisite**

Engineering I, Mathematics I.

- Uniaxial loading, states of stress and strain, stress and strain relationships; internal forces; internal stresses, deflexion of beams, torsion, buckling.

**Prescribed Text**

To be determined.

**Reference Texts**

*Basic Electrical Engineering*  
Fitzgerald, Higginbotham & Grabel

*Electrical Engineering Principles*  
Lockwood & Dunstan

*Basic Electrical Engineering Science*  
McKenzie, Smith & Hose

*Electrical Engineering (2nd ed.)*  
Hammond & Gehmlich

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### EE203 INTRODUCTION TO ELECTRICAL INFORMATION*

A course of lectures, laboratory and tutorial work.


- Correct use of safety features to be observed in laboratory instruments. Component Codes. Descriptive explanation of basic laboratory instruments.

**Prescribed Text**

*Design Drafting*  
Earle, J. H.  
(Addison Wesley 1972)

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* First Half Year
Reference Texts

Graphics, Science and Design
- Levens, A. S. (Wiley 1968)
- Luzadder, W. J. (Prentice-Hall 1968)

Introduction to Engineering Design and Graphics

ME112 ENGINEERING DRAWING AND ELEMENTARY DESIGN
42

Prescribed Texts

Australian Standard Engineering Drawing Practice
ASCZI — 1966
(Institution of Engineers, Australia)

Theory and Problems of Machine Design

Introduction to Engineering Design and Graphics

ME121 WORKSHOP PRACTICE
48
A study of the basic methods and processes used in the engineering trades with instruction, practice and assignments related to Fitting and Machining, Drilling, Welding Processes, Boilermaking, *Patternmaking, Foundry Practice, and the Engineering Inventory of Materials and Components.

* Patternmaking and Foundry Practice will only be available for Metallurgy Students in ME121.

Prescribed Text

Force and Motion
Johnston, A. K. & Hill, B. J. (University of Newcastle)

Reference Texts

Mechanics for Engineers: Mechanics

Mechanics—Pt. II Dynamics
ME222 PROCESS TECHNOLOGY 42

Prescribed Text
Materials and Processing in Manufacturing DeGarmo, E. P. (Macmillan)

Reference Texts
Materials, Properties and Manufacturing Processes Datsko, I. (Wiley)
Processes and Materials in Manufacturing Campbell, J. S. (McGraw-Hill)

ME251 FLUID MECHANICS 42
Fluid properties and definitions. Fluid statics:— statics of moving systems, forces on surfaces, buoyant forces, stability of floating and submerged bodies. Fluid flow concepts:—
Types of flow, a continuity equation, Euler’s equation of motion along a streamline. Bernoulli equation, energy equation. Linear momentum equation. The moment of momentum equation. Linear and angular momentum applications. Introduction to dimensional analysis. Viscous effects:— fluid resistance, laminar and turbulent flow, flow in pipes and conduits. Fluid measurement.

Prescribed Text
Force and Motion Johnston, A. K. & Hill, B. J. (University of Newcastle)

Reference Texts

ME372 HEAT TRANSFER 42
Conduction: steady and unsteady, one and two dimensional, with and without internal heat generation and including convection boundaries. Numerical and analogue solutions.

Prescribed Text
Heat Transfer Holman, J. P. (McGraw-Hill)

Reference Texts

ME381 METHODS ENGINEERING 42

Prescribed Text
Motion and Time Study Niebel, B. W. (Irwin)

Reference Texts
Motion and Time Study Barnes, R. M. (Wiley)
Methods Engineering Krick, E. V. (Wiley)
ME401 SYSTEMS ANALYSIS
An introduction to systems concepts. Mathematical modelling and some probability concepts. Deterministic and probabilistic models, stochastic models.

Reference Texts
Finite Graphs and Networks
Busacker & Saaty
(McGraw-Hill 1965)
Systems Analysis. A computer approach to Decisions Models
McMillan, C. & Gonzalez R. F.
(Irwin Dorsey 1968)
Engineering Systems Analysis
Haberman, C.
(Merril 1965)
A Methodology for Systems Engineering
Hall, A.
(Van Nostrand 1962)
Systems Engineering Handbook
Machol, R.
(McGraw-Hill)

ME402 SYSTEMS PLANNING, ORGANIZATION AND CONTROL
Use of analogue and digital computers, data processing.

