FACULTY OF ARCHITECTURE

1971 HANDBOOK

THE UNIVERSITY OF NEW SOUTH WALES

80 CENTS

FACULTY OF ARCHITECTURE

1971 HANDBOOK

EIGHTY CENTS

THE UNIVERSITY OF NEW SOUTH WALES
P.O. Box 1, Kensington, N.S.W., 2033.
Phone: 663 0351

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FOREWORD

Since the dawn of civilization man has sought to endow his environment with physical and spiritual qualities appropriate to his way of life, to explore the limits of his materials and techniques, and in so doing, to create buildings of enduring beauty. In each great culture of the past this search produced a characteristic architecture which was a true reflection of the aspirations and capabilities of its age.

Today's architects, builders and town planners face the same age-old problem, but their task is made infinitely more difficult by the complexity of modern requirements and the diversity of new materials and techniques available to them. For the first time in history material progress threatens to outstrip man's visionary powers and to overwhelm his capacity for assimilation.

Within the next twenty years the world must face a gigantic population explosion. Our building industry must undergo a revolution if it is to meet even the most elementary needs of the community, and our search for appropriate building forms must be related to the practical necessities of mass production on a hitherto unprecedented scale. The pressure will be felt in every field of human endeavour, but to those who choose to enter the land-use professions it will represent the greatest challenge and the greatest opportunity of all time.

CALENDAR OF DATES FOR 1971

Session 1: March 1 to May 15
May Recess May 16 to May 23
May 24 to June 12
Midyear Recess June 13 to July 18
Session 2: July 19 to August 14
August Recess August 15 to August 29
August 30 to November 6

JANUARY

Monday, 25	Last day for acceptance of applications to enrol by new students and students repeating first year
Tuesday, 26 to Saturday, Feb. 6	Deferred examinations

FEBRUARY

Monday, 1	Australia Day—Public Holiday
Thursday, 18 to Monday, 22	Enrolment period for new students and students repeating first year
Monday, 22	Enrolment Week commences for students re-enrolling (second and later years)

MARCH

Monday, 1	**Session 1 lectures commence**
Friday, 12	Last day of enrolment for new students (late fee payable)
Wednesday, 31	Last day for later year enrolments (late fee payable)

APRIL

Friday, 9 to Monday, 12	Easter
Monday, 26	Anzac Day—Public Holiday

MAY

Sunday, 16 to Sunday, 23	May Recess

JUNE

Saturday, 12	**Session 1 ends**
Monday, 14	Queen's Birthday—Public Holiday
Wednesday, 30	Last day for acceptance of applications for re-admission after exclusion under rules governing re-enrolment

JULY

Monday, 19	**Session 2 commences**
Thursday, 29	Foundation Day

AUGUST

Sunday, 15 to Sunday, 29	August Recess

SEPTEMBER

Wednesday, 15	Last day for acceptance of corrected enrolment details forms

OCTOBER

Monday, 4	Eight Hour Day—Public Holiday
Wednesday, 6	Last day for acceptance of corrected enrolment details forms (late fee payable)

NOVEMBER

Saturday, 6	**Session 2 ends**
Tuesday, 9	Examinations begin

1972

Session 1: March 6 to May 13
May Recess May 14 to May 21
May 22 to June 17
Midyear Recess June 18 to July 23

Session 2: July 24 to August 12
August Recess August 13 to August 27
August 28 to November 11

JANUARY

Tuesday, 25 to Saturday, Feb. 5	Deferred examinations

FEBRUARY

Monday, 14	Enrolment Week commences for new students and students repeating first year
Monday, 21	Enrolment Week commences for students re-enrolling

FACULTY OF ARCHITECTURE

Dean—Professor H. I. Ashworth
Chairman—Professor J. M. Freeland

SCHOOL OF ARCHITECTURE AND BUILDING

Professor of Architecture and Head of School

H. I. Ashworth, OBE, MA, BA(Arch) *Manc.*, FRIBA, FRAIA, FAIB, MRAPI, HonFRAIC

Professor of Architecture

J. M. Freeland, DFC, MArch DTRP *Melb.*, FRAIA

Associate Professors

N. J. Anderson, BArch *Syd.*, MArch *Liv.*, DipTP *Lond.*, FRAIA, AMTPI
E. C. Daniels, MArch *N.S.W.*, ASTC, ARAIA
L. P. Kollar, MArch *N.S.W.*, ASTC, ARAIA
G. Molnar, DiplIngArch *T.U. Bud.*, FRAIA
J. H. Shaw, BE DipTCP *Syd.*, MCD *Liv.*, PhD *N.S.W.*, AMTPI, FRAPI, MIEAust
P. Spooner, DipLD *Durh.*, ASTC, FRAIA, ARIBA, FILA, AAILA

Associate Professor of Building

E. Balint, MCE *Melb.*, MIEAust, FICE, AAIB

Senior Lecturers

R. D. Chalmers, BSc(Eng) *Lond.*, MIEAust, AAIB
J. Conner, DipArch (Aberd.), ARIBA, ARAIA, ARIAS
E. D. Duek-Cohen, MA *Oxon.*, B Arch *Liv.*, DipTP *Lond.*, ARIBA, ARAIA, AMTPI, MRAPI
A. A. Jack, MBuild *N.S.W.*, ASTC, AAIB
J. L. King, BArch MTCP *Syd.*, FRAPI

Mrs. Anita B. Lawrence, MArch *N.S.W.*, ARAIA
B. P. Lim, BArch PhD DipTCP *Syd.*, ARIBA, ARAIA
A. H. Mack, BArch *Syd.*, ARIBA, FRAIA, AMBIM
R. O. Phillips, BArch *Syd.*, MArch *N.S.W.*, FRAIA, FIES(Aust)
A. E. R. Purkis, MArch *N.S.W.*, ARIBA, FRAIA
C. W. Stevens, MArch *N.S.W.*, DipTCP *Syd.*, ASTC, ARAIA

Lecturers

C. W. Anderson, MBuild *N.S.W.*, ASTC, FAIB
R. E. Apperly, BArch *Syd.*, ARAIA
N. F. Bazeley, ASTC
C. L. Bell, BA(Arch) *Calif.*
A. G. L. Gibson, DipArch (Birm.), MArch *N.S.W.*, ARIBA
R. A. G. Head, ASTC, ARAIA
R. C. Irving, ARMTC, ARAIA
D. Lennon, BArch *Syd.*, FRAIA
J. F. Mooney, ASTC, FIQSA
Lorna M. Nimmo, ASTC, FRSA
P. T. Oppenheim, BArch *Cape T.*, MArch *N.S.W.*, ARAIA, ARIBA
S. C. Palmer, BArch *Syd.*, FRAIA
I. R. Patrick, ASTC, ARIBA, ARAIA
Mrs Nancy C. Peterson, BArch *N.Z.*, MBldgSc *Syd.*, ANZIA, ARAIA
J. G. Pohl, BArch *Melb.*, MBldgSc *Syd.*, PhD *Syd.*, ARAIA, ARIBA
P. R. Proudfoot, BArch *Syd.*, MArch *Penn*, Rome Scholar
K. Sawdy, ASTC, ARAIA
C. D. Smythe, ASTC, AAIB
B. V. Wollaston, BArch *Syd.*, FRAIA
K. J. Wyatt, BE *Qld.*, MBldgSc *Syd.*, MIEAust

Administrative Assistant

C. L. Durant, SC

GENERAL INFORMATION

ADMISSIONS OFFICE

The Admissions Office which is located in the Chancellery on the upper campus provides intending students (both local and overseas) with information regarding courses, admission requirements, scholarships and enrolment. Office hours are from 9 a.m. to 1 p.m. and 2 p.m. to 5 p.m. Monday to Friday and an evening service is provided during the enrolment period.

Applications for special admission, admission with advanced standing and from persons relying for admission on overseas qualifications should be lodged with the Admissions Office. The Office also receives applications from students who wish to transfer from one course to another, resume their studies after an absence of twelve months or more, or seek any concession in relation to a course in which they are enrolled. It is essential that the closing dates for lodgment of applications are adhered to, and, for further details the sections on "Rules Relating to Students" and "Enrolment Procedure for Undergraduate Courses" should be consulted.

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

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

Details of the procedure to be followed by students seeking entry to First Year courses at the University may be obtained from the Admissions Office or the Metropolitan Universities Admissions Centre.

