Consult the Calendar for:

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FOREWORD

By the Dean of the Faculty

May I introduce students to the Faculty of Applied Science and this Handbook by saying briefly what we are, what we offer to students and what students can obtain for themselves from the University.

Applied Science, like the older Professional branches of Engineering, is concerned with the application of scientific knowledge and method “for the benefit of mankind”—to paraphrase an old definition of Engineering.

This is a challenging task in which many of us find the most satisfying professions, involving us in both the clear precise world of the scientist and the lively complexity of industrial production. The disciplines offer a wide range of careers from scientific research and engineering design, to operational management, supervision of construction or technical sales. To achieve professional standing requires a great deal of work—the basic fundamentals of chemistry and physics must be mastered, mathematics must be practised until it becomes a useful tool and then the specific science of the particular applied field is studied (in Newcastle Chemical Engineering, Industrial Chemistry or Metallurgy). Finally we commence at the University the continuing task of learning the art of applying these facts and methods to the intricate, and often perforce empirical, practice of industrial construction and production. This art requires knowledge of men as well as of things. Your required industrial experience may well be of most value in getting to know the men you will later direct.

The University offers you the opportunity to pursue these disciplines. The bases are compulsory courses of lectures to delineate the fields of study and explain new concepts, and laboratory courses in which you may learn the techniques of investigation. Equally important are the library and your privilege of individual approach to any of the academic staff who will gladly make time to assist any student with real problems.

You may possibly secure a degree by mere attendance at lectures and at laboratory work and by strenuous study. To achieve a professional outlook you will need a much wider view. The University offers you not only the formal opportunities listed in this Handbook, but also a range of activities in all aspects of living—specialist lectures, sport, music, social life, politics and the fundamental study of religious faith. Whether you use the opportunities offered is entirely up to you.

Further opportunities open to the field of advanced study. Certainly there is a demand for good general practitioners; graduates with a Bachelor’s Degree have sufficient basic training to go on in the practice of their profession. The heights to which they rise will depend on personality, ability and application. There is, however, also a pressing need for people with particular intellectual abilities to go on and train to their limit for work in research establishments or Universities. The normal method of
training for such work is by a number of years of post-graduate study and research, culminating in a Ph.D. For financial support during such study there are scholarships and demonstrator positions available both here and overseas. May I advise any student who secures good results early in his course to “look wide” and start enquiring and planning for post-graduate training.

The full formal course requirements for the departments of the Faculty—Chemical Engineering, Industrial Chemistry and Metallurgy—are listed in this Handbook. It will be noted that the first year subjects and some of the second year subjects are taken in the Faculties of Science and Engineering and further details are available in the appropriate Faculty Handbooks. Any student with any questions regarding subjects to be taken should, in the first place, consult the Student Advisers in this Faculty, whose names are shown on the staff list. Students with any difficulties of any sort should not hesitate to approach the Student Counsellors or the Chaplains (at Shortland).
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SUBJECTS IN THE FACULTY OF ARTS

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Industrial Chemistry
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TERM 1 .......... February 26 to May 11
TERM 2 .......... June 3 to August 10
TERM 3 .......... September 2 to November 23

JANUARY
1 Monday ....... Public Holiday — New Year’s Day
22 Monday ....... Deferred Examinations commence
29 Monday ....... Public Holiday — Australia Day

FEBRUARY
2 Friday ....... Last day for lodgement of Enrolment Applications
3 Saturday ....... Last day of Deferred Examinations
21 Wednesday .... Orientation commences
26 Monday ....... FIRST TERM commences

MARCH
8 Friday ....... Last day for payment of First Term Tuition Fees

APRIL
12 Friday ....... Public Holiday — Good Friday
15 Monday ....... Public Holiday — Easter Monday
16 Tuesday ....... Easter Tuesday — No lectures
25 Thursday ....... Public Holiday — Anzac Day

MAY
11 Saturday ....... FIRST TERM ends

JUNE
3 Monday ....... SECOND TERM begins
10 Monday ....... Public Holiday — Queen’s Birthday
14 Friday ....... Last day for payment of Second Term Tuition Fees
Last day for acceptance of applications for examinations

AUGUST
10 Saturday ....... SECOND TERM ends

SEPTEMBER
2 Monday ....... THIRD TERM begins
13 Friday ....... Last day for payment of Third Term Tuition Fees
21 Saturday ....... Annual Examinations begin — 24 week courses

OCTOBER
5 Saturday ....... Annual Examinations end — 24 week courses
7 Monday ....... Public Holiday — Six Hour Day

NOVEMBER
1 Friday ....... Third Term Lectures end
2 Saturday ....... Annual Examinations begin
23 Saturday ....... Annual Examinations end
THIRD TERM ends

1969

JANUARY
1 Wednesday ....... Public Holiday — New Year’s Day
20 Monday ....... Deferred Examinations begin
27 Monday ....... Public Holiday — Australia Day

FEBRUARY
1 Saturday ....... Deferred Examinations end
7 Friday ....... Proposed closing date for lodgement of all enrolment applications
FACULTY OF APPLIED SCIENCE

Dean
Professor E. O. Hall.

Sub-Dean
Mr. C. G. H. Cooke.

CHEMICAL ENGINEERING AND
INDUSTRIAL CHEMISTRY

Professor
I. McC. Stewart, M.E.(Qld.), S.M.(M.I.T.), F.Inst.F.,
M.I.Ch.E., M.I.E.(Aust.)
PROFESSOR OF CHEMICAL ENGINEERING
(HEAD OF DEPARTMENT)

Senior Lecturers
W. G. Kirchner, M.Sc., Ph.D.(N.S.W.), A.S.T.C.,
L. A. Summers, B.Sc., Ph.D.(Glas.), A.R.A.C.I.

Lecturers
J. Roberts, B.Sc.(N.S.W.), M.E., A.S.T.C., A.R.A.C.I.
K. L. Smith, B.E.(Syd.), M.Sc.(N.S.W.)

STUDENT ADVISER
Dr. W. G. Kirchner (Chemical Engineering)

METALLURGY

Professor
E. O. Hall, M.Sc.(N.Z.), Ph.D.(Cantab.), F.Inst.P.,
M.Aus.I.M.M., F.I.M.(Lond.), F.A.I.P.,
PROFESSOR OF METALLURGY
(HEAD OF DEPARTMENT)

Senior Lecturers
C. G. H. Cooke, M.Sc.(N.S.W.), A.S.T.C., A.I.M.(Lond.),
M.Aus.I.M.M.
R. D. Holliday, B.A., Ph.D.(Cantab.), A.C.S., A.I.M.E.
J. E. McLennan, M.Sc.(N.S.W.), A.S.T.C., A.I.M.(Lond.)
Lecturers
G. B. Johnston, M.Sc. (N.S.W.), Ph.D., A.S.T.C., A.I.M. (Lond.)
N. A. Molloy, B.E. (Qld.), A.Aus.I.M.M., A.I.M. (Lond.)

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

STUDENT ADVISER
Mr. C. G. H. Cooke (Metallurgy)

ADMINISTRATIVE STAFF

Vice-Chancellor and Principal

Vice-Principal
Professor B. Newton-John, M.A. (Cantab.)

Bursar
L. W. Harris, A.A.S.A., A.C.A.A., A.B.I.A.

Deputy Bursar
M. G. Talty, B.Com. (N.S.W.), A.A.S.A.

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

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

Graduate Assistants
Joan Bale, B.A. (N.S.W.)
Nell Emanuel, B.A. (N.S.W.)
H. Floyer, B.Ec. (Syd.)
Glennie Jones, B.A. (N.S.W.)

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

Senior Student Counsellor
P. M. Whyte, B.A. (Melb.), M.A.Ps.S.

Student Counsellor
A. P. Loftus, B.A. (Melb.), M.A.Ps.S.

Secretary/Manager of the University Union
I. H. S. Irwin
THE UNIVERSITY OF NEWCASTLE

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 2000 in 1966.

The Newcastle University College was established on the site of the Newcastle Technical College at Tighe's Hill and some faculties still operate there. 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 and work is underway to have the University fully established at Shortland by the beginning of the 1970 academic year. In 1966 courses in the Faculties of Arts, Economics and Commerce and Science, excepting second and later year Chemistry subjects, will be offered at Shortland while second and later year subjects in Chemistry and courses in the Faculties of Applied Science, Architecture and Engineering will be given at Tighe's Hill. The new library building at Shortland will be in use and a branch will continue to operate at Tighe's Hill.

The University is governed by a Council of twenty-three members of whom one, the Chancellor, acts as chairman. The Council comprises representatives of the University staff, Convocation, the under-graduates, 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 principal academic body in the University is the Senate comprising the Vice-Chancellor, Professors, a representative of each of the Faculty Boards and certain other ex officio members. Teaching and research in each Faculty are supervised by a Faculty Board consisting principally of the permanent academic staff of the Departments in the Faculty.

The University is financed by grants from the New South Wales and Commonwealth Governments and fees paid by students. The State and Commonwealth Governments contribute equally to the cost of buildings and major items of equipment while with respect to recurrent expenditure, the Commonwealth contributes $1 for every $1.85 received by way of State grants and student fees.
MATRICULATION

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. Except as provided in By-law 5.3.3, a candidate, before being admitted to matriculation shall have passed in the New South Wales Higher School Certificate Examination or the University of Sydney Matriculation Examination in at least five subjects:
   Provided that:—
   (a) the subjects shall be chosen from:
       English, French, German, Greek, Latin, Ancient History, Economics, Geography, Modern History, Bahasa Indonesia, Chinese, Dutch, Hebrew, Japanese, Italian, Russian, Spanish, Mathematics, Agriculture, Science, Art, Music (also Industrial Arts for examinations conducted in the years 1967 and 1968 only);
   (b) the subjects shall include:—
       (i) English
       (ii) two subjects passed at first level; or three passed at second or first level;
   (c) Mathematics and Science both passed as full courses together shall, for the purpose of matriculation, be counted as three subjects, but otherwise each shall count as one subject;
   (d) 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 5.3 — Admission to Courses

1. (a) 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.

   (b) 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 the 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.

Pre-requisites

A candidate for admission to any particular faculty, course or subject shall satisfy the pre-requisites, if any, pertaining to that faculty, course or subject as set out in the following Schedule. These need not necessarily be met at the same examination as the requirements for matriculation.