Reference Texts
Formal Organisation, A Systems Approach
Carzo, R. & Yanouzas, J. U.
(Irwin Dorsey 1965)
A Mathematical Theory of Systems Engineering
Wayne — Weymore, A.
(Wiley 1967)
A Concept of Corporate Planning
Ackoff, R. L.
(Wiley 1970)

ME481 ENGINEERING ADMINISTRATION

Prescribed Text
Industrial Organization and Management
Bethel, L. L., Atwater, F. S., Smith, G. H., Stackman, H. A. & Riggs, J. L.
(McGraw-Hill)

Reference Texts
Management Theory and Practice
Dale, E.
(McGraw-Hill)
People and Organization
Bynt, W. J.
(McGraw-Hill)
Modern Production Management
Buffa, E. S.
(Wiley)
Management Analysis, Concepts and Cases
Haynes, W. W. & Massie, J. L.
(Prentice-Hall)
ME482 ENGINEERING ECONOMICS

The time value of money, economic criteria for engineering decision making, purchase and replacement economics, cost/benefit analysis. Critical evaluation of cost data for decision making.

Introduction to demand, supply, price and the policy of the firm in various market situations.

Introduction to decision making theory, Bayesian statistics and operations research.

Prescribed Text
Economic Decision Models
Riggs, J. L.

Reference Texts
Engineering Economy
Theusen, H. G., Fabrycky, W. J. & Theusen, G. J.
(Prentice Hall)
The Elements of Economic Analysis
Braddock, G. R. & Archbold, D. A.
(McGraw-Hill)
Engineering Economy
DeGarmo, E. P. & Canada, J. R.
(Collier-Macmillan)

ME487 OPERATIONS RESEARCH — DETERMINISTIC MODELS

Concept of optimisation; Optimisation approaches; Formulation of Models; Linear Programming; Allocation and assignment; Simplex Method; Duality; Theory of Games, Parametric Programming; Integer Programming; Zero-one Programming; Quadratic Programming; Decomposition principle. Network theory; Dynamic Programming. Geometric Programming. Applications.

Reference Texts
Operations Research
Taha, H. A.
(Macmillan)
Introduction to Operations Research
Hillier, I. S. & Lieberman, G. J.
(Halden-Day)
Mathematical Programming
McMillan, C.
(Wiley)
Systems Analysis — A Computer Approach to Decision Models
McMillan, C. & Gonzalez, P. F.
(Irwin-Dorsey)

MATHEMATICS I

A subject of four lectures and two tutorial hours per week for three terms comprising the following topics. Summaries of these topics together with extended booklists will appear in the handbook of the Faculty of Mathematics and will also be available from the Department.

Topic
AN Real Analysis
AL Algebra
CA Calculus
NM Numerical Mathematics

Prescribed Texts
AN Calculus Vol. I 2nd ed.
T. Apostol
(Ginn Blaisdell 1967)

OR
Real Analysis — An Introductory Course
J. F. Giles
(Wiley 1973)

AL A Basis for Linear Algebra
W. Brislcy
(Wiley 1973)

CA Calculus Vol. I 2nd ed.
T. Apostol
(Ginn Blaisdell 1967)

NM Basic Fortran IV Programming
J. M. Blatt
(Computer Systems Aust. 1969)

PART II SUBJECTS

The following topics are among those offered by the Mathematics Department. Certain combinations of these topics specified below will comprise the part II subjects offered by the Department; each topic consists of about 27 lectures and 13 tutorials. A pass in Mathematics I is a prerequisite for entry to each part II subject given by the Department; in addition some topics will require other topics as a corequisite or prerequisite as shown. Summaries of these topics will appear in the handbook of the Faculty of Mathematics and will also be available from the Department.
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<td>J</td>
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<tr>
<td>K</td>
<td>Topic in Pure Mathematics, e.g., Group Theory</td>
</tr>
<tr>
<td>L</td>
<td>Analysis of Metric Spaces</td>
</tr>
</tbody>
</table>