Persons seeking entry to First Year Courses in one or more of the

three Universities in the Sydney Metropolitan Area (Macquarie University, the University of New South Wales and the University of Sydney) are required to lodge a single application form with the Metropolitan Universities Admissions Centre, Third Floor, 13-15 Wentworth Avenue (near Museum Station), Sydney (P.O. Box 7049 G.P.O. Sydney, 2001.) On the application form provision is made for applicants to indicate preferences for courses available in any of the three Universities. Students are notified individually of the result of their applications and provided with information regarding the procedures to be followed in order to accept the offer of a place at this University and complete their enrolment at the Enrolment Bureau, Unisearch House, 221 Anzac Parade, Kensington.

GENERAL MATRICULATION AND ADMISSION REQUIREMENTS

A candidate may qualify for matriculation by:

(a) attaining passes in five recognized matriculation subjects at one New South Wales Higher School Certificate Examination or at one University of Sydney Matriculation Examination. The subjects shall include English and three subjects shall be taken at Level 2 or higher.

(b) attaining an aggregate of marks as specified by the Professorial Board in not more than five recognized subjects, such marks being co-ordinated in a manner approved by the Board.

REQUIREMENTS FOR ADMISSION TO THE FACULTY OF ARCHITECTURE

For admission to the degree courses in Architecture, Building or Town Planning a candidate must satisfy one of the following requirements:

(a) meet the general admission requirements set out above with the further pre-requisite that the subjects shall include Science and Mathematics, both passed at Level 2S or higher.*

*This Faculty pre-requisite may be satisfied at the examination qualifying for matriculation or at a separate examination.

(b) Hold a Diploma from the New South Wales Department of Technical Education, or any other technical college which may from time to time be recognized by the University, subject to the Professorial Board being satisfied that the applicant's qualifications are sufficient for matriculation.

(c) Be a graduate of any approved university or a matriculant of any university whose requirements for entry are, in the opinion of the Professorial Board, comparable with those of the University of New South Wales.

(d) Produce evidence of at least one year's training at the Royal Military College of Australia or the Royal Australian Air Force College, or evidence of having satisfactorily completed the passing out examination of the Royal Australian Naval College.

The Professorial Board may in special cases declare any person qualified to enter a Faculty as a "provisionally matriculated student" although he has not complied with the requirements outlined above.

Intending applicants are advised to consult the University Calendar for details of approved matriculation subjects and conditions governing each of the above categories, or to contact the Admissions Office in the Chancellery at Kensington between 9 a.m. and 5 p.m. Telephone 663-0351.

RULES FOR PROGRESSION

General Rules

1. A student shall be required to pass all subjects of any year (or its two corresponding part-time stages) before being permitted to proceed to the next year or its corresponding stages except that, subject to the specific course rules set out below, one subject only may be carried with the subjects of the next higher year or its corresponding stages.
2. A student who fails in two or more subjects of a year may be required at the discretion of the Head of the School to repeat any or all the subjects of that year.
3. A student can be enrolled concurrently in the subjects of only two consecutive years, but this will not apply to students entering with advanced standing in their first year of attendance.
4. In exceptional cases the general and specific rules may be varied by the Head of the School.

Specific Course Rules

I Architecture: A student enrolled in the Architecture Course shall not progress to any subject in second year or its part-time equivalent until he has passed Graphic Communication I and Construction I or their part-time equivalents. A student may not progress to any subject of a higher year or its part-time equivalent until he has passed Design and Construction in the immediately preceding year or its part-time equivalent except that this rule shall not apply to the subject of Design I.

II Building: A student enrolled in the Building Course shall not progress to a higher year or its part-time equivalent until he has passed Construction or Graphic Communication in the immediately preceding year or corresponding stages.

III Town Planning: A student enrolled in the Town Planning Course shall not progress to any subject in second year until he has passed Graphic Communication I nor shall he progress to any subject of a higher year until he has passed Town Planning Theory and Practice in the immediately preceding year.

ENROLMENT PROCEDURE

It is the policy of the University to endeavour to admit all properly qualified applicants who have lodged applications by the appropriate closing date. In 1971, however, facilities available to the University will make it necessary to impose quotas in the Faculty of Architecture.

First Enrolments

(a) New South Wales residents already qualified for admission and persons who are applying for enrolment on the basis of qualifications gained or about to be gained outside New South Wales must lodge an application for enrolment with the Metropolitan Universities Admissions Centre, 13-15 Wentworth Avenue, Sydney (P.O. Box 7049 G.P.O., Sydney) by 30th October, 1970.

(b) New South Wales residents qualifying for admission by the 1970 New South Wales Higher School Certificate Examination or the 1971 Sydney University Matriculation Examination and those who have attended a University in New South Wales in 1970 must apply for enrolment to the Metropolitan

Universities Admissions Centre, 13-15 Wentworth Avenue, Sydney (P.O. Box 7049 G.P.O., Sydney) by 25th January, 1971.

Application forms for enrolment and details of the application procedures may be obtained on application to the Registrar, P.O. Box 1, Kensington 2033.

NOTE: First year students who failed all subjects at the 1970 Annual Examinations and who were not granted any deferred examinations will NOT follow the above procedure. They are required to 'show cause' why they should be allowed to continue in the course, and should await instructions in writing from the Registrar as to the procedure.

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

Later Year Enrolments. All students enrolling other than for the first time and not included above should enrol through the appropriate School and bring with them their notification of examination results for the previous year. This enrolment must be effected before or during the week before the commencement of Session 1 in accordance with the special arrangements made by the individual Schools.

Miscellaneous Subject Enrolments. Students may be permitted to enrol for miscellaneous subjects (i.e. as students not proceeding to a degree or diploma) provided the Head of the School offering the subject considers it will be of benefit to the student and there is accommodation available. Only in exceptional cases will subjects taken in this way count towards a degree or diploma. Where a student is under exclusion he may not be enrolled in miscellaneous subjects unless given approval by the Professorial Board.

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

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

Final Dates for Completion of Enrolment. No enrolments will be

accepted from *new students* after the end of the second week of Session 1 (12th March, 1971) except with the express approval of the Registrar and the Head of the School concerned; no *later year enrolments* will be accepted after 31st March without the express approval of the Registrar which will be given in exceptional circumstances only.

Post-graduate Enrolments. Students enrolling in post-graduate courses which include formal instruction are required to attend the appropriate enrolment centre as prescribed annually in the leaflet "Enrolment Procedure for Students Re-enrolling".

UNIVERSITY UNION CARD

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

The number appearing on the front of the card in the space at the top right-hand corner is the student registration number used in the University's records. This number should be quoted in all correspondence.

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

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

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

FEES*

Fees for Undergraduate Courses

Fees for undergraduate courses in Architecture, Building and Town Planning are assessed on a session basis.

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

(i) Full-time Course Fee (more than 15 hours' attendance per week) ... ... $198 per session

(ii) Part-time Course Fee (over 6 hours' and up to 15 hours' attendance per week) ... $99 per session

(iii) Part-time Course Fee (6 hours' or less attendance per week) ... ... $49.50 per session

Fees for Higher Degrees

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

(i) Qualifying Examination $14

(ii) Registration Fee $6

(iii) Internal Full-time Student Annual Fee ... $84
Internal Full-time Student Session Fee ... $42

(iv) Internal Part-time Student Annual Fee ... $42
Internal Part-time Student Session Fee ... $21

(v) External Student Annual Fee* $28

(vi) Final Examination (including Graduation fee) $42

Fees for Graduate Diplomas

(i) Registration Fee, $6.

(ii) Award of Diploma Fee, $8.

(iii) Course Fee—calculated on the basis of a session's attendance at the rate of $10.50 per hour per week. Thus the fee for a programme requiring an attendance of 24 hours per week for the session is $252 per session.

(iv) Thesis or Project Fee, $42.

*The fees quoted may be amended by Council without notice.

Other Fees

Students in any of the above categories are also required to pay the following fees:

Library Fee*		$14
University Union† (entrance fee)		$20
Student Activities Fees*		
University Union†	$20	
Sports Association†	$4	
Students' Union†	$5	
Miscellaneous	$17	
Total		$46

Late Fees

Session 1—First Enrolments

Fees paid on the late enrolment session and before the commencement of Session 1	$7
Fees paid during the 1st and 2nd weeks of Session 1	$14
Fees paid after the commencement of the 3rd week of Session 1 with the express approval of the Registrar and Head of the School concerned ...	$28

Session 1—Re-enrolments

Failure to attend enrolment centre during enrolment week	$7
Fees paid after the commencement of the 3rd week of Session 1 to 31st March	$14
Fees paid after 31st March where accepted with the express approval of the Registrar	$28

Session 2—All Enrolments

Fees paid in 3rd and 4th weeks of Session 2 ...	$14
Fees paid thereafter	$28
Late lodgement of corrected enrolment details forms (late applications will be accepted for three weeks only after the prescribed dates) ...	$6

*Annual fee.