Schedule

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Pre-Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics and Commerce</td>
<td>At least a pass in Mathematics</td>
</tr>
<tr>
<td></td>
<td>short course at second level.</td>
</tr>
</tbody>
</table>

1. Although pre-requisites are not prescribed, lectures in the following faculties, courses or subjects will be given on the assumption that students will have studied the subjects listed below to the level indicated:—

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Science</td>
<td>Second level Short Course Mathematics and Science including Physics and Chemistry options.</td>
</tr>
<tr>
<td>Architecture</td>
<td>Second level Short Course Mathematics and Science.</td>
</tr>
<tr>
<td>Arts</td>
<td>English I — Second level English. French I — Second level French.</td>
</tr>
<tr>
<td>Engineering</td>
<td>Second level Short Course Mathematics and Science including Physics and Chemistry options.</td>
</tr>
<tr>
<td>Science</td>
<td>Second level Short Course Mathematics and Science.</td>
</tr>
</tbody>
</table>

2. This pre-requisite may be waived for a candidate who has gained a meritorious pass.

* Subject to approval by the Governor.
PROCEDURES

HOW TO ENROL

All documents relating to enrolment are obtainable from the Student Records Office, Room No. 158, Building “A,” Shortland site.

1. (i) PERSONS ENROLLING IN AN UNDERGRADUATE COURSE AT THE UNIVERSITY OF NEWCASTLE FOR THE FIRST TIME

Faculty of Arts
Faculty of Economics and Commerce

Intending students in these Faculties are required to attend in person at Room No. 127, Building “A,” Shortland Site, between the hours of 1.00 p.m. to 7.00 p.m. during the period, Tuesday the 30th January, 1968 to Friday the 2nd February, 1968.

Before proceeding to this room the student should obtain an enrolment form from the Student Records Office and complete it with the exception of “Subjects to be Studied in 1968.” This section of the Enrolment Form will be completed by the student after consultation with the Academic Adviser, who will interview the student in Room A.127.

The completed Enrolment Form will be retained by the Academic Adviser.

Faculty of Applied Science
Faculty of Architecture
Faculty of Engineering
Faculty of Science

Intending students in these Faculties should lodge a completed Enrolment Form with the Student Records Office on or before Friday, 2nd February, 1968.

(ii) PERSONS RE-ENROLLING IN UNDERGRADUATE COURSES

Undergraduates re-enrolling will be required to complete an Enrolment Form and lodge it with the Student Records Office before the 2nd February, 1968.

IMPORTANT — OWING TO THE EXPECTED INCREASE IN ENROLMENTS IN 1968, NEW STUDENTS ENROLLING OR OLD STUDENTS RE-ENROLLING LATE, IF ACCEPTED, MAY BE ALLOCATED TO THE LESS CONVENIENT LABORATORY, SEMINAR OR TUTORIAL TIMES.

(iii) CANDIDATES FOR POST-GRADUATE DIPLOMA COURSES

These people should complete the Post-Graduate Diploma Application Form and lodge it with the Student Records Office before the 2nd February, 1968.

(iv) CANDIDATES FOR THE DEGREE OF MASTER, OR DOCTOR OF PHILOSOPHY

Candidates re-enrolling

These persons will be required to complete the Higher Degree Enrolment Form and lodge it with the Student Records Office before the 2nd February, 1968.

Candidates Registering for the first time

These persons should complete an “Application for Registration as a Candidate for a Higher Degree” and lodge it with the Student Records Office.

(v) CANDIDATES FOR QUALIFYING COURSES FOR HIGHER DEGREES

Graduates intending to pursue qualifying studies for admission as a candidate for the degree of Master or Doctor of Philosophy should complete the special form for this purpose and lodge it with the Student Records Office, preferably before 2nd February, 1968.

2. COMPLETION OF ENROLMENT

(i) All Undergraduates

The approved Enrolment Form will be available for collection on or after Wednesday, 21st February, 1968.

Each student will be required to call at Room No. 150, Building “A,” Shortland Site, to collect his/her approved Enrolment Form.

This form, together with the prescribed fees and/or scholarship voucher must be lodged with the Cashier. (For times and dates see Section on fees).

(ii) All Post-Graduate Candidates

The approved Enrolment Form will be posted to the address nominated by the candidate on his Enrolment Form.

3. STUDENTS NEEDING ACADEMIC ADVICE BEFORE ENROLLING IN THE

Faculty of Applied Science
Faculty of Architecture
Faculty of Engineering
Faculty of Science

The student who is uncertain which subjects he should read, after referring to the information available in the appropriate Faculty Handbook, should consult the Dean of the Faculty during the period 30th January — 2nd February, 1968. An appointment may be made by phoning the Dean’s secretary.

Where a student in one of these Faculties is required for interview concerning any alteration or amendment to his enrolment, he will be advised by post of the time set down for such interview.

4. NON-ACCEPTANCE

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

5. LATE ENROLMENTS

(i) Students who are unable to lodge their 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 2nd February, 1968, otherwise the University reserves the right not to accept the student’s application.

(ii) No enrolments will be accepted after 31st 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 will be required to lodge an Enrolment Form with the Student Records Office after the publication of the examination results and not later than Wednesday, 21st February, 1968.

(iv) “Show Cause” Students
A letter will be sent to all students who “Show Cause”. Those students whose re-enrolment is approved will also be sent an enrolment form. This form will be required to be completed and returned to the Student Records Office on or before Friday, 2nd February, 1968. Similarly, a student permitted to re-enrol after failure at the deferred examinations will be required to lodge a completed enrolment form on or before Wednesday, 21st February, 1968.

(v) Sydney University Matriculation Examination
Students relying on this examination for matriculation will be required to lodge an Enrolment Form with the Student Records Office within seven (7) calendar days of the publication of results.

6. INTERSTATE AND OVERSEAS STUDENTS
Students relying for matriculation on examinations taken outside New South Wales will be required to produce evidence of matriculation to their local university or some other recognised university, for example, The University of London. These students should lodge with this University, before say Friday, 19th January, 1968, an Application for Admission supported by a statement as above and documentary evidence of their educational qualifications.

7. ENROLMENT IN CORRECT SUBJECTS
Considerable inconvenience is caused to the University and to the student if he reads a subject in which he has not enrolled. It is essential for the student to determine before submitting his Enrolment Form, the subjects he will read for the year. Particular attention should be made to the inclusion of Honours courses where these are taken.

8. WITHDRAWAL FROM COURSE REGARDED AS FAILURE
Approval to withdraw from a course 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 pass the annual examinations — i.e. not sitting for the examination is regarded as not passing the examination (unless withdrawal has been approved).

A student is required to notify the Secretary of the University in writing of his withdrawal within seven (7) days of the date of withdrawal. With the exception of students in the Faculty of Arts and the Faculty of Economics & Commerce, no student will be allowed to withdraw without penalty after the sixth Monday of second term unless, in the opinion of the Dean of the Faculty, there is good reason why he should be permitted to do so.

In the Faculty of Arts and the Faculty of Economics & Commerce, a student who withdraws after the second Friday in second term from a subject in which he has enrolled, shall be deemed to have failed in that subject. However, such a student may apply to the Dean, who, after consultation with the Head of Department concerned, may allow him to withdraw without penalty.

9. AMENDMENTS
The following matters are regarded as amendments to course programmes and are required to be documented.
(i) To change from one course to another.
(ii) To substitute one subject for another.
(iii) A change in the method of completion of course, e.g. full-time to part-time.
(iv) Approval to withdraw from a subject or course.
(v) Any other course change.

10. HOW TO DOCUMENT WITHDRAWALS AND AMENDMENTS
All withdrawals and amendments should be recorded on the appropriate Application Form (UF.1b.).

It is essential that these variations be completed before the 31st March, 1968. 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 Application Form.

Application Forms (UF.1b.) forms are available from the Student Records Office.

11. CHANGE OF ADDRESS
Students are responsible for notifying the Student Records Office in writing of any change in their address as soon as possible. Failure to do this could lead to important correspondence or course information not reaching the student. The University cannot accept responsibility if official communications fail to reach a student who has not notified Student Records Office of a change of address.

12. IDENTITY TOKENS
Each student wishing to obtain a travel concession, to borrow a book from the Library and to confirm his membership of the University of Newcastle Union is required to produce on demand the identity token which will be given to him upon completion of enrolment formalities.

After payment of fees, the student should present his fee receipt to the Student Records Office and he will be given an identity token for 1968.

Students re-enrolling are permitted to use their 1967 identity tokens up to Friday, 8th March, 1968.

Loss of Identity Token
If a student should lose his identity token, he should pay to the University Cashier, the sum of 50c. and present the receipt to the Student Records Office for the purpose of obtaining a replacement token. A delay of approximately ten days is involved in this procedure.
Non-Degree Students and Identity Token

Each non-degree student, who does not elect to pay the General Services Fee, will be issued with an embossed plain white token. This token is to be produced each time a travel concession is requested. It must also be shown on request to prove status as a student of the University.

13. 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 Records Section, Building “A,” Shortland Site.

The Student’s Identity Token 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 between 18 and 30 years of age 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 to holders of Commonwealth Scholarships or Scholarships granted by the State Bursary Endowment Board.

TRAIN —

(a) Periodical tickets are available during term time to full-time students not in employment 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 class 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.
ADJUSTMENT OF FEES

Should an application to withdraw from a course or subject be approved, an adjustment of course fees may be made, relative to the date on which the application was submitted. Up to that date, fees accrue.

Where notification of withdrawal from a course is received by the Dean of the Faculty before the first day of First Term, a refund will be made of all Course Fees.

Where a student, for acceptable reasons notifies the termination of a course before the end of the fifth week of term, one half of the course fees for the term may be refunded. If the student notifies termination of a course after the end of the fifth week, no refund will be made.

IN RESPECT OF APPLICATIONS TO WITHDRAW FROM COURSE OR SUBJECT WHICH ARE RECEIVED IN THE EARLY PART OF FIRST TERM, THE UNIVERSITY RESERVES THE RIGHT NOT TO MAKE ANY REFUND OF MONEYS UNTIL AFTER THE END OF THE SIXTH WEEK OF TERM. The University Administration does not refund any portion of the General Services Fee.

However, students withdrawing from courses may enquire of the Union, Sports Union and Students' Association regarding refund possibilities.

DATES FOR PAYMENT OF FEES IN 1968

First Term
Fees due: Monday, 26th February to Friday, 8th March.
Late fee of $6 applicable: Monday, 11th March to Friday, 29th March.
Late fee of $10 applicable, if permission given by the Secretary for the enrolment to be accepted after 31st March.

Second Term
Fees due: Monday, 3rd June to Friday, 14th June.
Late fee of $6 applicable: Monday, 17th June to Friday, 28th June.
Late fee of $10 applicable, if permission given by the Secretary for the enrolment to be accepted after 1st July.

Third Term
Fees due: Monday, 2nd September to Friday, 13th September.
Late fee of $6 applicable: Monday, 16th September to Friday, 20th September.
Late fee of $10 applicable, if permission given by the Secretary for the enrolment to be accepted after 23rd September.

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

The student is not eligible to attend the annual examinations in any subject where any portion of his course fees for the year is outstanding by the end of the third week of Third Term.