### Prescribed Texts

**Topic A—Mathematical Models**

*Operations Research — An Introduction*  
H. A. Taha  
(Macmillan 1971)

**Topic B—Complex Analysis**

*Complex Variables with Physical Applications*  
Arthur A. Hauser  
(Simon & Schuster 1971)

OR

*Complex Variables*  
N. Levinson & R. M. Redheffer  
(Holden-Day 1970)

OR

*Theory and Problems of Complex Variables*  
Murray R. Spiegel  
(McGraw-Hill 1964)

**Topic C—Calculus and Vector Calculus**

*Calculus* Vol. II 2nd ed.  
T. Apostol  
(Ginn Blaisdell 1969)

**Topic D—Linear Algebra**

No set text.

**Topic E—Differential Equations and Integral Transforms**

*Elementary Differential Equations and Boundary Value Problems*  
W. E. Boyce & R. C. DiPrima  
(Wiley 1969)

**Topic F—Numerical Analysis and Computing**

*A First Course in Numerical Analysis*  
A. Ralston  
(McGraw-Hill 1965)

OR

*Applied Numerical Methods*  
B. Carnahan, H. A. Luther & J. O. Wilkes  
(Wiley 1969)

*The Elements of Fortran Style*  
C. B. Kreitzberg & B. Shneiderman  
(N.Y., Harcourt Brace Jovanovich Inc. 1972)

**Topic G—Fourier Series, Partial Differential Equations and Special Functions**

*A First Course in Partial Differential Equations*  
AND

*Fourier Series*  
I. N. Sneddon  
(Routledge 1961)

**Topic H—Probability and Statistics**

*Mathematical Statistics* 2nd ed.  
J. E. Freund  
(Prentice-Hall 1971)

OR

P. G. Hoel  
(Wiley 1963)

**Topic I—Topic in Statistics, e.g., Non-parametric Methods**

*Practical Non-Parametric Statistics*  
W. J. Conover  
(Wiley 1971)

**Topic J—Topic in Applied Mathematics, e.g., Mechanics**

*Theory and Problems of Theoretical Mechanics*  
M. R. Spiegel  
(New York, Schaum Publishing Co.)
Prescribed Texts

Topic K—Topic in Pure Mathematics

*The Theory of Groups*
I. D. McDonald
(Oxford University Press 1968)

OR

*Group Theory*
B. Baumslag & B. Chandler
(Schaum 1968)

Topic L—Analysis of Metric Spaces

*Metric Space Analysis*
J. R. Giles

**MATHEMATICS IIB**

**MATHEMATICS IIB (Part I)**

**MATHEMATICS IIB (Part II)**

Mathematics IIB is a subject of four lectures and two tutorial hours per week for three terms comprising four topics chosen from A to H and approved by the Head of the Department.

Students in the Faculty of Applied Science are not permitted to take Topics C, F and G which are included in Metallurgical Computations.

**ELECTIVE MATHEMATICS** (for Metallurgy Students)

Students taking this subject will study certain of the Topics A to L above approved by the Head of the Department of Metallurgy.

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**SUBJECTS IN THE FACULTY OF SCIENCE**

**CHEMISTRY I**

A subject comprising about 90 lectures and 90 hours of tutorial and laboratory classes covering the following topics:

**Inorganic Chemistry** (30 lectures)

The periodic properties of the elements and their compounds; chemistry of s-block elements (Groups 1A and 2A), the p-block elements (Group IIB), the noble gases, hydrogen, the oxygen group (Group VIB), the halogens (Group VIIB) and d-block elements (briefly).

**Organic Chemistry** (30 lectures)

The chemistry of carbon and its compounds; hydrocarbons; chemistry of compounds containing oxygen, nitrogen and halogens as functional groups; reaction mechanisms; molecules containing two or more functional groups; separation and purification of compounds.

**Physical Chemistry** (30 lectures)

The mole concept; atomic and molecular structure; structure binding and energy; chemical equilibria and energetics; chemical kinetics.

The annual examination will consist of three papers, each of three hours duration, one being held in the mid-year period.