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

Withdrawal from Course

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

PAYMENT OF FEES

Completion of Enrolment

All students are required to attend the appropriate enrolment centre during the prescribed enrolment period* for authorization of course programme. Failure to do so will incur a late fee of $7.

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

Fees should be paid during the prescribed enrolment period but will be accepted during the first two weeks of Session 1. (For late fees see above.) No student is regarded as having completed an enrolment until fees have been paid. Fees will not be accepted (i.e. enrolment cannot be completed) from new students after the end of the second week of Session 1 (i.e. 12th March, 1971), and after 31st March from students who are re-enrolling, except with the express approval of the Registrar, which will be given in exceptional circumstances only.

Payment of Fees by Session

Students who are unable to pay their fees by the year may pay by the session, in which case they are required to pay the first session's course fees and other fees for the year, within the first two weeks of Session 1. Students paying under this arrangement will receive accounts from the University for Session 2 fees. These fees must be paid within the first two weeks of Session 2.

Assisted Students

Scholarship holders or Sponsored Students who have not received an enrolment voucher or appropriate letter of authority from their

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

sponsor at the time when they are enrolling should complete their enrolment paying their own fees. A refund of fees will be made when the enrolment voucher or letter of authority is subsequently lodged with the Cashier.

Extension of Time

Any student who is unable to pay fees by the due date may apply in writing to the Registrar for an extension of time. Such application must give year or stage, whether full-time or part-time, and the course in which the applicant wishes to enrol, state clearly and fully the reasons why payment cannot be made and the extension sought, and must be lodged before the date on which a late fee becomes payable. Normally the maximum extension of time for the payment of fees is until 31st March for fees due in Session 1 and for one month from the date on which a late fee becomes payable in Session 2.

Where an extension of time is granted to a First Year student in Session 1, such student may only attend classes on the written authority of the Registrar, but such authority will not normally be given in relation to any course where enrolments are restricted.

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 session, to attend classes or examinations, or to be granted any official credentials.

No student is eligible to attend the annual examinations in any subject where any portion of his course fees for the year is outstanding after the end of the *fourth week of Session 2 (13th August, 1971)*.

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

GENERAL CONDUCT

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

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

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

ATTENDANCE AT CLASSES

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

In the case of illness or of absence for some other unavoidable cause a student may be excused by the Registrar from non-attendance at classes for a period of not more than one month, or on the recommendation of the Dean of the appropriate Faculty for any longer period.

Applications to the Registrar for exemption from re-attendance at classes, either for lectures or practical work, may only be granted on the recommendation of the Head of the appropriate School. The granting of an exemption from attendance does not carry with it exemption from payment of fees.

Application forms for exemption from lectures are available at the Admissions Office and should be lodged there (with a medical certificate where applicable). If session examinations have been missed this fact should be noted in the application.

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

Where a student has attended less than eighty per cent of the possible classes, he may be refused permission to sit for the examination in that subject.

ANNUAL EXAMINATIONS

Most annual examinations take place in November-December although some are held in the mid-year recess. Students must make application to sit for examinations by a specified date, the procedure being described in the University Calendar. Enquiries should be directed to the Examinations Branch. Examination results are posted to the term addresses of students. No results will be given by phone.

APPLICATION FOR ADMISSION TO DEGREE OR GRADUATE DIPLOMA

Application for admission to a degree or graduate diploma must be made on the appropriate form by 15th January. Applicants should ensure that they have completed all requirements for the degree or diploma, including industrial training where necessary.

STUDENT FACILITIES

LIBRARY

The University Library provides a reference and lending service for staff and students, and is open in term during day and evening sessions. There is also a Faculty reference library located within the Faculty of Architecture building.

THE UNIVERSITY OF NEW SOUTH WALES STUDENTS' UNION

The Students' Union is the parent student organization within the University and membership is compulsory for all registered students. It provides a wide range of cultural societies, and social facilities as well as producing a bi-weekly journal. The annual subscription is $5.

RESIDENTIAL COLLEGES

Accommodation for students is provided within the complex of the Residential Colleges of the University which comprise Basser College, Goldstein College, and the Philip Baxter College. The College complex houses 450 men and women students, as well as staff members. Tutors in residence provide tutorial assistance in a wide range of subjects.

Board and residence fees, which are payable on a session basis, amount to $21 per week. Intending students should apply in writing to the Master, Box 24, Post Office, Kensington, N.S.W., 2033, from whom further information is available.

Accommodation is also available at International House, New College (Church of England) and Warrane College (Roman Catholic). Students should write to the college of their choice for information regarding accommodation.

STUDENT EMPLOYMENT UNIT

The Student Employment Unit offers assistance in finding suitable full-time employment for evening students. It will also advise on Cadetships and permanent career employment. The unit is located

in the Chancellery, Kensington, and is open 9 a.m.-5 p.m. daily. Telephone 663-0351.

STUDENT HEALTH UNIT

A free health service under the direction of a qualified medical practitioner is available to all students during office hours. The service is diagnostic and therapeutic, but is not intended to replace the students' private doctor or the community health services available. Appointments may be arranged by personal contact or by telephoning 663-0351 ext. 2679.

STUDENT COUNSELLING AND RESEARCH UNIT

The Student Counselling and Research Unit is located at Kensington and is normally open from 9 a.m. to 9 p.m. daily. Students wishing to avail themselves of this advisory service should arrange an appointment by 'phoning 663-0351 ext. 2600-2605.

SPORTS ASSOCIATION

In December, 1952, the University Council approved the establishment of the Sports Association as the organization to control and sponsor sporting activities within the University.

Some 20 clubs provide a wide variety of sporting activities. Membership is compulsory for all registered students, the annual subscription being $4.

UNIVERSITY REGIMENT

The University Regiment trains selected undergraduates for commissioned rank in the Citizen Military Forces, and gives military training to undergraduates.

Training is conducted throughout the year both on a part-time and full-time basis, and is planned to fit in with the University's programme of activities. Enquiries should be directed to the Adjutant, Regimental Headquarters, Day Avenue, Kensington.

N.S.W. UNIVERSITY SQUADRON

The N.S.W. University Squadron provides selected undergraduates with training which will prepare them for appointment to

commissioned rank in the Citizen Air Force. Annual training is organized to fit in with Faculty activities and consists of lectures on Air Force organization, law and administration, and appropriate technical and specialist subjects applicable to the medical, technical, radio, works and administrative flights. Enquiries should be addressed to the N.S.W. University Squadron Headquarters, cnr. City and Darlington Roads, Darlington. Tel. 51-4192.

ROYAL AUSTRALIAN NAVY

By agreement with the Department of the Navy, selected cadets of the Royal Australian Naval College at Jervis Bay who have met the appropriate faculty entrance requirements may study certain First Year University subjects at the College. Passes gained in these subjects will be accepted for credit towards a degree of the University. The courses for which this arrangement applies, for the time being, are the full-time courses in the Faculties of Applied Science, Engineering and Science. Further information may be obtained by arranging an interview with the Royal Australian Naval Liaison Officer, Professor J. S. Ratcliffe, Commander, R.A.N.V.R., at the School of Chemical Engineering. Phone 663-0351, ext. 2406.

SCHOLARSHIPS, BURSARIES AND CADETSHIPS

A wide range of scholarships and cadetships will be offered to students commencing University courses in 1971.

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

UNIVERSITY SCHOLARSHIPS

The University annually awards up to fifteen scholarships tenable in degree courses to students who have matriculated at the Higher School Certificate Examination; ten scholarships to students who have completed certificate courses (Department of Technical Education); ten scholarships to students who have completed Trade Courses (Department of Technical Education); and ten scholarships to part-time students who have taken the Diploma Entrance course of the Department of Technical Education. The scholarships are tenable in any Faculty and exempt the holder from payment of course fees during the currency of the scholarship. Scholarships will be awarded in order of merit on Higher School Certificate Examination results. They may be held only by persons who do not hold another award and whose parents are permanent residents of Australia. Applications for these scholarships, on forms available from the Registrar, must be lodged with the Registrar within seven days of the publication of the results of the New South Wales Higher School Certificate Examination.

COMMONWEALTH SCHOLARSHIPS

Students enrolling in first degree courses at the University are eligible. Benefits include payment of all tuition fees and other compulsory fees, and living allowances (these latter being subject to a means test). The closing date for applications is 30th September in the year immediately preceding that for which the scholarship is desired. Full particulars and application forms may be obtained from the Department of Education and Science, La Salle Building,

70 Castlereagh Street, Sydney, 2000, or Box 3987, G.P.O. Sydney, 2001. Phone 2-0323.

BURSARIES AWARDED BY THE BURSARY ENDOWMENT BOARD

A number of Bursaries tenable at the University are awarded to candidates of merit at the Higher School Certificate Examination whose family income falls within certain limits prescribed by the Bursary Endowment Board.