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

GENERAL SERVICES FEE

(a) Students Proceeding to a Degree or Diploma
All registered students must pay a compulsory fee of $42 per annum which includes a Library Fee. In addition, students joining the University of Newcastle Union for the first time will be required to pay an entrance fee of $12.

These fees must be paid by the prescribed time in first term.

(b) Non-Degree Students
Payment of the General Services Fee by these students is optional. A student cannot elect to pay portion of this fee.

UNDERGRADUATE COURSE FEES

The fees quoted below are current at the time of publication and may be varied by the Council without notice.

Full-time registered students in the Faculties of Arts, Economics & Commerce .... $276 per annum
Full-time registered students in all other Faculties ..... $330 per annum
Part-time registered students in all Faculties ..... $165 per annum

Notes
(a) 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 except on the written approval of the Dean of his Faculty that he be re-classified as a part-time student — this re-classification would be exceptional.

(b) A part-time student is either one who enrols in half or less than half 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 SUBJECT FEES

"Non-degree" students, are those permitted to read one or more subjects in a first degree course. 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. The student, whether enrolling for the first time or re-enrolling is required to pay a course fee of $90 per annum for each subject which may be paid by the term.

POST GRADUATE DIPLOMA COURSE FEES

Full-time ..... ..... ..... ..... ..... $276 per annum
Part-time ..... ..... ..... ..... ..... $165 per annum
### MASTER'S DEGREE

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Fee ($)</th>
</tr>
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<tbody>
<tr>
<td>Course and Supervision Fee (Full-time)</td>
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<tr>
<td>Course and Supervision Fee (Part-time)</td>
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<tr>
<td>Registration Fee</td>
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<tr>
<td>Final Examination and Graduation Fee</td>
<td>$30</td>
</tr>
</tbody>
</table>

### DOCTOR OF PHILOSOPHY

<table>
<thead>
<tr>
<th>Fee Description</th>
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</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Course and Supervision Fee</td>
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</tr>
<tr>
<td>Registration Fee</td>
<td>$4</td>
</tr>
<tr>
<td>Final Examination and Graduation Fee</td>
<td>$42</td>
</tr>
</tbody>
</table>

A fee of $12 is payable where an examination is prescribed for assessment of Students prior to registration as a higher degree candidate.

### GENERAL REQUIREMENTS

The University tries to function with a minimum of formal regulations; it has, for instance, drawn up no code of conduct for students, beyond forbidding gambling in the precincts and smoking in lectures, examinations and the Library.

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.

### 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 for which he is reading.

### 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 (B.01) for the specific purpose of displaying examination timetables and notices concerning all matters pertaining to examinations. Students are specifically requested to be acquainted with the notices periodically displayed thereon.

STUDENT MATTERS GENERALLY — A notice board in the Student Records area is the display point for notices concerning enrolment matters, scholarships, University rules and travel concessions, etc.

### 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. In the event of the candidate withdrawing during the term, no refund of fees will be made.

### OTHER FEES

1. Where an application to sit for examinations is accepted after the closing date                             | $4
2. Deferred examinations, per subject                                                                 | $4
3. Examination under special supervision, per paper                                                      | $8
4. Review of Examination result, per subject                                                             | $6
5. Laboratory kit (Chemistry), per kit                                                                  | $8
6. Statement of Matriculation Status                                                                     | $6

### 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.
STUDENT IDENTIFICATION

Students are expected to carry their receipt for First Term enrolment as evidence that they are entitled to the rights and privileges afforded by the University.

Students desiring certification of documents for obtaining travel and other concessions should present such documents to the Student Records Section.

CHANGE OF ADDRESS

Students are responsible for notifying Student Records Office in writing of any change in their address as soon as possible. Failure to do this could lead to important correspondence or course information not reaching the student. The University cannot accept responsibility if official communications fail to reach a student who has not notified Student Records office of a change of address.

GENERAL CONDUCT

Acceptance as a member of the University implies an undertaking on the part of the student 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 administrative officers, and other persons authorised for the purpose have authority, and it is their duty, to check and report on disorderly or improper conduct occurring in the University.

PARKING OF CARS

On the Tighe's Hill Site the authorities of the Newcastle Technical College are responsible for traffic control and parking, and their regulations, traffic signs, etc., must be obeyed.

At Shortland, all vehicles must be parked in a car park.

THE LIBRARY

The Library, totalling approximately 120,000 volumes and made up of monographs, pamphlets, serials and microform sets, exists to acquire, preserve and make available for use all research materials needed by the staff and students of the University. By 1970, all departments now at Tighe's Hill will have been transferred to Shortland and all library service for the University will be given from the Shortland library. Library service for the faculties of Architecture, Engineering, Applied Science and the senior years of Chemistry will, until these departments are transferred, be given through the Joint Technical College-University library at Tighe's Hill.

In both libraries, 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 registering, as a reader, 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 procedure for borrowing.

The Shortland Library, fittingly, occupies a central position on the site, next to the Union. Hours of opening are:

- Monday — Friday: 8.30 a.m. to 10.00 p.m. (long vacation excepted)
- Saturday: 9.30 a.m. to 12.30 p.m. (all vacations excepted)
- Long vacation: Monday, Wednesday, Friday — 9.00 a.m. to 5.00 p.m.
- Tuesday and Thursday — 9.00 a.m. to 7.00 p.m.

The Library will be closed on public holidays.

The Tighe's Hill library is located on the first floor of the Clegg Building. Hours of opening are:

- Monday — Friday: 9.00 a.m. to 9.30 p.m. (all vacations excepted)

The Library is closed on public holidays.
UNIVERSITY SERVICES

STUDENT COUNSELLING UNIT

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.

Student Counselling is by 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.

Students who have problems about their choice of course, or uncertainty about career plans; students who are worried about inadequate study methods or personal difficulties are invited to arrange an appointment with a Student Counsellor.

The S.C.U. is divided into three major divisions, although there is inevitably overlap between the sections. These are Personal Counselling, Study Skills Training and Research. Apart from individual counselling, courses in an increasing number of areas are run for groups of students.

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.

In 1968, an Appointments Service will be established within the S.C.U., and students are invited to register. Students in their final year may expect to receive all available advance information about career opportunities, and all students may register for part-time, casual or vacation employment. Students in the first group will be interviewed and may seek Vocational Guidance if they so desire.

“Study at the University Level” — The S.C.U. produced a brief but comprehensive book on this subject in 1967, and this can be obtained at the Bookshop for 40 cents. Although it was produced specifically for the students of Newcastle University, and reflects the attitudes of several Heads of Departments here, it is already widely used in other Universities and tertiary institutions throughout Australia.

S.C.U. Staff —

Senior Student Counsellor: P. M. Whyte, B.A.(Melb.), M.A.Ps.S.
Student Counsellor: A. P. Loftus, B.A.(Melb.), M.A.Ps.S.
Student Counsellor: Appointment of a Female Counsellor is pending.

Graduate Research Assistant: A. V. Turnbull, B.A.(Newcastle).
Secretary: Mrs. J. Hoesli.

Location —

The Secretary, study rooms and at least one Counsellor are located in the Administration Building at Shortland. The Unit also has a room in the Union Building Basement, and in the Main Building (1st Floor, Room 108) at Tighe’s Hill.

It is generally most satisfactory for students to make appointments through the Secretary. As a Counsellor is on duty four nights each week, part-time students are in no way excluded from the available service.

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 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., Th.Schol.,
83 Queen’s Road,
NEW LAMBTON. Tel. 57 1875.

Baptist —
The Reverend H. K. Watson,
133 Kemp Street,
HAMILTON. Tel. 61 4048.

Methodist —
The Reverend K. G. Bond, B.D., L.Th.,
40 Tighe Street,
WARATAH. Tel. 68 2358.

Presbyterian —
The Reverend H. Barratt, B.A.,
St. Phillip’s Manse,
NEWCASTLE. Tel. 2 2379.

Roman Catholic —
The Reverend Father T. Warren, B.A.,
Redemptorist Monastery,
MAYFIELD. Tel. 68 2347.
STUDENT LOAN FUND

The Council of the University has recently established a Student Loan Fund which is managed by a committee under the chairmanship of the Vice-Principal.

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 $200 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 ORGANISATIONS

THE UNIVERSITY OF NEWCASTLE STUDENTS' ASSOCIATION

Included in the General Services Fee of the University is an amount payable to the Students' Association, a body to which all students of the University belong. The Students' Association is governed by the Students' Representative Council (SRC), which is elected each year in September to take office in the following April. The functions of the Students' Association are many and varied.

The SRC acts as the main liaison body between the student body and the University authorities. Complaints and requests from students may be handled by the Education and Welfare Committee, or by the SRC as a whole when brought to its attention by one of the Faculty or General Representatives. The Education and Welfare Committee is the part of the SRC most students come in contact with. Apart from representations to the University and other authorities, its welfare work includes such matters as accommodation, coaching and employment. The education side attempts to study the local and national needs of education and to bring these to the attention of the public and the government.

One of the major ways in which the income of the SRC is spent is in grants to affiliated clubs and societies (which include cultural, social, political and religious societies). To this end the Vice-President is the Clubs' and Societies Liaison Officer, and, with his assistant and the Clubs' and Societies' Committee, gives such help to these societies as they may seek from time to time.

The SRC is also responsible for publishing the student newspaper "Opus," the literary magazine "Nimrod" and the Orientation Handbook, which may be seen around the campus at the time of their publication. A weekly "Bulletin" is published to publicise activities of the SRC, the Union and affiliated clubs and societies.

Each year the SRC organises, with assistance from the University and the Union, Orientation Week and other activities designed to help new students adjust to university life. Early in July Autonomy Day is also organised by the SRC — of this nothing more be said than that it is the equivalent of Commem, Foundation Day, or similar activities at other universities.

As the Students' Association is a constituent member of the National Union of Australian University 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 inter-varsity cultural festivals, travel to New Zealand and many countries in Asia, volunteer aid projects in Papua/New Guinea, raising money for aboriginal scholarships and World University Service, national campaigns on education, and the national student newspaper "U."

President: Giles Martin
Secretary: Bryan Cowling
THE UNIVERSITY OF NEWCASTLE 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 co-operation of University men and women in furthering the interests of the University.

The Union maintains a fine building at Shortland which provides common room facilities for its members; a cafeteria; a coffee room; a meeting room; a reading room; a stationery shop catering for all members' academic needs and the University Co-operative Bookshop. The offices of the Students' Representative Council and the Students' Counsellor are contained in the basement of the building. A common room is provided in the Main University building at Tighe's Hill and members are eligible to use the catering facilities of the Technical College Union.