**Prescribed Books**

*S.I. Chemical Data*  
Aylward, Findlay

*Chemistry — Facts, Patterns and Principles*  
Kneen, Rogers & Simpson

*Organic Chemistry*  
Hart & Schuetz

*The Names and Structures of Organic Compounds*  
Benfey

* An alternative text for the organic section of the course.
GEOLOGY I

A subject of three lectures and 2½ laboratory hours per week for three terms, together with two days field work. The subject covers Material, Physical and Historical Geology. Brief outlines are as follows:

Material Geology
Introductory crystallography, mineralogy and petrology; classification of rocks; economic mineral deposits.

Physical Geology
Erosion cycle; agents of erosion; diastrophism; structural geology; geomorphology.

Historical Geology
Introductory palaeontology and stratigraphy; brief geological history of New South Wales.

The annual examination result will be assessed from two three hour papers, class assignments and practical examinations.

GEOLOGY II (Mineralogy)

This is an elective subject of approximately 18 lectures and 32 laboratory hours taken during first term with Geology II students.

Crystallography; chemistry and physics of minerals; genesis of minerals.

Prescribed Books
An Outline of Crystal Morphology  
Bishop

An Introduction to the Rock Forming Minerals  
Deer, Howie & Zussman

PHYSICS IA (continued)

The examination will be conducted in three two hour papers. Each paper will examine the work covered in one term and will be held shortly after the end of that term. There will also be a one hour written examination on the year's practical work.

PHYSICS II (optional for Applied Science students)

A subject of three lectures and three laboratory hours per week, examined by two three-hour papers. The following topics will be covered:

Mechanics, Thermal Physics, Quantum Physics, Electromagnetism, Electromagnetic Field Theory, Physical Optics.

A pass in Physics II by an Applied Science student will qualify as a prerequisite for Physics IIIA.
POSTGRADUATE DEGREES AND RESEARCH FACILITIES

The Department of Metallurgy has the facilities for undertaking research leading to the degrees of Master of Science (M.Sc.), Master of Engineering (M.E.), Doctor of Philosophy (Ph.D.), Doctor of Science or Doctor of Engineering.

Postgraduate scholarships are available to candidates who have obtained a good Honours degree to allow them to undertake research studies on a full-time basis. These scholarships pay fees and provide stipends with other supplementary allowances in certain cases. Full details are given in the University Calendar, while information concerning special scholarships is posted from time to time on the departmental notice boards.

RESEARCH FACILITIES

The following is a brief description of some of the facilities available in the Department:

1. Electron Microscopy: an AEI EMGG transmission electron microscope with high angle tilting stage, heating stage, and anti contamination cold finger is available for high resolution work to 5 Å. A Philips EM 75 is also available. A scanning electron microscope with resolution better than 100Å and fitted with wave dispersive and energy dispersive X-ray analysis attachments is also located in the Department. Spark machining and vacuum coating equipment is available for use with these microscopes.

2. Optical Microscopy: a Zeiss Ultraphot II as well as a Reichert ME F2 and other general microscopes.

3. X-ray diffraction: three X-ray sets are in use for general structure and crystal orientation work. One of these sets is equipped with a Rigaku-Denki horizontal diffractometer, print-out scaler and high temperature attachment. A Unicam S150 high temperature powder camera is also on hand.

4. Melting facilities: the Department has two high frequency units available for the preparation of special alloys—a 30kW Heraeus vacuum melting unit, capable of handling 15lb melts of steel, a 3kW unit for small, special alloy development. There is also a molybdenum furnace for very high temperature work and the usual range of other electrical furnaces.

5. Mechanical working equipment including a rolling mill, swage and wire drawing bench.

6. Mechanical properties: hardness and microhardness testers, two impact machines, and a variety of small tensile testing machines are available. The Department also has access to the other larger tensile machines in Civil Engineering, including a 20,000 lb f Instron and an M.T.S. Universal Testing System.

7. Internal Friction: an inverted pendulum is being constructed.

8. A magnetic balance is under construction for susceptibility measurements on metals and alloys.


10. The Department has presently on extended loan a 5000 amp. D.C. supply for fused salts research.

11. Computational equipment: programmable desk calculator, 8k mini computer and remote access terminal to ICL1904A in the University Computing Centre.