Applications should be made to the Secretary, Bursary Endowment Board, C/- Department of Education, Bridge Street, Sydney.

COMMONWEALTH SERVICE CADETSHIPS

The Commonwealth Service offers each year a number of cadetships in a wide variety of fields. British subjects, with Australian citizenship, under the age of twenty-eight years, are eligible to apply. These cadetships enable selected students to complete their courses full-time and receive a salary while doing so according to the scale below:

	Male	*Female*
Under 18 years	$1,792	$1,663
At 18 years	$2,091	$1,894
At 19 years	$2,419	$2,124
At 20 years	$2,718	$2,329
Adult Rate	$2,891-$3,153	$2,602-$2,838

Fees are refunded to the cadet on a proportionate basis according to his salary.

Applicants will be required to enter into a bond undertaking to remain in the Commonwealth Public Service for a period of up to five years after graduation. Either full-time or part-time courses may be undertaken if available.

Details of vacancies at any one time may be obtained from the University's Student Employment Officer or the Inquiry Officer, Commonwealth Public Service Inspector's Office, Commonwealth Centre, Chifley Square, Sydney. Telephone 28-5701.

REGENT SCHOLARSHIP

The Regent Scholarship is open to students who qualify at the annual examinations for admission to the Final Year course in Architecture. The scholarship provides a living allowance of at least $200 p.a. payable in session instalments.

Applications must be made on the approved form and lodged with the Registrar not later than 15th January each year.

INSTITUTE OF QUANTITY SURVEYORS OF AUSTRALIA, N.S.W. CHAPTER, SCHOLARSHIP

The Institute of Quantity Surveyors of Australia offers a scholarship to the value of $2,000, to be awarded quadrennially to a student eligible for admission to the Bachelor of Building course. The award will be made upon the recommendation of the Dean, subject to Institute concurrence, and will be paid to the successful applicant in four annual instalments of $500, commencing with initial enrolment in the B.Build. course, and thereafter at the beginning of years 2, 3 and 4.

It is a condition of the scholarship that the recipient shall become a student member of the Institute of Quantity Surveyors of Australia, and that payment of successive instalments shall be contingent upon satisfactory progress.

UNDERGRADUATE PRIZES

Bachelor of Science (Architecture) Course

Marley Australia Ltd. ...	$50	Best student, Year I.
Byrne & Davidson Roll-a-Door	$100	Best student in History of Architecture I.
Dunlop Rubber Aust. Ltd. ...	$52.50	Best student, Year III.

Architecture Degree Course

The Joseph Auto-Hot ...	$600	Best student, Final Year.
James Hardie & Co. Pty. Ltd.	$100	General excellence in the architectural subjects of the course.
Royal Australian Institute of Architects, N.S.W. Chapter	$50	Excellence in Design and allied subjects in final two years of course.
Board of Architects of N.S.W.	$40	School Prize Fund — subject selected by Head of School.
Frank W. Peplow	$24	Best student in ecclesiastic architecture.

Building Degree Course

The Australian Institute of Builders	$50	Building—subjects selected by Head of School (2 prizes).
Byrne & Davidson Roll-a-Door	$100	Best student, Year III.
James Hardie & Co. Pty. Ltd.	$40	Best student, Year I.
Master Builders' Association of N.S.W.	$200	To be allocated at the discretion of the Head of the School.

General

Chamber of Manufactures of N.S.W.	$10	To be awarded at the discretion of the Head of the School.

POSTGRADUATE AWARDS

Commonwealth Postgraduate Scholarships

The Department of Education, N.S.W., is prepared to consider as special cases students holding Commonwealth University Scholarships who wish to continue their studies for a further year in a full-time postgraduate diploma course.

Byera Hadley Scholarship

The Byera Hadley Scholarship is open to graduates and diplomates of all recognized Schools of Architecture in New South Wales. Candidates must be British subjects and must make application within three years of passing their final degree or diploma examinations. Value $3,000.

Sir Manuel Hornibrook Travel Grant

The Sir Manuel Hornibrook Travel Grant is open to Licentiate or Student members of the Australian Institute of Builders, from whom the Council of the Institute may invite applications in each alternate year.

The object of the Travel Grant is to advance the study and practice of building by competition for the award, and by subsequent travel overseas or interstate. The Travel Grant shall be of such value as the Council may from time to time determine. Details are obtainable from the Australian Institute of Building, N.S.W. Chapter.

Housing and Neighbourhood Planning Scholarships

The Peddle, Thorp and Walker Scholarship, valued at $300 per annum, is available to assist suitable candidates attending the postgraduate course in Housing and Neighbourhood Planning.

Master Builders' Association of N.S.W. Scholarships

The Master Builders' Association of N.S.W. offers two scholarships valued at $500 each, to be awarded upon the recommendation of the Head of the School to students entering the Graduate Diploma Course in Building Construction. Successful applicants will receive $250 at the commencement of their studies and a further $250 upon entry to their second year.

Alex Rigby Award

The Alex Rigby Award, consisting of a certificate and cheque for $105 is available to a candidate for the degree of Master of Building, and will be awarded upon the recommendation of the Head of the School to the author of a worthy Thesis, submitted within the year ending March 31st.

Australian Acoustical Society Bursary

The Australian Acoustical Society offers a bursary valued at $350 to a student undertaking the Graduate Course in Architectural Acoustics.

UNDERGRADUATE COURSES

The Faculty of Architecture conducts undergraduate courses in Architecture, Building and Town Planning. These courses provide a thorough training in the arts and sciences which today govern the design and construction of buildings and the balanced growth of cities. In addition to professional and vocational training, the courses include general studies in order to provide graduates with a broad understanding of the humanities and social sciences.

THE COURSE IN ARCHITECTURE

Architects play a vital part in the nation's physical and cultural growth. Their contribution to society is primarily one of design, but includes consideration of such practical factors as economy, efficiency and durability. Indeed architecture may be defined as a complete synthesis of art and science, and the syllabus of study has been arranged to achieve this end.

The early years of the course provide fundamental training in the basic sciences underlying building technology in order to familiarize students with the new materials, methods and ideas characteristic of present-day architecture, and to prepare the way for their later, more advanced education. Instruction in the principles of Mathematics and Physics is included as a basis for studies in building science and structural design. Concurrently the students' creative abilities are developed by progressive exercises in imaginative design, which commence as simple projects but become more complex in each successive year.

In the latter part of the course architectural design assumes major importance, for it is through this subject that students learn to integrate all the contributory training they have received. However, the common core subjects taken by all students are handled in such a manner as to allow a student to concentrate on those aspects which most interest him. In addition, a wide variety of elective subjects allows the student to choose so that he may extend his study either in breadth or depth.

The 1968 Course

This course was introduced for the first time in 1968 and is referred to as the 1968 course. The course which operated in 1967

and before is referred to as the 1967 course, a description and details of which are given in the Calendar of the University of New South Wales 1967. The 1968 course is being implemented progressively, i.e. Year 1 in 1968, Years 1 and 2 in 1969, Years 1, 2 and 3 in 1970 etc.

First year of the 1967 course was withdrawn in 1969, and successive years will be withdrawn annually.

Subjects in the 1967 course will be phased-out by substituting approximately equivalent subjects from the 1968 course. Students enrolled in the 1967 course should refer to the Professor of Architecture for their programmes of study. Students enrolled in the 1967 course will be required to complete their studies in the number of years/stages remaining in their course in 1970, plus one.

General Description of the 1968 Course

The normal course in Architecture consists of six years of which all except the fourth year require full-time attendance at the University. On satisfactory completion of the first three years a student is awarded the degree of Bachelor of Science (Architecture). The fourth year of the course requires no formal attendance at the University. In this period the student is required to obtain practical experience (see *Practical Experience* below). Admission to the fifth and sixth years is selective and is based upon the ability revealed and the performance achieved up to the awarding of the first degree at Pass level. On satisfactory completion of the fifth and sixth years of the course the student is awarded a second degree of Bachelor of Architecture (B.Arch.).

The Part-time Programme

There is only one course in Architecture in respect of subjects, content, examinations and standards, which in the first three years leading to the B.Sc.(Arch.) and to meet the varying needs of students, may be taken on an attendance timetable which is wholly or largely full-time or wholly or largely part-time. The part-time programme requires up to three half-days' attendance each week during the day with the balance of the attendance in the evenings.