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 composed of two members appointed by the University Council, two members elected by the graduates, six members elected by the Union members, two members appointed by the Students' Representative Council, two members elected by the Senior Common Room, and the Secretary/Manager. Elections for the Board of Management are held in April.

President: Mr. B. C. Humphries
Secretary/Manager: Mr. I. H. S. Irwin

THE UNIVERSITY OF NEWCASTLE SPORTS UNION

The Sports Union is a student organisation responsible for promotion and control of sporting activities within the University. As a student you are automatically a member of the Sports Union. There are nineteen affiliated clubs: Athletics, Badminton, Men's Basketball, Women's Basketball, Boat, Cricket, Fencing, Golf, Men's Hockey, Women's Hockey, Women's Rowing, Rugby, Sailing, Ski-ing, Soccer, Squash, Surfriding, Swimming, Tennis, Weightlifting, most of which participate in local competitions and send teams to Inter-Varsity contests each year. Each club has a student representative on the Sports Union Committee, which meets monthly. The Executive Committee 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 portion of the General Services Fee and is used to meet the cost of equipment, affiliation fees, Inter-Varsity trips, etc.

For outstanding individual performance in sport, the University awards "Blues" each year at the Annual "Blues" Dinner.

The number of constituent clubs is increasing continually, and if you are interested in participating in any sport, you are urged to contact the Amenities Officer, Mr. Bradford, or one of the Sports Union Executive for further information. The Amenities/Sports Union office is located with the Post Office in the temporary building adjacent to the University Union.
THE UNIVERSITY OF NEWCASTLE COMPANY

The University of Newcastle Company is the Citizen Military Force's Unit affiliated with your University. The Company was formed in 1957 as a Sub-Unit of the University of Technology Regiment which is now called The University of N.S.W. Regiment. The current strength of the Company is 100 and is rising.

The function of the Company is to train graduates and undergraduates for commissioned rank in the C.M.F. and the training is designed with this in view.

The training is done on an Infantry basis and consists of:
(a) An Annual Camp for three weeks in February.
(b) An optional camp of ten days in May.
(c) An optional camp of two weeks in December.
(d) Five weekend bivouacs a year.
(e) Parades on Friday nights of two and a half hours duration.

The training programme is designed to fit in with vacations, examinations, and deferred examinations and there is practically no commitment in the 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. As a member of the University of Newcastle Company you are eligible for the following benefits:

An opportunity to reach commissioned rank in 2-3 years.
Tax-free pay for all training undertaken.
Travelling expenses refunded.
An alternative to 2 years full-time National Service.
Opportunities for attendance at Regular Army courses and short time attachments to Army units in Malaysia, New Guinea or Vietnam.
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. 61 2121.

OFFICERS AND STAFF

Officer Commanding — Maj. J. G. Raymond
Full-time Staff — S/Sgt. K. B. Carmichael

EXAMINATIONS

Examinations and other exercises may be held in any subject and at any time at the discretion of the lecturer or other competent authority. 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 may be incorporated with those of the annual examinations.

ANNUAL EXAMINATIONS

A student desiring to sit for an annual examination must lodge an application with the Secretary on the appropriate form by the prescribed date, 14th June, 1968.

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 the examination. 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 fee of $4.00. 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 September-October for students in 24-week courses and in November-December for students in 30-week courses. Timetables showing the time and place at which individual examinations will be held will be posted on the Examinations notice board near the 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 Branch be advised of any change in address from that given on the Application for Admission to Examinations.

EXAMINATION RESULTS

The official examination results will be posted on the notice board at the top of the central staircase in the main building. A copy of these results will be published in the newspaper. No results will be given by telephone.

Examination results may be reviewed for a fee of $6.00 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 fee 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 years 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.

Deferred examinations may be granted in the Faculties of Applied Science, Architecture and Engineering to resolve a doubt. 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

To assist those students who may be unsuited to University study or whose circumstances jeopardise success at study and to deal with those students whose lack of success has a detrimental effect on the work of the course, 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 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 the sub-section (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;
   (b) that the student shall be permitted to continue his course, subject to such conditions as the Admissions Committee may determine;
   or
   (c) that the case be referred to the Vice-Chancellor with the recommendation that the student be excluded from the University.

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.

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 initiate action should he wish to re-enrol. He must interview the Dean of his Faculty in accordance with the time-table announced towards the end of the academic year.
CLASSIFICATION OF STUDENTS IN COURSES

CLASSIFICATIONS

1. (i) Full-time students are classified by year (Roman numerals).
   (ii) Part-time students are classified by stage.

2. In the Faculties of Arts and Science, classification depends on the number of subjects passed.

3. (i) In all other Faculties, classification is determined by enrolment in a classifying subject, i.e., by a major subject in a course.
   (ii) If a student enrols in more than one classifying subject, then the year or stage of the lower classifying subject applies.
   (iii) If the student enrols in no classifying subject, then he is classified in the year or stage of the highest classifying subject he has passed.

CLASSIFYING SUBJECTS FOR APPLIED SCIENCE

<table>
<thead>
<tr>
<th>Course</th>
<th>Full-Time</th>
<th>Year</th>
<th>Part-Time</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.E. B.Sc. Tech.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>Chemistry I</td>
<td>I</td>
<td>Chemistry I</td>
<td>1</td>
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<tr>
<td></td>
<td>Chem. Eng. IA</td>
<td>II</td>
<td>Physics I</td>
<td>2</td>
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<tr>
<td></td>
<td>Chem. Eng. IIIB</td>
<td>III</td>
<td>Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Chem. Eng. IIIB</td>
<td>IV</td>
<td>Chem. Eng. IA</td>
<td>4</td>
</tr>
<tr>
<td>B.Sc. B.Sc. Tech.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Chemistry</td>
<td>Chemistry I</td>
<td>I</td>
<td>Chemistry I</td>
<td>1</td>
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<tr>
<td></td>
<td>Chem. Eng. I</td>
<td>II</td>
<td>Physics I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Indus. Chem. I</td>
<td>III</td>
<td>Chemistry II</td>
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<tr>
<td></td>
<td>Indus. Chem. II</td>
<td>IV</td>
<td>Chem. Eng. I</td>
<td>4</td>
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<td>Chemistry IIIB</td>
<td>5</td>
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<tr>
<td>B.Sc. B.Sc. Tech.)</td>
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<tr>
<td>Metallurgy</td>
<td>Chemistry I</td>
<td>I</td>
<td>Chemistry I</td>
<td>1</td>
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<tr>
<td></td>
<td>Metallurgy I</td>
<td>II</td>
<td>Physics I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Metallurgy IIIB</td>
<td>III</td>
<td>Introductory</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Metallurgy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Metallurgy I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Metallurgy IIIB</td>
<td>5</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Metallurgy IIIB</td>
<td>6</td>
</tr>
</tbody>
</table>

Classifying Subjects are shown in Bold-faced type

on pages 46 to 53
CONDITIONS FOR THE AWARD OF THE DEGREE
OF
BACHELOR OF ENGINEERING IN CHEMICAL ENGINEERING
OR OF
BACHELOR OF SCIENCE IN METALLURGY OR INDUSTRIAL
CHEMISTRY

(a) A candidate for the degrees of Bachelor of Science or Bachelor of Engineering in the Faculty of Applied Science shall—
(i) comply with the requirements for admission;
(ii) follow the prescribed course of study in the appropriate Department and satisfy the examiners in the necessary subjects.
(iii) Undertake such concurrent industrial training as may be approved by the Head of the Department.

(b) A student or graduate from this or another institution may be admitted to the course with such advanced standing and under such conditions as are determined by the By-laws on Enrolment.

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

(d) A student shall be required to complete the first year of the course in not more than two years.

(e) The degree shall be awarded in the pass or honours grade. Honours may be awarded in the following categories:
   Honours Class I
   Honours Class II (Division I)
   Honours Class II (Division II)
   Honours Class III

   A student who satisfies the examiners in the final year of study but who fails to reach the standard for the award of Honours Class III may be awarded the degree of Bachelor of Science.

CONDITIONS FOR THE AWARD OF THE DEGREE
OF
BACHELOR OF SCIENCE (TECHNOLOGY)
IN
CHEMICAL ENGINEERING, INDUSTRIAL CHEMISTRY,
AND METALLURGY

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

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

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

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

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

5. Students shall be required to conform with the general rules relating to progression in University courses.
BACHELOR OF ENGINEERING COURSE IN CHEMICAL ENGINEERING

YEAR I
(30 weeks full-time course)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEMISTRY I</td>
<td>6</td>
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<tr>
<td>Engineering I</td>
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<tr>
<td>Mathematics I</td>
<td>6</td>
</tr>
<tr>
<td>Physics I</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

YEAR II
(30 weeks full-time course)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEMICAL ENGINEERING IA</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry II</td>
<td>9</td>
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<tr>
<td>Mathematics II</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
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</tbody>
</table>

YEAR III
(30 weeks full-time course)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours per week</th>
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</thead>
<tbody>
<tr>
<td>Chemical Engineering IIA</td>
<td>10</td>
</tr>
<tr>
<td>(including Materials &amp; Structures)</td>
<td></td>
</tr>
<tr>
<td>CHEMICAL ENGINEERING IIB</td>
<td>13</td>
</tr>
<tr>
<td>(including Survey of Electrical Engineering)</td>
<td></td>
</tr>
<tr>
<td>General Elective I*</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
</tr>
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</table>

YEAR IV
(30 weeks full-time course)
1968 only

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours per week</th>
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</thead>
<tbody>
<tr>
<td>Chemical Engineering IIIA</td>
<td>4</td>
</tr>
<tr>
<td>CHEMICAL ENGINEERING IIB</td>
<td>9</td>
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<tr>
<td>Design Project</td>
<td>6</td>
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<tr>
<td>Research Project</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
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</tbody>
</table>

Future Years

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Engineering III</td>
<td></td>
</tr>
<tr>
<td>Design Project</td>
<td></td>
</tr>
<tr>
<td>General Elective II*</td>
<td></td>
</tr>
</tbody>
</table>

*General Electives may be any part-subject available within the University subject to approval of the Dean and to time-table compatibility. Details may be obtained from the Departmental Adviser.

Candidates who are enrolled in or have attempted Physics IIT will normally be required to complete this subject by the end of 1968.