12. A multi purpose 450 amp welding unit with automatic programming facilities is being installed.

RESEARCH INTERESTS

The following is a brief resume of the research interests in the Department:

Yield point phenomena (E. O. Hall)
The effects of interstitial and substitutional elements on the yield points of metals. Systems under consideration include a range of low alloy steels, as well as mild steels of various grades and non-ferrous alloys.

Structure of intermetallic compounds (E. O. Hall, J. D. Browne)
A range of these compounds which possess ordering or other unusual magnetic properties is under examination. X-ray and neutron diffraction, and magnetic measurements are used to elucidate these structural transformations.

Thermostatics and thermodynamics of alloys (W. A. Oates)
Work in this area is particularly concerned with metal-gas systems, metal-interstitial alloys and the vapour pressure of alloys.

Fluid mechanics of pyrometallurgical processes (N. A. Molloy)
Research in production metallurgy is carried out in the basic fields of fluid mechanics, liquid metal flow, and cold modelling of high temperature reactors, for mathematical modelling of metallurgical reactors.

Electrochemical engineering (R. D. Holliday)
Specific areas of interest here include the chemistry of molten salts, electrochemical processes in molten halides, and structural materials and control processes in high temperature systems.

Internal friction (J. E. McLennan)
The kinetics of precipitation of carbon and nitrogen from solution during the aging of α-iron after radiation damage or strain aging is being studied. The interaction of carbon and nitrogen with substitutional alloying elements in α-iron is also being studied.
Mechanical Behaviour of Cast Materials (D. Jaffrey)

This field is concerned with the basic dependence of mechanical properties, especially toughness, on the as-cast structures and morphologies of materials. The influence of certain solidification variables during the formation of metal castings, ingots, and welds on their final strengths and microstructures is under investigation.

Further details on these research projects may be obtained from the staff members cited above.

Publications by members of staff are listed in the University Calendar.

OUTSIDE SUPPORT FOR RESEARCH ACTIVITIES

Support for research activities in the Department is from:

- The Australian Research Grants Committee
- The Australian Institute of Nuclear Science and Engineering
- Commonwealth Steel Co. Ltd.
- Conzinc-Rio Tinto (Australia) Pty. Ltd.

REQUIREMENTS FOR THE 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 Secretary at least one full calendar month before the commencement of the term in which the candidate desires to register.

2. A person may register for the degree of Master of Science if—
   (a) he is a graduate or graduand of the University of Newcastle or other approved University with Honours in the subject to be studied for that degree; or
   (b) he is a graduate or graduand of the University of Newcastle or other approved University; or
   (c) in exceptional cases he produces evidence of such academic and professional attainments as may be approved by the Senate on the recommendation of the Faculty Board.

3. In the case of applicants desiring to register under provision 2(b), and (c), the Faculty Board may require the candidates to carry out such work and sit for such examinations as the Board may determine before registration as a candidate for the degree of Master of Science is confirmed.

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

5. An applicant approved by the Faculty 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.

6. (i) Every candidate for the degree shall be required to submit a thesis embodying the results of an investigation or design, to take such examinations and to perform such other work as may be prescribed by the Faculty 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 or design and other work as provided in paragraph 6 (i) shall be conducted under the direction of a supervisor appointed by the Faculty Board or under such conditions as the Faculty Board may determine.

(iii) A part-time candidate shall, except in special circumstances—
   (a) conduct the major proportion of the research or design work in the University; and
   (b) take part in research seminars within the Department in which he is working.
(iv) Every candidate shall submit annually a report on his work to
his supervisor for transmission to the Higher Degree Committee.

(v) Every candidate shall submit three copies of the thesis as pro-
vided under paragraph 6 (i). All copies of the thesis shall be
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.

(vi) 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 (1968)
the University may issue the thesis in whole or in part in photostat
or microfilm or other copying medium.

7. 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 a qual-
ification deemed by the Faculty Board to be equivalent or who has
had previous research experience, this period may, with the approval
of the Faculty Board, be reduced by up to three terms.