The subjects of two part-time stages are equivalent in all ways to those of one full-time year. At the end of the first or second year, or the second and fourth stages (i.e. Stages 1B and 2B), a student may elect to transfer to a different attendance programme. *The fifth and sixth years of the course are available by full-time attendance only.*

Practical Experience

During the whole of the part-time period of the programme being followed a student is required to be employed on architectural work under the supervision of an approved architect. For this purpose an architect registered under any Australian State Architects' Registration Act is considered to be an approved architect. Students wishing to gain their practical experience under the supervision of any other person must submit the circumstances to the Professor of Architecture for approval.

Honours

Honours are awarded on the basis of quality of performance during the fifth and sixth years of the course and in accordance with current Faculty regulations.

Professional Recognition

The degree of Bachelor of Architecture of the University of New South Wales is recognized by the Royal Australian Institute of Architects and the Royal Institute of British Architects, and graduates are eligible for membership of these bodies provided they satisfy certain conditions.

The degree is also recognized by the Board of Architects of New South Wales for the purpose of legal registration. At present the Board makes no stipulation regarding experience or a special examination, but as from 1st July, 1971, graduates wishing to obtain registration in New South Wales will be required to meet similar conditions to those established by the two Institutes.

The foregoing is a general statement, and students are strongly advised to obtain further particulars from the Institutes and the Board of Architects of New South Wales.

BACHELOR OF SCIENCE (ARCHITECTURE)—COURSE B.Sc.(Arch.)

		Hours per week for 2 sessions		
		Full-Time Programme	Part-Time Programme	
YEAR 1			Stage 1A	Stage 1B
11.111	Design I	1	1	0
11.121	History of Architecture I	1	1	0
11.131	Graphic Communication I	9	0	0
11.131/1	Graphic Communication I, Part 1	0	5	0
11.131/2	Graphic Communication I, Part 2	0	0	3
11.211	Construction I	5	0	4
11.221	Structures I	3	3	0
11.271	Building Science I	9	0	0
11.271/1	Building Science I, Part 1	0	3	0
11.271/2	Building Science I, Part 2	0	0	6
		28	13	13
YEAR 2			Stage 2A	Stage 2B
11.112	Design II	7	0	7
11.122	History of Architecture II	1	0	1
11.132	Graphic Communication II	6	6	0
11.212	Construction II	6	0	6
11.222	Structures II	3½	3½	0
11.272	Building Science II	2	2	0
	General Studies Elective	1½	1½	0
		27	13	14
YEAR 3			Stage 3A	Stage 3B
11.113	Design III	7	0	7
11.123	History of Architecture III	1	0	1
11.133	Graphic Communication III	3	3	0
11.213	Construction III	8	0	0
11.213/1	Construction III, Part 1	0	5	0
11.213/2	Construction III, Part 2	0	0	3
11.223	Structures III	3	3	0
11.273	Building Science III	2½	2½	0
11.331	Estimating and Specifications	1	0	1
	General Studies Elective	1½	0	1½
		27	13½	13½

BACHELOR OF ARCHITECTURE—COURSE (B.Arch)

YEAR 4		Hours per week for 2 sessions
	Practical Experience	—

YEAR 5		Hours per week	
		SESSION 1	SESSION 2
11.151	Architecture A	15	15
11.411	Town Planning	2	0
	Electives*	6	6
11.171A	Thesis†	1	1
		24	22

YEAR 6		Hours per week for 2 sessions
11.152	Architecture B	15
11.321	Professional Practice	2
	Electives*	5
11.171B	Thesis†	1
		23

*Fifth year electives to a total minimum weekly time of six hours to be freely selected from the following, at least one hour being taken from either sub-section (b) or (c):

(a)		Hours per week for one session
11.224/1	Structures A1	2
11.224/2	Structures A2	2
11.226	Properties of Materials	2
11.227	Behaviour of Materials	2
11.412	Town Planning A	2
11.811/1	Theory of Architecture A1	2
11.811/2	Theory of Architecture A2	2
11.821/1	Construction A1	2
11.821/2	Construction A2	2
11.841/1	Building Science A1	2
11.841/2	Building Science A2	2
11.851/1	Historical Research A1 } Both parts must be	2
11.851/2	Historical Research A2 } taken	2
11.871/1	Landscape Design A1	2
11.871/2	Landscape Design A2	2

(b) Any Arts or Commerce subjects consistent with the rules for enrolment of the Faculty concerned.

(c) Any Humanities subjects consistent with the rules for enrolment of the Department of General Studies.

Sixth year electives to a total minimum weekly time of five hours to be freely selected from the following:

(d) Any subjects under (a), (b) or (c) above.

(e)

		Hours per week for one session
11.225/1	Structures B1 } Both parts must	2
11.225/2	Structures B2 } be taken	2
11.812/1	Theory of Architecture B1	2
11.812/2	Theory of Architecture B2	2
11.822/1	Construction B1	2
11.822/2	Construction B2	2
11.842/1	Building Science B1 } Both parts must	2
11.842/2	Building Science B2 } be taken	2
11.852/1	Historical Research B1 } Both parts must	2
11.852/2	Historical Research B2 } be taken	2
11.872/1	Landscape Design B1	2
11.872/2	Landscape Design B2	2

†The subject of the thesis will be submitted by the student for the approval of the Head of the School at the beginning of fifth year and submitted for examination towards the end of the sixth year. Staff supervision will be available for one hour per week.

DEGREE COURSE IN BUILDING—B. BUILD.

The course in Building provides a basic training for management and executive careers in the building industry. It aims to develop in the student a sound conception of the related requirements and functions of the building-owner, the architect, the structural and mechanical engineers, the materials manufacturer and the builder in the process of planning, detailing and erecting buildings.

The course places emphasis on subjects dealing with law, management, accounting and finance. The course has relevance to a wide variety of careers in the management and supervision of building enterprises, building materials production and many other activities in building technology, administration and research—both in private and public employment.

General Description of the Course

The normal full-time course consists of four years, three years being full-time attendance and the fourth year part-time.

The Building degree course also provides University training in

Quantity Surveying and the elective subject Quantity Surveying II is available in the fourth year (or Stage 7) for students who wish to make Quantity Surveying their career. It is expected that students who intend to practise Building will choose the alternative subjects of Management III and Law for Builders II. It is possible to acquire qualifications for both vocations by completing the three elective subjects.

The course leads to the degree of Bachelor of Building (B.Build.).

The Part-time Programme

There is only one course in Building in respect of subjects, content, examinations and standards which, to meet the varying needs of students, may be taken on an attendance timetable which is largely full-time or wholly or largely part-time. The part-time programme requires up to three half-days attendance during the day per week with the balance of the attendance in the evenings.

The subjects of two part-time stages are equivalent in all ways to one full-time year. At the end of the first and second years or the second and fourth part-time stages a student may elect to transfer to a different attendance programme.

Practical Experience

Students are required to be in approved employment related to their course during the whole of the part-time period of their programme. The type of employment proposed must be submitted to the Associate Professor of Building for approval.

Honours

In the Bachelor of Building degree Honours are awarded on the basis of quality of performance throughout the whole course with particular emphasis on the later years and in accordance with current Faculty regulations.

Professional Recognition

The award of the degree, Bachelor of Building, is recognized for admission to membership by the Australian Institute of Building or, alternatively, for membership by the Institute of Quantity Surveyors of Australia, or both.