Candidates who have completed Chemical Engineering I by the end of 1967 will not be required to make up the balance of Chemical Engineering IA.
BACHELOR OF SCIENCE (Technology) COURSE
IN
CHEMICAL ENGINEERING

STAGE I
(30 weeks part-time course)

CHEMISTRY I
Mathematics I

Hours per week
6
6
12

STAGE II
(30 weeks part-time course)

Engineering I
PHYSICS I

Hours per week
6
6
12

STAGE III
(30 weeks part-time course)

CHEMISTRY II
Mathematics II Pt. 1

Hours per week
9
3
12

STAGE IV
(30 weeks part-time course)

CHEMICAL ENGINEERING IA
Mathematics II Pt. 2

Hours per week
9
3
12

STAGE V
(30 weeks part-time course)

Chemical Engineering IIA
Chemical Engineering IIB
Design Projects

Hours per week
7
8
15

STAGE VI
(30 weeks part-time course)

CHEMICAL ENGINEERING IIB 1
(excluding Electrical Engineering)
Chemical Engineering IIB 2

Hours per week
Half-year 1
Half-year 2
5
5
7
7
12
12

STAGE VI
Future Years
Chemical Engineering IIB 2
CHEMICAL ENGINEERING III 1
General Elective I*

*General Electives may be any part-subject available within the University subject to approval of the Dean and to time-table compatibility. Details may be obtained from the Departmental Adviser.

Candidates who are enrolled in or have attempted Physics IIT will normally be required to complete this subject by the end of 1968.

Candidates who have completed Chemical Engineering I by the end of 1967 will not be required to make up the balance of Chemical Engineering IA.

PRE-REQUISITES AND CO-REQUISITES FOR THE COURSES
IN CHEMICAL ENGINEERING

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pre-requisites</th>
<th>Pre- or Co-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Engineering I &amp; IA</td>
<td>Maths I</td>
<td>Maths II</td>
</tr>
<tr>
<td>Chemical Engineering IIA</td>
<td>Physics I</td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering III</td>
<td>Maths II</td>
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<tr>
<td>Chemical Engineering IIB</td>
<td>Engineering I</td>
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<tr>
<td>Chemical Engineering III</td>
<td>Chemistry II</td>
<td></td>
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<tr>
<td>Design Projects</td>
<td>Chemical Engineering IIA</td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering III</td>
<td>Chemical Engineering IIB</td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering III</td>
<td>Chemical Engineering III Part I</td>
<td></td>
</tr>
</tbody>
</table>
INDUSTRIAL CHEMISTRY

No new students will be enrolled in this course. The training requirements can be obtained either by a Chemical Engineering Course with some choice of options, or by a Science Course specialising in Chemistry, preferably including Chemical Engineering I.

The balance of the course is:

**BACHELOR OF SCIENCE COURSE**

**IN**

INDUSTRIAL CHEMISTRY

**YEAR II**
(30 weeks full-time course)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours per week</th>
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</thead>
<tbody>
<tr>
<td>CHEMICAL ENGINEERING I</td>
<td>8</td>
</tr>
<tr>
<td>(Fuel Science &amp; Engineering I)</td>
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</tr>
<tr>
<td>Chemistry II</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics II</td>
<td>4</td>
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<tr>
<td>Physics II</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
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**YEAR III**
(30 weeks full-time course)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry III</td>
<td>9</td>
</tr>
<tr>
<td><strong>INDUSTRIAL CHEMISTRY I</strong></td>
<td><strong>12</strong></td>
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</tbody>
</table>

**YEAR IV**
(30 weeks full-time course)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours per week</th>
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</thead>
<tbody>
<tr>
<td><strong>INDUSTRIAL CHEMISTRY II</strong></td>
<td><strong>12</strong></td>
</tr>
<tr>
<td>Industrial Seminar</td>
<td>3</td>
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<td>Research Project</td>
<td>3</td>
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<td><strong>Total</strong></td>
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<th>Term 3</th>
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<td>3</td>
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<td>3</td>
<td>6</td>
<td>20</td>
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**STAGE IV**
(30 weeks part-time course)

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<th>Subject</th>
<th>Hours per week</th>
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<td>CHEMICAL ENGINEERING I</td>
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<tr>
<td>(Fuel Science and Engineering I)</td>
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<tr>
<td>Mathematics II</td>
<td>6</td>
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<td><strong>Total</strong></td>
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<table>
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<th>Term 3</th>
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<tbody>
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<td>8</td>
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</tr>
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<table>
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<tr>
<th>Subject</th>
<th>Hours per week</th>
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<td>CHEMISTRY III</td>
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<th>Term 1</th>
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<th>Term 3</th>
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<table>
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<tr>
<th>Subject</th>
<th>Hours per week</th>
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<tr>
<td><strong>INDUSTRIAL CHEMISTRY I</strong></td>
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<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
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<tbody>
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**STAGE V**
(30 weeks part-time course)

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<th>Hours per week</th>
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<td>CHEMISTRY III</td>
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<table>
<thead>
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<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
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<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours per week</th>
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<tbody>
<tr>
<td><strong>INDUSTRIAL CHEMISTRY I</strong></td>
<td><strong>12</strong></td>
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<table>
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<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
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<tbody>
<tr>
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<td>12</td>
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**PRE-REQUISITES AND CO-REQUISITES FOR THE COURSES IN INDUSTRIAL CHEMISTRY**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pre-requisite</th>
<th>Co-Requisite</th>
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<tbody>
<tr>
<td>Industrial Chemistry I</td>
<td>Chemistry II</td>
<td>Chemistry III</td>
</tr>
<tr>
<td>Industrial Chemistry II</td>
<td>Industrial</td>
<td>Chemistry I</td>
</tr>
</tbody>
</table>
BACHELOR OF SCIENCE DEGREE IN METALLURGY

Hours per week

YEAR I

CHEMISTRY I
6
Geology I
6
Mathematics I
6
Physics I
6

24

YEAR II

Chemistry IIS*
5
Introductory Metallurgy*
Mathematics II
6
METALLURGY I
10
Physics II†
6

27

YEAR III

Electrical Engineering
3
Metallurgy IIA
6
METALLURGY II A
13
Elective Subject‡
3

25

YEAR IV

METALLURGY III
METALLURGY III B
25

*Chemistry IIS, a course of experimental, physical and inorganic Chemistry is of 3 hours per week for the second half of the year, during which time the lectures in Introductory Metallurgy are reduced to 2 hours per week.

†In 1968 Physics IIT will be available for the last time.

‡In 1968 the Elective Subjects will be:
Microeconomics, or
Automatic Control I and II.

BACHELOR OF SCIENCE (Technology) DEGREE IN METALLURGY

Hours per week

STAGE 1

CHEMISTRY I
6
Mathematics I
6

12

STAGE 2

Geology I
6
PHYSICS I
6

12

STAGE 3

Chemistry IIS*
5
INTRODUCTORY METALLURGY*
Mathematics II part I
3
Physics II†
6

14

STAGE 4

Mathematics II Part II
3
METALLURGY I
10

13

STAGE 5

Electrical Engineering
3
METALLURGY II A
6
Elective Subject‡
3

12

STAGE 6

METALLURGY III B
13

*Chemistry IIS, a course of experimental, physical and inorganic Chemistry is of 3 hours per week for the second half of the year, during which time the lectures in Introductory Metallurgy are reduced to 2 hours per week.

†In 1968 Physics IIT will be available for the last time.

‡In 1968 the Elective Subjects will be:
Microeconomics, or
Automatic Control I and II.
BACHELOR OF SCIENCE (Technology) in METALLURGY
ACCELERATED COURSE

A student reading for the degree of B.Sc. (Tech.) in Metallurgy 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. (Tech.) Course above).

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

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

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

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

STAGE 5A.
30 WEEKS PART-TIME COURSE

Subject Metallurgy Project Hours per week Term 1 Term 2 Term 3

Details of Subjects
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 the 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.

PRE-REQUISITES AND CO-REQUISITES FOR THE COURSES IN METALLURGY

Subject Metallurgy I Pre-requisite Physics II Chemistry II Introductory Metallurgy

Metallurgy II (A & B) Metallurgy I

Metallurgy III Metallurgy II

DESCRIPTION OF SUBJECTS

DEPARTMENTS OF CHEMICAL ENGINEERING AND INDUSTRIAL CHEMISTRY

CHEMICAL ENGINEERING IA
(including Fuel Science I)

A course of about 100 hours lectures and 100 hours tutorial and laboratory covering:
Fluid-statics and Dynamics—Particularly related to the flow, metering and pumping of fluids in pipes with an introduction to boundary layer theory and dimensional analysis.
Heat and Mass Transfer—Introduction to conduction, convection and radiation and to diffusion phenomena.
Industrial Chemical Processes—Carbonization, smelting, oil refining and heavy chemical industries studied in relation to the chemistry and the mass and energy balance of the process. Basic equipment items.
Applied Thermodynamics—Engineering calculations of mass and energy balances and properties of real gases from gas law and equilibrium relationships.

Fuel Science—Classification, sampling and testing of fuels. Combustion and gasification reactions and equipment. Thermal and economic evaluation of fuels and equipment.

TEXT BOOKS:
Introduction to Chemical Engineering, Anderson, L. B. & Wenzel, L. A.
The Efficient Use of Fuel, H.M.S.O.

REFERENCE BOOKS:
Chemical Process Industries, Shreve, R. N.
Fuels, Solid, Liquid and Gaseous, Brame, J. S. & King, G.

These are reference texts for this course but will be required in later stages. It is recommended that students should purchase them at this time.

DESIGN 1 (Balance of Chemical Engineering IA)

A course of about 20 hours lectures and 50 hours of office and tutorial work covering:
Process representation, process and engineering flow diagrams, Pumps and piping systems, Simple beams, structures and unfired pressure vessels designed to code. Design of convective heat exchanges.

TEXT BOOKS:
Unfired Pressure Vessel.
Australian Standards CBI, Part V, Unfired Pressure Vessel.
SAA 351 Structural Steel in Buildings.
SAA 350 Design Loads in Building.
CHEMICAL ENGINEERING IIA

Part I of this subject group is common to both full-time and part-time students.
Part II, (for full-time students only) comprises mainly extra drawing office and tutorial work on engineering details. (Part-time students will secure experience and training in this field in their industrial training). It also includes some more advanced work on transport fundamentals.

PART I
Reaction Engineering—(about 60 hours lectures and 30 hours tutorials).
Thermodynamics applied to problems of energy requirement, reaction conditions and yield of chemical processes.
Application of Kinetics and of reactor theory to interpretation of rate data and analysis of simple reactor and mixing systems.

TEXTS:
Watson, R. M. & Ragatz, R. A.
Chemical Reaction Engineering, Levenspiel, O.

REFERENCE:
Principles of Chemical Equilibrium, Denbigh, K. G.

Chemical Engineering Statistics—(about 30 hours lectures and tutorials) on statistical analysis of experimental and operating data and sampling theory.

TEXT:
Statistics Manual, Crow, E., Davis, F. & Maxwell, M.

Materials and Structures (GE 202)—(about 45 hours lectures and 25 hours practical work) in the Faculty of Engineering on the properties and behaviour under stress of engineering materials both metallic and non-metallic.

TEXT:

PART II
Design IIA—General chemical engineering equipment and layout; mechanical details of equipment, more advanced heat exchanger design.