8. For each candidate there shall be two examiners appointed by
Senate, one of whom shall be an external examiner.

9. A candidate who fails to satisfy the examiners may be permitted
to resubmit his thesis in an amended form. Such a resubmission
must take place within twelve months from the date on which
the candidate is advised of the result of the first examination. No
further resubmission shall be permitted.

*Separate sheet on the preparation and binding of higher degree
theses is available on application.
6. Subsequent to registration, the candidate shall pursue a course of advanced study and research for at least nine academic terms, save that any candidate who before registration was engaged upon research to the satisfaction of the Senate, may be exempted from three academic terms.

7. A candidate shall present himself for examination not later than fifteen academic terms from the date of his registration, unless special permission for an extension of time be granted by the Senate.

8. The course, other than field work, must be carried out in a Department of the University, under the direction of a supervisor appointed by the Senate, or under such conditions as the Senate may determine, save that a candidate may be granted special permission by the Senate to spend a period of not more than three academic terms in research at another institution approved by the Senate.

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

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

11. On completing his course of study every candidate shall 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 or in a language approved by the Senate and reach a satisfactory standard of literary presentation.

12. The thesis shall consist of the candidate’s own account of his research. In special cases work done jointly with other persons may be accepted provided the Senate 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.

15. The candidate shall give in writing three 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 and that the thesis is fit for examination.

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. It shall be understood that the University retains 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 (1968) the University may issue the thesis in whole or in part in photostat or microfilm or other copying medium.

19. 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.

20. The Senate shall appoint three examiners of whom at least two shall not be members of the teaching staff of the University.

21. The examiners may require the candidate to answer, viva voce or in writing, any questions concerning the subject of his thesis or work.

22. The result of the examination shall be in accordance with the decision of a majority of the examiners.

23. A candidate permitted to re-submit his thesis for examination shall do so within a period of twelve months from the date on which he is advised of the result of the first examination.
REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF SCIENCE

1. The degree of Doctor of Science may be awarded by the Council on the recommendation of the Senate, for an original contribution or contributions of distinguished merit adding to the knowledge or understanding of any branch of learning with which the Faculty is concerned.

2. An applicant for registration for the degree of Doctor of Science shall hold a degree of the University of Newcastle or a degree from another University recognised by the Senate as being equivalent or shall have been admitted to the status of such a degree.

3. The degree shall be awarded on published* work although additional unpublished work may also be considered.

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

5. An applicant for registration for the degree shall submit in writing to the Secretary a statement of his academic qualifications together with:
   (a) four copies of the work, published or unpublished, which he desires to submit; and
   (b) a Statutory Declaration indicating those sections of the work, if any, which have been previously submitted for a degree or diploma in any other University.

6. The Senate shall appoint three examiners of whom at least two shall not be members of the teaching staff of the University.

7. The examiners may require the candidate to answer, viva voce or in writing, any questions concerning his work.

8. The result of the examination shall be in accordance with the decision of a majority of the examiners.

   * In these requirements, the term "published work" shall mean printed in a periodical or as a pamphlet or as a book readily available to the public. The examiners are given discretion to disregard any of the work submitted if, in their opinion, the work has not been so available for criticism.

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REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF ENGINEERING

1. The degree of Doctor of Engineering may be awarded by the Council on the recommendation of the Senate, for an original contribution or contributions of distinguished merit to the science and/or practice of engineering.

2. A candidate for the degree of Doctor of Engineering shall hold a degree of the University of Newcastle or a degree from another University recognised by the Senate as being equivalent or shall have been admitted to the status of such a degree.

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

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

5. A candidate for the degree shall make an application in writing to the Secretary setting out a statement of his academic qualifications. With the application he shall submit:
   (a) Four copies of the work referred to in clause 4 of these Requirements.
   (b) Four copies of any additional work, published or unpublished, which he may desire to submit in support of his application.
   (c) A Statutory Declaration indicating those sections of the work, if any, which have been accepted previously in partial fulfilment of the requirements for a degree or diploma in any University.

6. The Senate shall appoint three examiners of whom at least two shall not be members of the teaching staff of the University.

7. The University may at the request of an examiner require the candidate to answer any questions concerning his work.

8. The result of the examination shall be in accordance with the decision of a majority of the examiners.

   * In these requirements, 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.