BUILDING DEGREE COURSE

Bachelor of Building

		Hours per week for 2 sessions		
		FULL-TIME PROGRAMME	PART-TIME PROGRAMME	
YEAR 1			Stage 1	Stage 2
11.111	Design I	1	1	0
11.121	History of Architecture I ...	1	1	0
11.131	Graphic Communication I	9	0	0
11.131/1	Graphic Communication I, Part 1	0	5	0
11.131/2	Graphic Communication I, Part 2	0	0	3
11.211	Construction I	5	0	4
11.221	Structures I.....	3	3	0
11.271	Building Science I	9	0	0
11.271/1	Building Science I, Part 1...	0	3	0
11.271/2	Building Science I, Part 2...	0	0	6
		28	13	13

YEAR 2			Stage 3	Stage 4
11.212	Construction II	7½	0	0
11.212/1	Construction II, Part 1.....	0	4	0
11.212/2	Construction II, Part 2.....	0	0	4
11.222	Structures II	3½	3½	0
11.272	Building Science II	2	2	0
11.711	Quantity Surveying I	3	0	3
11.731	Management I	2	0	2
11.761	Soil Mechanics for Builders	1½	0	1½
14.001	Introduction to Accounting	2	0	2
	General Studies Elective ...	1½	1½	0
		23	11	12½

YEAR 3		Hours per week for 2 sessions: Full-Time Programme	Part-Time Programme: Stage 5	Part-Time Programme: Stage 6
11.203	Construction IIIA	10	0	0
11.203/1	Construction IIIA, Part 1...	0	5	0
11.203/2	Construction IIIA, Part 2...	0	0	5
11.223	Structures III	3	3	0
11.273	Building Science III	2½	2½	0
11.311	Specifications and Reports	1	1	0
11.721	Estimating I	2	2	0
11.732	Management II	2	0	2
14.012	Accounting for Builders ...	2	0	2
14.051	Law for Builders I.....	2	0	2
	General Studies Elective ...	1½	0	1½
		26	13½	12½

YEAR 4—PART-TIME PROGRAMME ONLY		Hours per week: SESSION 1	SESSION 2
11.011H	History of Fine Arts *or* General Studies Elective not already taken	1½	1½
11.411	Town Planning	2	0
11.722	Estimating II	2	2
14.321	Business Finance	2	2
11.841	Building Science A	1	1
	or		
11.831	Structures A.....	1	1
11.733 14.052	Management III *and* Law for Builders II	3	3
	or		
11.712	Quantity Surveying II	4	4
		11½–12½	9½–10½

DEGREE COURSE IN TOWN PLANNING—B.T.P.

As town planning is concerned with determining the best use of land and creating a better environment, students in this course are trained in aesthetic and civic design principles as well as in land-use studies. A particular feature of the course is the emphasis on the study of new techniques in planning strategies, decision-making, programming, budgeting and implementing of development plans; on urban research and on the inter-action of land uses and transportation.

General Description of the Course

The course is of five years' duration. The first and second years are full-time, the third and fourth years part-time requiring up to three half-days attendance with the balance in the evenings, and the fifth year full-time.

The course leads to the degree of Bachelor of Town Planning (B.T.P.).

Practical Experience

For the two part-time years the students must be engaged in approved employment related to the course; for example, in government planning and housing authorities, in municipal and shire councils preparing or implementing town and country planning schemes, in private development companies or with planning consultants. The type of employment proposed must be submitted to the Associate Professor in Town Planning for approval.

Honours

In the Bachelor of Town Planning degree, Honours are awarded on the basis of quality of performance throughout the whole course with particular emphasis on the later years and in accordance with current Faculty regulations.

Professional Recognition

The course is recognized by the Royal Australian Planning Institute as an academic qualification for corporate membership. The Institute requires that for corporate membership graduates must also have at least one year of practical experience subsequent to graduation.

TOWN PLANNING DEGREE COURSE

Bachelor of Town Planning

		Hours per week	
YEAR 1		SESSION 1	SESSION 2
11.111	Design I	1	1
11.121	History of Architecture I	1	1
11.131	Graphic Communication I	9	9
11.211	Construction I	5	5
11.221	Structures I	3	3
11.271	Building Science I	9	9
		28	28
YEAR 2			
11.132	Graphic Communication II	6	6
11.431	Town Planning Theory and Practice I	4	4
11.441	Design II for Town Planners	7	7
11.451	History of Town Planning	2	0
11.461	Civic Engineering	2	2
25.131	Geology	2	2
	General Studies Elective	1½	1½
		24½	22½
YEAR 3—PART-TIME PROGRAMME			
11.432	Town Planning Theory and Practice II	4	4
11.471	Planning Law and Administration	2	2
29.431	Surveying and Cartography	2	0
	Two General Studies Electives	3	3
		11	9
YEAR 4—PART-TIME PROGRAMME			
11.433	Town Planning Theory and Practice III	4	4
53.321	Urban Sociology	2	0
54.211	Central and Local Government	0	2
	Urban Geography	2	0
	An Advanced General Studies Elective	1½	1½
		9½	7½

YEAR 5		Hours per week SESSION 1	SESSION 2
8.012	Transportation Engineering	1	1
11.434	Town Planning Theory and Practice IV ...	16	16
11.435	Civic Survey Camp	—	—
11.442	Civic and Landscape Design	4	4
11.481	Land Valuation and Economics	2	2
11.491	Thesis	1	1
19.521	Statistical Methods and Data Processing	1	1
		25	25

EXTENSION COURSES

The School of Architecture and Building from time to time conducts extension courses in specialist fields of study related to architecture and building. These courses are normally open to qualified members of the various land-use professions, upon payment of a fee appropriate to the length of the particular course.

POSTGRADUATE STUDY

HIGHER DEGREES

Following the award of a first degree in Architecture, Building or Town Planning of the University of New South Wales or other approved university, graduates may apply to register for the degree of Master of Architecture, Master of Building or Master of Town Planning. Facilities are also available for research towards the degree of Doctor of Philosophy. For details concerning this degree consult the Calendar or write to the Dean.

Summary of the Conditions for the Award of a Master's Degree

(1) Every candidate for the degree shall be required to carry out a programme of advanced study, to take such examinations, and to perform such other work as may be prescribed by the Faculty. The programme shall include the preparation and submission of a thesis embodying the results of an original investigation or design relative to architecture, building or town planning. The candidate may also submit any work published, whether or not such work is related to the thesis.

(2) No candidate shall be considered for the award of the degree until the lapse of four complete sessions 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, be reduced by not more than two sessions.

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

(4) Every candidate shall submit three copies of the thesis as specified in the University Calendar, and it shall be understood that the University retains the three copies of the thesis and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act, 1968, the University may issue the thesis in whole or in part in photostat or micro-film or other copying medium.

Admission

An application to register as a candidate for the degree of Master of Architecture, Master of Building or Master of Town Planning shall be made on the prescribed form, which shall be lodged with the Registrar at least one full calendar month before the commencement of the session in which the candidate desires to register.

POSTGRADUATE COURSES

In addition to the facilities available for the pursuit of higher degrees, formal diploma courses are offered in the following postgraduate fields:

(1) Architectural Acoustics
(2) Building Construction
(3) Housing and Neighbourhood Planning
(4) Landscape Design.

Duration

Each course is programmed over two years of part-time study in the University, involving attendance on two or three evenings per week. In the case of Housing and Neighbourhood Planning a one-year full-time programme may be offered subject to demand.

Nature of Award

Successful completion of the prescribed course of study will lead to the award of a postgraduate diploma.

GRADUATE DIPLOMA IN ARCHITECTURAL ACOUSTICS
(Dip.Arch.Acoustics)

Over the past decade the science of acoustics has received such widespread attention that it is now recognized as a vital factor in the establishment of optimum conditions for human efficiency and comfort.

The course in Architectural Acoustics concentrates upon those aspects which are typical of our urban environment, ranging from the control of community noise and noise in buildings to the design of concert halls and auditoria. Consultants in this field are normally graduates in architecture, engineering or science, and the course has been designed to provide specialized graduate training appropriate to each of these disciplines.

The School possesses an extensive range of precise acoustic measuring equipment, and the course will include practice in its use.

Admission Requirements

An applicant for admission to the Architectural Acoustics course shall be—

(i) a graduate in Architecture, Engineering, or Science of the University of New South Wales; or

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

Course Structure†

		Hours per week			
		SESSION 1		SESSION 2	
YEAR 1—PART-TIME		Lec.	Prac.	Lec.	Prac.
1.292G	Acoustic Theory A	1	2	0	0
11.942G	Acoustic Theory B	0	0	2	3
11.943G	Subjective Acoustics	0	0	1	0
1.291G 11.941G	Introductory Mathematical Physics *or* Construction *	2	2	0	0
		3	4	3	3
YEAR 2					
1.293G	Electro-acoustics	1	0	0	0
11.944G	Applied Acoustics A	1	4	2	0
11.945G	Applied Acoustics B	2	0	1	4
11.949G	Research Project	—	—	—	—
		4	4	3	4

*The co-requisites to be undertaken (1.291G Introductory Mathematical Physics or 11.941G Construction) will be determined by the Head of the School, but in general, the following will be the requirement:

1.291G Introductory Mathematical Physics—for graduates in architecture.

11.941G Construction—for graduates in engineering or science.

†In addition to the formal course work, there will be occasional field excursions.

BUILDING CONSTRUCTION GRADUATE COURSE
(Dip.Build.Const.)

This two year, part-time course has been designed to provide opportunities for advanced study in the science of construction with emphasis on two broad fields: (i) theoretical and practical studies in techniques and methods of structures, materials, services, fabrication and assembly; and (ii) analysis and design of operational procedures in building contracts. It aims at attracting the practising qualified builder who wishes to widen his knowledge and understanding of construction elements and processes.