TEXTS:
Project Engineering of Process Plants, Rase, H. R. & Barrow, M. H.


REFERENCE:
Transport Phenomena, Bird, R. B., Stewart, W. E. and Lightfoot, E. N.

CHEMICAL ENGINEERING IIB

This subject will be taken by full-time students in 3rd year and will be spread between stages 5 (part 1) and 6 (part 2) for part-time students. For 1968 only Stage 6 students take parts 1 and 2 excluding Electrical Engineering.

PART I
Diffusional Separations—(about 30 hours lectures, 30 hours tutorials and 45 hours laboratory).
Mass transfer operations, phase equilibria, molecular and turbulent transport, equilibrium stage concept, design of equilibrium stage processes including binary distillation, Gas absorption and extraction, design of continuous contact processes, stage efficiencies.

TEXTS:
Design of Equilibrium Stage Processes, Smith, B. R.

REFERENCE:
Principles of Unit Operations, Foust, et al.
Mass Transfer Operations, Treybal, R. E.

Design IIB (about 15 hours lectures and 30 hours drawing office). Structural and detail design of distillation, absorption and extraction towers and storage vessels; layout, location, foundations; use of models.

TEXT:
Project Engineering of Process Plants, Rase, H. R. & Barrow, M. H.

Principles of Electrical Engineering:
(EE 201 in Electrical Engineering Dept.)—(approximately 28 hours lectures and laboratory.)
—Electronic devices and linear models; electronic amplifiers; oscillators and logic circuits; feedback in amplifiers; analogue computer modules.

(EE 202 in Electrical Engineering Dept.)—(approximately 28 hours lectures and laboratory.)
—Sources of electrical energy; magnetic fields and circuits; transformers; electromechanical devices; characteristics of electrical machinery; instrumentation and control.

PART II
Particulate Systems—(about 30 hours lectures and 60 hours tutorial and laboratory.)
Principles involved in systems involving solid particles; flow in packed beds, fluidization, sedimentation, gas cleaning, filtration, size analysis, size-reduction.
Chemical Engineering, Vol. II (1967), Coulson, J. M. & Richardson, J. F.

Combustion and Furnaces—(about 15 lectures and 30 hours tutorial and laboratory.)
Fuel beds and flames, ignition and combustion rates, burners, fuel selection.

REFERENCES TO BE ADVISED.
Seminar—discussion of selected topics in Chemical Engineering practice.

CHEMICAL ENGINEERING III

PART I (1968 only)
Design II—(approximately 30 hours lectures and tutorials). Analysis of process costs, economic balances, profitability studies, discounted cash flow techniques, feasibility studies. Cost estimation techniques, Break-even analysis, Introductory price theory. Design project of a process plant.

TEXT:
Process Plant Economics, Schweyer, H. E.

REFERENCES:
Costs in the Australian Process Industries, Buchanan & Sinclair.
Chemical Process Economics, Happell.

Chemical Process Control—(approximately 15 hours lectures and 30 hours laboratory tutorial.)
Introduction to the principles of chemical process control and the response characteristics of heat exchangers, reactors, distillation columns and measuring equipment.

TEXT:
Process Control, Harriott, P.

Engineering Management and Administration (in 1968 for Stage VI and Industrial Chemistry I students only.)
A course of about 60 hours in the Department of Mechanical Engineering on general principles of administration and control.

PART II
Automatic Control I (ME 361/EE 342, in the Engineering Faculty.)
A course of about 40 hours of lectures and tutorials on the fundamental theory of automatic control.

TEXT:
Control Systems Theory, Elgerd, O. I.

Design IV—(approximately 60 hours of lectures and tutorials.)
Chemical Process Design, the design and selection of an economical process; computer techniques in process design; optimization techniques.

TEXTS:
A Course in Process Design, Sherwood, T. K.
Foundations of Optimization, Wilde, D. G.

REFERENCES:
Diffusional Separation Techniques, Design, Selection and Evaluation, Oliver.
Computational Techniques for Chemical Engineers, Rosenbrock & Storer.

Advanced Fundamentals (previously Chemical Engineering IIIA.) Approximately 120 hours of lectures and tutorials, distributed over four of the following topics:—
   Advanced studies in mass transfer analysis.
   Multi-component systems, distillation and extraction.
   Furnace combustion and transfer.
   Polymer Chemistry (in the Department of Chemistry).
   Kinetics of Gas-solid reactions.
Seminar discussion of selected topics will form part of this course.

Design Project—Students will undertake the overall design and outline design of selected details of a complete unit of a chemical plant, at a level in line with the requirements of the Institution of Chemical Engineers, in addition to shorter project studies of selected topics of process design.

Research Project—This will involve the design of a selected experiment, and the writing up of a minor thesis.
INDUSTRIAL CHEMISTRY

INDUSTRIAL CHEMISTRY I (Approximately 60 lectures)

Processes—Services in the Chemical Industry (water, waste-disposal, steam, D.C. power, refrigeration, fuels—solids, liquid, gaseous); Sulphuric acid; lime cement and plaster; alkalies (soda ash, caustic soda, ammonia); nitric acid; industrial gases; electric furnace products; phosphates, superphosphates and aluminium; glass; coal carbonisation; coal tar refining; petroleum refining; industrial fermentation (industrial alcohol, acetone and butanol); cellulose industries; acetylene and acetylene chemicals; chemicals from ethylene and propylene; synthetic methanol and formaldehyde; sugar.

Students will attend such lectures, laboratory assignments and factory inspections, both locally and in Sydney, as may be prescribed and submit appropriate reports.

TEXTS:
The Chemical Process Industries, Shreve, R. N.
Reaction Engineering (as for Chemical Engineering IIA).
Applied Statistics (as for Chemical Engineering IIA).
Administration & Management (as for Chemical Engineering III).

INDUSTRIAL CHEMISTRY II

(a) Processes—Appropriate examples of industrial processes from the following will be treated at depth:
- Silicones, silicate chemistry; refractories, cermets, high temperature combustion processes; high temperature chemistry, oxidisers (hydrogen peroxide); fluorine chemistry; rocket fuels; high pressure processes (ammonia synthesis—thermodynamics and equipment); high vacuum processes and molecular distillation; titanium and zirconium; the actinide elements; industrial polymers, aromatic intermediates; acetylene chemistry; fermentation industries.

(b) Advanced Kinetics—Selected topics will be covered from the following:

Instrumentation and Automatic Control (as for Chemical Process Control Chemical Engineering III.)

Laboratory—Exercises in application of analogue and digital computers to process problems.

Industrial Seminar—Critical evaluation and presentation of information on selected topics.

Research Project—Investigation of a particular aspect of industrial chemistry and production of a thesis report.

DEPARTMENT OF METALLURGY

INTRODUCTORY METALLURGY

A course of seventy-five hours lectures providing an introduction to the structure, properties and techniques of examination of metals and alloys, and dealing with the following topics: the structure of metals and alloys, with a consideration of the common alloy types; binary diagrams and the metallographic examination of alloys; X-rays, their origin and uses; defects in crystals; instrumentation in metallurgical techniques; mechanical testing of metals; properties of industrial alloys; the fabrication of metals; physical inorganic chemistry.

METALLURGY I

Extractive Metallurgy

A first course of sixty lectures dealing with the operations, the equipment, and the scientific and engineering principles used in production of metals from ores, concentrates or other raw materials. Mass and energy balances in process design; fuels, furnaces and combustion; structure properties and uses of refractories. Application of principles in typical integrated industrial processes.

Engineering Metallurgy

A course of thirty lectures on the principles of momentum, heat and mass transfer.

Materials Science

A course of sixty lectures in which the background established in earlier courses in chemistry, physics and metallurgy, is extended. Among the topics included emphasis is given to the structure of materials of interest to the metallurgist and the thermodynamics and theory of rate processes involving these materials, the plastic deformation of metals, certain aspects of metal fabrication processes and metallography.

METALLURGY II—METALLURGY IIA—METALLURGY IIB

A more advanced treatment of the properties and behaviour of metals and the unit metallurgical processes which form the basis of metal extraction, refining, and fabrication. To facilitate the inclusion of this subject in the part-time course, the subject is divided into two sections—Metallurgy IIA being the Physical Metallurgy component and Metallurgy IIB the remainder.

Physical Metallurgy


Metallurgical Engineering

Metallurgical thermodynamics — a more advanced treatment with special attention to reactions involving complex solutions. Metallurgical kinetics — an introductory treatment of the rates of heterogeneous reactions.

Metallurgical electrochemistry — fundamentals of electrode processes and applications to corrosion, electrolysis, slag/metal reactions.

Engineering principles of the unit processes of extractive metallurgy, equilibria and rate considerations as considerations in design. Physico-chemical unit process of extraction metallurgy.

Industrial Metallurgy

A course of lectures on the applications of metallurgical principles to industrial practice, combined with a series of works visits. The lecture topics are selected from foundry technique and control electroplating, the joining of metals, machinability, powder metallurgy and industrial alloys.

Metallurgy Seminar

A series of lectures on the presentation of verbal reports and papers. Each student will deliver a paper on a topic of his choice, followed by a discussion of its technical aspects.

METALLURGY III

An advanced course of lectures and practical work together with a thesis of a substantial nature on a topic determined by the Head of Department. The formal lectures are composed as follows:

Physical Metallurgy


Metallurgical Engineering

An advanced treatment of such topics as solidification, surface chemistry and theories of metal oxidation. Irreversible thermodynamics. Engineering principles in plant design.

Industrial Metallurgy

The shaping of metals under complex stresses: rolling, forging, extruding, wire-drawing, deep-drawing and pressing, and stretch forming. Non-destructive testing: radiography; ultrasonic and magnetic testing.

MATERIALS SCIENCE FOR ENGINEERS

A course of basic metallurgy for engineering students. The atomic structure of metals. The grain structure of metals. The structure of alloys, and the properties and heat treatment of commercially important alloys, principally those based on aluminium, copper and iron. Corrosion, fuels and refractories.

DEPARTMENT OF METALLURGY

PRESCRIBED TEXTS FOR 1968

INTRODUCTORY METALLURGY AND METALLURGY I

TEXTS

A Textbook of Metallurgy, Bailey, A. R.
Metallurgy in the Service of Man, Dennis, W. H.
Fuels and Refractories, Gilchrist, J. D.
Furnaces, Gilchrist, J. D.
Phase Diagrams in Metallurgy, Rhines, F. N.
Theoretical Structural Metallurgy, Cottrell, A. H.
Structure of Metals and Alloys, Hume-Rothery, W. A. & Raynor, A. V.
Mechanical Metallurgy, Dieter, G.
Heat, Mass and Momentum Transfer, Bennett, C. O. & Myers, J. E.
Principles of Metallographic Laboratory Practice, Kehl, G. L.
Transport Phenomena, Bird, Stuart & Lightfoot.