Admission Requirements

Candidates should be graduates in Building, but other graduates of the School of Architecture and Building at the University of New South Wales, and any qualified applicant who has had suitable experience in building may be admitted to the course on the recommendation of the Head of School and the approval of Faculty.

Course Structure

		Hours per week			
		SESSION 1		SESSION 2	
YEAR 1—PART-TIME		Lec.	Prac.	Lec.	Prac.
11.961G	Building Components	1	1	1	1
11.962G	Advanced Construction I†	2	0	2	0
11.964G	Construction Planning I†	2	0	2	0
11.966G	History of Building	1	0	1	0
		6	1	6	1
YEAR 2					
11.963G	Advanced Construction II†	1	1	1	1
11.965G	Construction Planning II†	1	2	1	2
11.967G	Advanced Equipment and Services†	1	0	1	0
11.968G	Building Operations	1	0	1	0
		4	3	4	3

†Involves co-ordinated projects.

HOUSING AND NEIGHBOURHOOD PLANNING GRADUATE COURSE (Dip.H.N.P.)

This course provides for postgraduate study in the design and layout of residential areas. It is concerned with the study of the physical structure and form of new and old residential neighbourhoods; and of the elements of the neighbourhood including dwellings, open spaces, shopping and community centres. In addition to design considerations, specific study will be made of social and economic factors in the provision of public and private housing.

It is a one year full-time or two years' part-time course, depending upon demand and leads to the award of a Graduate Diploma in Housing and Neighbourhood Planning (Dip.H.N.P.).

Admission Requirements

A candidate shall be—

(i) a graduate in Architecture of the University of New South Wales; or

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

Course Structure

		Hours per week	
YEAR 1—PART-TIME		SESSION 1	SESSION 2
11.920G	Theory of Neighbourhood Planning	2	0
11.921G	Practice of Neighbourhood Planning ...	3	3
11.923G	Land and Housing Economics	0	2
11.924G	Urban Sociology	2	0
		7	5
YEAR 2			
11.921G	Practice of Neighbourhood Planning ...	4	4
11.922G	Communications and Public Utilities ...	0	2
11.925G	Housing Law and Administration	2	0
		6	6

GRADUATE DIPLOMA IN LANDSCAPE DESIGN (Dip.L.D.)

This course, the first of its kind to be offered in Australia, has been designed to extend the knowledge of architects to embrace an important environmental study closely associated with that of their own profession. It is a discipline which has so far received little attention in this country, yet may be expected to play a significant part in the future shaping of our environment.

Admission Requirements

An applicant for admission to the Landscape Design course shall be—

(i) a graduate in Architecture of the University of New South Wales; or

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

Course Structure

		Hours per week			
		SESSION 1		SESSION 2	
YEAR 1—PART-TIME		Lec.	Prac.	Lec.	Prac.
11.910G	History of Landscape Design	1	0	0	0
11.912G	Landscape Engineering	0	0	2	0
25.131	Geology*	2	0	2	0
43.211G	Botany and Ecology*	1	2	1	2
		4	2	5	2
YEAR 2					
11.913G	Theory and Practice of Landscape	1	0	1	0
11.914G	Forestry and Horticulture*	2	1	2	1
11.915G	Landscape Design	0	3	0	3
		3	4	3	4

*Practical work will include a number of Saturday excursions.

Enquiries

Initial enquiries regarding postgraduate courses should be addressed to:

The Dean,
School of Architecture and Building,
University of New South Wales,
P.O. Box 1,
Kensington,
New South Wales, Australia, 2033.

BUILDING RESEARCH LABORATORY

The Faculty controls a Building Research Laboratory situated in the University of New South Wales Research Station, King Street, Randwick. The Laboratory which concentrates on postgraduate research and research for industry has sections equipped for work on Environment and Climate, Materials, Model Testing, Services, Lighting and Acoustics. The Laboratory has extensive testing and research equipment and workshop facilities including a wind-rain machine, a weatherometer, an artificial sky, a structural testing bay and a controlled atmosphere chamber. The equipment and facilities of the Laboratory are continually being added to. Research work and testing programmes carried out in the Laboratory include:

Efficiency of tiled roofs of various pitch, under extreme weather conditions.

Study of the performance of bricks and brickwork.

Condensation behaviour of double-glazed windows.

Abrasion properties of floor materials.

Transfer of heat and moisture through wall elements.

Vibration characteristics of large pre-stressed concrete structures.

Applications of mortar-mesh (ferro-cimento) structures in building.

Penetration of moisture into and through concrete.

DESCRIPTION OF SUBJECTS

The following brief synopses are intended to outline the scope of individual subjects. The subjects are not arranged numerically but are grouped in the following categories: Design, History of Fine Arts and Architecture, Construction, Structures, Building Science, Graphic Communication, Management, Town Planning, Theses and Postgraduate subjects.

Subject synopses are followed by lists of recommended textbooks. In cases where no list appears students will be informed of their requirements at the beginning of the year.

The Board of Studies in General Education has published a handbook in which details concerning the general studies subjects may be found. The handbook also contains information regarding general studies text and reference books, and is available free of charge.

DESIGN

The design and construction of buildings and environment, including the solution of functional problems, study and application of specialized building techniques, engineering services and equipment; documentation; estimating and building job organization. In all years theoretical aspects are covered in lectures and applied by the student in studio work. The first three years give a basic understanding primarily in the functional and practical aspects of architecture; the last two years involve the student additionally in aesthetic and philosophic values.

11.111 Design I

A series of lectures giving an introductory survey of the visual environment of man: large scale environment, natural, modified by man and man-made; man's settlements: cities, towns and villages. Urban precincts, squares, streets, parks. The "equipment" of public environment. Buildings. Architectural provisions for individual man.

(In studio work of other subjects the principles of two- and three-dimensional composition are introduced and exercises are given beginning with the simple elements including building elements and simple spaces with simple functions.)

11.112 Design II

Introduction to the design process. Design for needs of individuals and small groups based on physical factors of health, comfort, safety and convenience. Emphasis on internal environment.

Inter-relation of people within small groups. Relationship between internal and external spaces. Design of small and simple multi-cell buildings. Influence of climate, structure and materials on architecture.

11.113 Design III

Design process and its application in larger and more complex architectural problems. Larger groups of people and adequate provision for their needs. Design of buildings becoming more complex in function, form and structure. Related buildings with simple functions and massing, and control of external spaces. Design for comfort and efficiency under diverse conditions. Design of buildings with special requirements of structure, material and/or equipment.

11.151 Architecture A

Discussion and application in the studio of the concept of the totality of architecture based on an awareness of the inter-relation of the multiplicity of factors and influences involved in the creation of fine buildings. Problems within the concept of total architecture involving the creation and control of the built environment, its construction and implementation in all its aspects.

11.152 Architecture B

The continuation, at a more advanced, detailed and complex level, of the concept of total architecture with emphasis on the higher needs and responsibilities of the individual and society. The design content involves the urban and civic environment and its associated questions of economics and services.

11.811/1 Theory of Architecture A1 (Elective)

The process of synthesis in architectural creation. Sources and inter-relation of form. Economy and priorities. Decision-theory. Problem models and the process of synthesis. Inter-relation between the whole and the part and between its formal characteristics and its physical manifestation.

11.811/2 Theory of Architecture A2 (Elective)

The philosophical and spiritual intentions in architecture. Questions of and relationships between honesty and falsehood in architecture; legitimate and false styles; the original and the copy; architectural ethics. Philosophy of aesthetics, and the qualities of perfection, goodness, truth and beauty as reflected in great architecture.

11.812/1 Theory of Architecture B1 (Elective)

Pre-requisites: 11.811/1 Theory of Architecture A1 and
11.811/2 Theory of Architecture A2

The causal, ideal and physical manifestation order in relation to architecture. Metaphysical questions and architecture. Geometry re-examined as the basis of spatial order.

11.812/2 Theory of Architecture B2 (Elective)

Pre-requisites: 11.811/1 Theory of Architecture A1 and
11.811/2 Theory of Architecture A2

The sacred and architecture. Sacred geometry and the elements of sacred architecture in a general sense. Introduction to symbolism in architecture according to Christian, Moslem, Hindu and Buddhist doctrines. The expression of the sacrificial idea in the primitive house, the altar, the tent, the temple, the cathedral. Sacred architecture.

11.871/1 Landscape Design A1 (Elective)

Physiography and Soils. An examination of landscape forms with reference to their origin and progressive modification through natural forces. The origin, classification and distribution of soils. Erosion and soil stabilization techniques with particular reference to the Australian continent.