REFERENCES

A Hundred Years of Metallurgy, Dennis, W. H.
Principles and Application of Extractive Metallurgy, Dennis, W. H.
Metallurgy of the Ferrous Metals, Dennis, W. H.
The Microstructure of Metals, Nutting, J. & Baker, R. G.
Physical Metallurgy, Chalmers, B.
Introduction to the Properties of Engineering Materials, Pascoe, K. J.
Foundation of Metallography, Masing, G., (Thompson, F. C.)
The Physics of Metals, Seitz, F.
An Introduction to the Solidification of Metals, Winegard, W.
Metallurgical Equilibrium Diagrams, Hume-Rothery, W., Christian, J. W., & Pearson, W. B.
Introduction to Crystallography, Phillips, F. C.
Metallography, Desch, C.

METALLURGY II

TEXTS — As for Metallurgy I, plus:

Atomic Theory for Students of Metallurgy, Hume-Rothery, W. A.
Dislocation and Plastic Flow in Crystals, Cottrell, A. H.
The Structure of the Alloys of Iron, Hume-Rothery, W. A.
Diffraction Methods in Materials Science, Cohen, J. B.
Elements of Mechanical Metallurgy, Tegart, W.
The Kinetics of Phase Transformation in Metals, Burke, J.
Thermodynamics of Solids, Swalin, R. A.
Diffusion in Solids, Shewmon, P.
Function of the Alloying Elements in Steel, Bain, E. C., & Paxton, H. W.
Corrosion and Electrodeposition, West, J.
Problems in Applied Thermodynamics, Bodsworth, C. & Appleton, A. S.
Making, Shaping and Treating of Steel, U. S. Steel.

REFERENCES
The Structure of Metals, Barrett, C. S.
Elementary Dislocation Theory, Weertman, J., & Weertman, J. R.
Hardenability of Alloy Steels, A. S. M.
The Theory of the Properties of Metals and Alloys, Mott, N. F., & Jones, H.
Physics of Solids, Wert, C. A., & Thompson, R. M.
Processes of Creep and Fatigue in Metals, Kennedy, A. J.
The Strengthening of Metals, Pechner, D.
Recovery, Recrystallisation and Grain Growth, Byrne, J. G.
Introduction to Phase Transformations in Condensed Systems, Fine, M. E.
Electrons in Metals, Ziman, J. M.
Principles of the Theory of Solids, Ziman, J. M.
Atomic Migration in Crystals, Girifalco, L. A.
The Physical Examination of Metals, Chalmers, B., & Quarrell, A. G.
The Electrolytic and Chemical Polishing of Metals, Tegart, W.
Interpretation of X-ray Diffraction Photographs, Henry, N. F. M., Lipson, H., & Wooster, W. A.
Practical Physical Metallurgy, Rawlings, R.
Plasticity of Crystals, Schmid, E., & Boas, W.
Physical Metallurgy, Cahn, R. W.
Elements of X-ray Diffraction, Cullity, B. D.
Physical Chemistry of Metals, Darken, L. S. & Gurry, R. W.
Interpretation of Metallographic Structures, Rostokem, W. & Dvorak, J. R.

METALLURGY III

As for Metallurgy II, plus:

REFERENCES
The Mechanical Properties of Metals, McLean, D.
Grain Boundaries in Metals, McLean, D.
Dislocations, Friedel, J.
Dislocations in Crystals, Read, W. T.
X-Ray Metallography, Taylor, A.
Imperfections in Crystals, Van Bueren, H. G.
Modern Physical Metallurgy, Smallman, R. E.
Introduction to Dislocations, Hull, D.

The Mechanical Properties of Matter, Cottrell, A. H.
Introduction to Crystallography of Martensite Transformations, Wayman, C. M.
X-Ray Diffraction in Crystals, Imperfect Crystals and Amorphous Bodies, Guinier, A.
The Theory of Transformations in Metals and Alloys, Christian, J. W.
Procedure in Experimental Metallurgy, Seybolt, A. U. & Burke, J. E.
Handbook of Lattice Spacings, Pearson, W. B.
Transmission Electron Microscopy of Metals, Thomas, G.
Specimen Preparation for Electron Microscopy, Brammar, J. S. & Dewey, M. A. P.
Met. Reviews
Institution of Metallurgists Refresher Courses.
Metals and Materials (The Metallurgist)
Progress in Materials Science (Progress in Metal Physics).

MATERIALS SCIENCE

TEXTS
Metallurgy for Engineers, Rollason, E. C.

REFERENCES
The Structure and Properties of Materials, Wulff, J. (Ed.)
Introduction to the Properties of Engineering Materials, Pascoe, K. J.
Engineering Materials and their Alloys, Samans, C. H.
Elements of Physical Metallurgy, Guy, A. G.
Physical Metallurgy for Engineers, Clark, D. S. & Varney, W. R.
Engineering Metallurgy, Higgins, R. A.
CHEMISTRY I

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

Inorganic Chemistry (30 lectures)—Atomic structure; chemical bonds; shapes of molecules; simple crystal structures; radiochemistry and geochemistry; chemistry of the elements, H to Ne, and some other related elements.

Physical Chemistry (30 lectures)—Chemical equilibria and energetics; ionic equilibria; chemical kinetics.

Organic Chemistry (30 lectures)—The place of organic chemistry; isolation, purification, characterization of organic compounds; structural principles; nomenclature; reactions of mono-functional compounds.

The annual examination will consist of two papers, each of three hours duration.

Prescribed Books

Chemical Data Book, Aylward, Findlay.
Modern Approach to Inorganic Chemistry, Bell and Lott.
Organic Chemistry, Hart and Schuetz.
The Names and Structures of Organic Compounds, Benfey.
Solubility and pH Calculations, Butler.
(Students continuing may prefer to purchase
Ionic Equilibrium, Butler.)
A Chemistry Manual for First Year University, Daly, Scott and Selinger.

CHEMISTRY II

A subject comprising about 90 lectures and 180 hours of tutorial and laboratory classes covering the following topics:

Inorganic Chemistry (30 lectures)—Principles of physical methods; maximum symmetry of electron pair theory; co-ordination chemistry; chemistry of the elements of the first transition series; crystal chemistry.

Physical Chemistry (30 lectures)—Thermodynamics; solutions; phase equilibria; kinetics and photochemistry.

Organic Chemistry (30 lectures)—Polyfunctional compounds including amino acids, proteins and carbohydrates; condensation reactions; aromatic compounds; reaction mechanisms; elementary aspects of spectroscopic determination of molecular structure.

The annual examination will consist of two papers, each of three hours duration.

Prescribed Books

Modern Approach to Inorganic Chemistry, Bell and Lott.
Advanced Inorganic Chemistry, Cotton and Wilkinson.
Physical Chemistry, Daniels and Albery.
Physical Chemistry, Barrow.

CHEMISTRY III

A subject comprising about 90 lectures and 270 hours of tutorial and laboratory classes covering the following topics:

Analytical Chemistry (15 lectures)—Principles of chemical analysis.

Inorganic Chemistry (25 lectures)—Introductory quantum chemistry; chemistry of elements not dealt with in Chemistry I and II; recent chemistry of non-metals; recent chemistry of metals.

Physical Chemistry (25 lectures)—Surface chemistry and catalysis; electrochemistry; statistical thermodynamics.

Organic Chemistry (25 lectures)—Stereochemical methods of predicting chemical behaviour, free radicals and photochemistry; chemistry of simple heterocyclic systems; approach to chemical synthesis.

The annual examination will consist of not less than two papers, each of three hours duration.

Prescribed Books

Advanced Inorganic Chemistry, Cotton and Wilkinson.
Physical Chemistry, Barrow.

OR

Chemical Thermodynamics, Wall.
Experimental Physical Chemistry, Daniels et al.

OR

Practical Physical Chemistry, Shoemaker and Garland.

OR

Organic Chemistry, Morrison and Boyd.


Fundamental Principles of Chemical Analysis, Pickering.

Introduction to Colloid and Surface Chemistry, Shaw.

GEOLGY I

A course of three lectures and three laboratory hours per week for three terms, together with four days field work, to be examined by two papers, each of three hours duration. The course 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.

Prescribed Books

Rutley’s Mineralogy, Read.

Principles of Physical Geology, (2nd Ed.), Holmes.

Fossils, Rhodes, Zim and Shaffer.

MATHEMATICS I

A course of four lectures and two tutorial hours per week for three terms, covering the following topics:

Differential calculus, integral calculus and their applications; special functions; differential equations; number systems, matrices and determinants; introduction to groups and rings; coordinate geometry in two and three dimensions; introduction to vectors and their applications; introduction to Fortran and numerical analysis.

From time to time there is an option for students to take a course of more advanced lectures.

Prescribed Books:


Differential and Integral Calculus, Frank Ayres (Schaum Publishing Co.)

PURE MATHEMATICS II

A course of four lectures and two tutorial hours per week for three terms arranged on the following pattern:

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<tr>
<th>Lecture</th>
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<tbody>
<tr>
<td>Term 1</td>
<td>Linear Algebra</td>
<td>Analysis</td>
<td>Calculus (Several variables)</td>
<td>Vector Calculus</td>
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<td>A</td>
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<tr>
<td>Term 2</td>
<td>Linear Algebra</td>
<td>Analysis</td>
<td>Differential Equations</td>
<td>Complex Variable</td>
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<tr>
<td>Term 3</td>
<td>Linear Algebra</td>
<td>Complex Variable</td>
<td>Differential Equations</td>
<td>Calculus</td>
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Prescribed Books:


Elementary Differential Equations and Boundary Value Problems, Boyce, W. E. and Di Prima, R. C.

Advanced Calculus, Kaplan, W.

Mathematical Methods, Edited Keane, A. & Senior, S. A.

Linear Algebra & Matrix Theory, Nering, E. D.

Introduction to Topology, Mendelson, B.

APPLIED MATHEMATICS II

A course of four lectures and two tutorial hours per week for three terms arranged on the following pattern:

<table>
<thead>
<tr>
<th>Lecture</th>
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<tr>
<td>Term 1</td>
<td>Dynamics</td>
<td>Dynamics</td>
<td>Fortran Programming</td>
<td>Probability</td>
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<tr>
<td>Term 2</td>
<td>Dynamics</td>
<td>Hydrodynamics</td>
<td>Numerical Analysis</td>
<td>Statistics</td>
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<tr>
<td>Term 3</td>
<td>Dynamics</td>
<td>Hydrodynamics</td>
<td>Computing</td>
<td>Statistics</td>
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<td>W</td>
<td>X</td>
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Prescribed Books:


Vector Analysis, Newell, H. E.


Fluid Dynamics, Rutherford, D. E.
MATHEMATICS II

A course of four lectures and two tutorial hours per week for three terms, comprising twelve modules selected from Pure Mathematics II and Applied Mathematics II as follows:

1st Term — Modules C, D, Q, R.
2nd Term — Modules G, H, U, V.
3rd Term — Modules L, M, Y, Z.

Part-time students may take Mathematics II in two parts, each of two lectures per week for three terms:

Mathematics II, Part 1, comprises Modules C, D, G, H, L, M.

PHYSICS IC

A general course comprising all fields of physics at an elementary level for students in the Faculty of Architecture, and others interested. A course of about 90 hours of lectures, laboratory and demonstrations, examined by one 3-hour paper.

The subject may not be taken concurrently with Physics I, and shall not count as a Science unit.

PHYSICS I

This course assumes a knowledge of Physics at least up to the 6th year High School core material. Physics taken as part of the School science course to a 2S standard or better will be of considerable help in understanding the subject.

The course will comprise some 17 lectures on mechanics; 17 lectures on wave motion; 20 lectures on electromagnetism; 17 lectures on thermal physics; 5 lectures on waves and particles; and 6 lectures on the elementary physics of astronomy. There will also be 3 hours of laboratory and tutorial work per week.

A mid year 3 hour examination will be held on the first half of the work. A student passing will sit one further 3 hour paper at the end of the year, but a student failing at mid year will sit two 3 hour papers at the end of the year.

(A detailed syllabus for Physics I and Physics II students will be issued early in the year.)

PHYSICS II

A course which includes the following:

1. **Electricity and Magnetism:**

2. **Electronics:**
   A survey of the principles of electronic circuitry.

3. **Physical Optics and Radiation:**
   Electromagnetic wave and quantum concepts; interference; diffraction; polarization.

4. **Atomic Physics:**
   Quantum theory of radiation; X-rays, nucleus, isotopes, radioactivity; optical spectra; Bohr theory.

5. **Solid State Physics:**
   Electronic and thermal properties of solids; the perfect solid; defects in solids; strength of solids.

6. **Thermodynamics and Kinetic Theory:**
   The first and second laws of thermodynamics; specific heats; ideal gases; Carnot cycle; entropy; absolute scale of temperature; the approach to absolute zero; practical cycles; kinetic molecular theory; van der Waal's equation; Maxwell distribution; mean free path; transfer phenomena; introduction to classical statistical mechanics.

7. **Electromagnetism:**
   Introductory field concepts; law of force; constitutive equations; Maxwell's equations, electromagnetic wave propagation in free space.

8. **Mechanics:**
   Damped harmonic motion; forced vibrations; resonance; Q number; anharmonic motion; combination of harmonic motions; Longitudinal and transverse progressive waves; wave velocities; interference of waves; sound; Doppler effect; selected topics in mechanics.

9. **Nuclear Physics:**
   Artificial nuclear disintegration; artificial radioactivity; alpha decay; beta decay; gamma rays and gamma decay.

A course of about 120 lectures and 180 hours laboratory work; examined by two three-hour papers.

PHYSICS III

(For students in the Faculties of Applied Science and Engineering excepting Electrical Engineering.)

A terminating course which comprises units 1 to 5 inclusive set out under Physics II.

A course of about 60 lectures and 75 hours laboratory work; examined by one three-hour paper.
SUBJECTS IN THE FACULTY OF ENGINEERING

EE201: PRINCIPLES OF ELECTRICAL ENGINEERING
Electronic devices and linear models; electronic amplifiers, oscillators, and logic circuits; feedback in amplifiers; analogue computer modules.

Prescribed Text:
Circuits, Devices and Systems, R. J. Smith; Wiley.

EE202: PRINCIPLES OF ELECTRICAL ENGINEERING
Sources of electrical energy; magnetic fields and circuits; transformers; electromechanical devices; characteristics of electrical machinery; instrumentation and control.

Prescribed Text:
Circuits, Devices and Systems, R. J. Smith; Wiley.

SUBJECTS IN THE FACULTY OF ARTS

ENGLISH I

LITERATURE—Modern Poetry, Modern Drama, the Modern Novel.

This part of the course is designed as an introduction to the major forms of English literature. The set texts will be studied both historically and critically and will be used also as a basis for examining certain general problems in literary and critical theory. Students are recommended to obtain Legouis and Cazamian's History of English Literature (Dent).

Poetry: G. M. Hopkins: Selected Poetry (Penguin)
W. B. Yeats: Selected Poetry (Macmillan)
T. S. Eliot: Selected Poetry (Penguin)
A. Alvarez (ed): The New Poetry (Penguin)

Students are recommended to read Cross and Marsh: Poetry: Reading and Understanding as a general introduction to the study of poetry.

Drama: A selection of modern English plays will be studied.
(More details later).

Novel: Butler: The Way of all Flesh
Conrad: Youth; Heart of Darkness
Forster: Howards End
Joyce: A Portrait of the Artist as a Young Man
Woof: To the Lighthouse
Lawrence: Lady Chatterley's Lover
Henry Green: Party Going
Bowen: The Heat of the Day
Graham Greene: The Heart of the Matter

Texts for Essay:
Cary: Herself Surprised
To be a Pilgrim
The Horse's Mouth

MICROECONOMICS (3 hours per week)

This subject deals with the theory of value and distribution. The course begins with a brief introductory account of the major problems of economics and the methods of economic analysis. It then reviews the theory of individual and market demand. After an analysis of the production function and costs of production, it examines the theory of firms' price and output policies in different market situations, paying attention to the results of both theoretical and empirical studies. The final section is concerned with the analysis of pricing and employment of factor services.
FACULTY OF APPLIED SCIENCE

TIMETABLE 1968

The prefix M, S or E denotes a room at Tighes Hill.

On the Shortland site:
A — Class rooms in the Arts/Administration Building.
B — Main Theatre.
C — Class rooms in the Geology Building.
D — Class rooms in the Physics Building.

Chemistry, Geology and Physics Laboratory classes at Shortland will be allocated by the Science Laboratory Allocations Committee. Laboratory classes in other subjects will be allocated by the departments concerned.

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<tr>
<th>MONDAY</th>
<th>TUESDAY</th>
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<th>THURSDAY</th>
<th>FRIDAY</th>
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YEARS

2 CHEMICAL ENGINEERING—FULL-TIME DEGREE

YEAR I

| CHEMISTRY I | 10-11 | B.01 |
| ENGINEERING I | 9-12 | E.41 |
| MATHEMATICS I | 1-4 | E.41 |
| PHYSICS I | 12-1 | D.G08 |

YEAR II

| CHEMISTRY II | 9-10 | S.35 |
|              | 10-1 | S.42/MG.24 |
|              | 2-5  | S.3  |

THURSDAY FRIDAY

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<th>Time</th>
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<td>S.33</td>
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YEAR III

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| CHEMICAL ENGINEERING IIIB | 6-8  | S.30 |

YEAR IV

| CHEMICAL ENGINEERING III/1 | 9-11 | S.33 |
| CHEMICAL ENGINEERING III/2 | 2-4  | S.33 |
| RESEARCH PROJECT | 9-5 | S.14 |

General Elective—To be arranged
### CHEMICAL ENGINEERING—PART-TIME DEGREE

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### INDUSTRIAL CHEMISTRY—FULL TIME DEGREE

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## Metallurgy Full-Time Degree

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*(Two hours tutorial to be arranged by Maths Department after the commencement of 1968 lectures)*

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*INTRODUCTORY METALLURGY AND CHEMISTRY 2S*

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*INTRODUCTORY METALLURGY*  
*INTRODUCTORY METALLURGY AND CHEMISTRY 2S*

*METALLURGY I*

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*Seminar by arrangement*

#### ELECTRICAL ENGINEERING EE201/202

*By arrangement*

### Year IV

*By arrangement*
### METALLURGY PART-TIME DEGREE

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Seminar by arrangement
POST-GRADUATE DEGREES
AND
RESEARCH FACILITIES

The Departments within the Faculty have good facilities for undertaking research leading to the degrees of Master of Engineering, (M.E.), Master of Science, (M.Sc.), or Doctor of Philosophy (Ph.D.).

In the Department of Chemical Engineering a large pilot scale gas producer is being operated under a grant from the National Coal Research Advisory Committee and associated research work in the fields of heat transfer with reaction in packed beds and of high temperature heat transfer generally is available in the Department.

Analogue Computing facilities are available within the Department and all research students have reasonable access to the University's new IBM 1130 computer.

The Department of Metallurgy has excellent facilities including an electron microscope and X-ray equipment and is currently engaged in a number of projects in the fields of physical Metallurgy and problems related to melting, casting and heat treatment.

A number of post-graduate scholarships are available to candidates who have obtained a good Honours degree to enable them to undertake full-time research, and prospective candidates are asked to consult their Head of Department not later than the third term of the final (Honours) year. Full details of recurrent scholarships will be given in the general Calendar issued by the University. Details of special scholarships are posted from time to time on Departmental Notice Boards.

Conditions of award of these Higher Degrees are given in the following pages.

CONDITIONS FOR THE AWARD OF 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.
Every candidate shall submit annually a report on his work to his supervisor for transmission to the Higher Degree Committee.

Every candidate shall submit three copies of the thesis as provided 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 is his own and 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.

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

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

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

*Separate sheet on the preparation and binding of higher degree theses is available on application.

1. The degree of Doctor of Philosophy may be awarded by the Council on the recommendation of the Senate to a candidate who has satisfied the following requirements.

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

(i) have satisfied all of the requirements for admission to the degree of master or the degree of bachelor with first or second class honours in the University of Newcastle or a degree from another University recognised by the Senate as having equivalent standing; or

(ii) have satisfied all of the requirements for admission to the degree of bachelor with third class honours or without honours in the University of Newcastle or a degree from another University recognised by the Senate as having equivalent standing, and have achieved by subsequent work and study a standard recognised by the Senate as equivalent to at least second class honours; or

(iii) in exceptional cases submit such other evidence of general and professional qualifications as may be approved by the Senate.

3. The Senate may require a candidate, before he is permitted to register, to undergo such examination or carry out such work as it may prescribe.

4. A candidate for registration for a course of study leading to the degree of Ph.D shall:

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

(ii) submit with his application a certificate from the Head of the Department in which he proposes to study stating that the candidate is a fit person to undertake a course of study or research leading to the Ph.D. degree and that the Department is willing to undertake the responsibility of supervising the work of the candidate.

5. (i) A candidate shall, except in exceptional circumstances, to be determined by Senate, register as a full-time student.

(ii) Notwithstanding the provisions of section (i) of this clause, a member of the full-time academic or teaching staff of the University may be registered as a candidate for the degree.

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 Board 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 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 conjointly 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 (1912-1950) 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.