11.871/2 Landscape Design A2 (Elective)

Plants and Plant Selection. Elementary plant morphology and physiology with special reference to problems associated with site development and atmospheric pollution. Ecology as a basis of Landscape Design and plant selection. Distribution of major plant species in New South Wales with special reference to the coastal zone.

11.872/1 Landscape Design B1 (Elective)

Landscape Rehabilitation. Landscape problems attendant upon our increasingly urbanized society—industrial blight—extractive industries, commercial forestry, foreshore protection and reinstatement, pollution and regeneration. Control and management of national parks and outdoor recreational areas.

11.872/2 Landscape Design B2 (Elective)

Urban Landscaping. Street planting in urban and suburban locations. City parks, malls, plazas, and roof-top gardens. Street furniture and paving. Microclimatic phenomena associated with the urban environment.

HISTORY OF FINE ARTS AND ARCHITECTURE

In these subjects fine arts and architecture are treated as the expression of a cause/effect relationship, and the student is guided in understanding why and how artistic expression and the man-made environment have developed during the history of Western civilization.

11.011H History of Fine Arts

An outline of the development of nineteenth and twentieth century painting and sculpture. Follows the movements concerned in the development of modern art from the stylistic background of the European tradition to contemporary works. Development of some phases of painting and sculpture during the Ancient, Medieval and Renaissance epochs. The influence of religious, economic and social factors on the more important works of the period.

11.021H History of Architecture

The role of the architect; architecture as an art, a science, and a profession; the origins of architectural form in ancient civilizations, and the development of these forms throughout the Middle Ages and the Renaissance; the effects of the Industrial Revolution and its aftermath, and the growth of modern architecture; the development of an Australian idiom in architecture and building.

11.031H History of Fine Arts and Architecture

An introduction to the history and aesthetics of the architecture, painting and sculpture of the Western World. It comprises the subjects 11.011H and 11.021H.

TEXTBOOKS—11.011H and 11.031H

Bazin, G. *A Concise History of Art*, parts I and II. Thames & Hudson, London, 1961.
Lake, C. and Maillard, R. *The Dictionary of Modern Painting*. rev. ed. Methuen, London, 1962.
Lucie-Smith, E. *Movements in Art since 1945*. Thames & Hudson, London, 1969.
Newton, E. *European Painting and Sculpture*. Pelican ed. Penguin, 1945.
Seawall, J. I. *A History of Western Art*. rev. ed. Holt, Rinehart & Winston, 1961.

11.121 History of Architecture I

A broad and general treatment of the history of architecture from the earliest times to the present day.

(a) Introduction. A framework of reference for architectural history: (i) Architecture as the "built environment"—a partnership of man and nature. (ii) The human and environmental influences that affect architecture throughout history.

(b) A general chronological survey: part (i)—Primitive and communal architecture; the ancient world; the Classic world of Greece and Rome; the Dark Ages; Medieval architecture; Renaissance architecture.

(c) A general chronological survey: part (ii)—Baroque and Rococo architecture; Rationalism, Romanticism and the Industrial Revolution; the twentieth century.

11.122 History of Architecture II

A more detailed treatment of some aspects of history of architecture and their relevance today.

(a) A brief history of planning as a response to human needs and its expression as architectural space.

(b) A study of some important structural, constructional, technological and organizational innovations and their influences, particularly in the Middle Ages, nineteenth and twentieth centuries.

(c) An outline of the evolution of form, proportion and detail, and other related visual aspects of architecture, particularly in Classic, Renaissance and twentieth century architecture.

11.123 History of Architecture III

A history of architecture in Australia, in which the general studies of first and second years find more particular application.

(a) The historical, human and environmental context of Australian architecture.
(b) Architecture from the foundation of the colony to the end of World War I.
(c) Architecture since World War I.

TEXTBOOKS HISTORY OF ARCHITECTURE I, II, and III

Fletcher, Sir B. F. *A History of Architecture on the Comparative Method.* 17th ed., Athlone Press, London, 1961.
Pevsner, N. *An Outline of European Architecture.* 7th ed., Penguin Books, Melbourne, 1963.
(for History of Architecture III only)—
Freeland, J. M. *Architecture in Australia: A History.* Cheshire, Melbourne, 1968.

11.851/1 Historical Research A1
11.851/2 Historical Research A2 } (Electives)

A basic knowledge and training in research in the field of Australian architectural history. An appreciation of the purpose of the research, familiarization with sources of materials and the way in which these are best used; proper techniques in the recording and cataloguing of material together with its critical assessment and evaluation and its integration, interpretation and presentation. Application and practice in a small but thorough research project.

11.852/1 Historical Research B1
11.852/2 Historical Research B2 } (Electives)

Pre-requisites: 11.851/1 Historial Research A1
11.851/2 Historical Research A2

A development of Historical Research A in which the student's endeavours are directed towards the initiation and completion of an original research project in Australian architectural history.

CONSTRUCTION

The study of the fabric of buildings: the materials, elements, systems, procedures for erection and performance of the fabric determined by considerations of building functions, material properties, environment, climate and site: methods of communicating information. The order of study is from simple buildings for basic functions to buildings for multiple functions and complex procedures.

The theoretical lecture material is reinforced by visits to factories and building works and is applied and integrated with design in the studio and in special projects.

11.211 Construction I

Unit shelter for simple activity: single storey: level site.

(a) Single roofs: solid and framed walls: footings. Stones, bricks, tiles, slates, sheets, timber, lime and cement.

(b) External doors: cavities, d.p.c.; floors, linings. Wrot timber, concrete, plasters, d.p. materials.

(c) Windows, ventilators. Glass, metals. Cold water supply, waste and rain water disposal.

TEXTBOOKS

Australia—Department of Housing. *A Short Glossary of Building Terms.* 4th ed., The Department, Canberra, 1965.

Australia—Commonwealth Experimental Building Station. *Notes on the Science of Building.* No. 1 to latest issue (serial).

N.S.W.—*Parliament*—Statutes, Ordinances under the Local Government Act. *Ordinance No. 71,* amended to date, Govt. Printer, Sydney.

N.S.W.—*Parliament*—Statutes. *Sydney Corporation Act By-laws 51 to 58,* amended to date, Govt. Printer, Sydney.

Sharp, W. *Australian Methods of Building Construction.* 4th ed. A. & R., Sydney, 1969.

Standards Association of Australia. *Architectural and Building Drawing Office Practice.* No. C.A.25, The Association, Sydney, 1955 (serial).

11.212 Construction II

Single and two-storey, multi-cell shelters: group activity shelter; sloping sites.

(a) Ridged roofs: partitions: storage fitments. Plywood, finishes, hardware. Plane surveys, chaining, angular measurement. The level, differential levelling, booking: contours: the theodolite. Setting out.

(b) Upper timber floors, stairs: retaining walls and membranes, semi-basements, concrete floors on the ground. Fuels and power supplies; thermal insulation: condensation; vapour barriers. Hot water supply; drainage and sanitary plumbing.

(c) Roof coverings; lighting. Introduction of steel and concrete as structural materials; simple trusses and connections; single span r.c. floors. Tiles, renders, paints, steel sections, concrete mixes. Ventilation, ducting, pumps. Heating and cooling appliances and plant.

TEXTBOOKS

See Construction I.

11.213 Construction III

Buildings requiring structural frames: multiple activities.

(a) Framing systems and floors. Water and drainage services, fire protection and fire-fighting. Lifts and escalators.

(b) Roofs, claddings, internal provisions. Central conditioning plant. Light fittings. Integration of services.

(c) Basements, tanking, footings. Additions and alterations, adjustable and demountable structures. Procedures, economics. Communication systems.

TEXTBOOKS

Crane, T. *Architectural Construction.* 2nd ed. Wiley, New York, 1956.
McKay, W. B. and J. K. *Building Construction.* Vol. 4. Longmans, London, 1963.
Mitchell, C. F. *Advanced Building Construction.* Vol. 2. The Structure. Batsford, London, 1963.

11.213/1 Construction III, Part 1

The same theoretical and lecture material and specifically Construction assignments as for Construction III.

11.213/2 Construction III, Part 2

The Construction assignments of Construction III taken in connection with Design III.

11.203 Construction IIIA

In addition to 11.213 Construction III, the following: (a) Building Techniques and Materials—Investigations and analyses of various methods and materials. Survey of building projects, and field trips. Research, readings and reports in seminars on uses of new materials and structural systems, industrial prefabrication of component parts of buildings. (b) Specialist Services—Instruction in the specialist services of the various sub-contractors normally engaged in the execution of building construction projects. (c) Building Analysis Project—A study of the functional, structural and equipment relationships of various types of building. Approved projects for analysis are selected by the student and are based on construction in progress, or proposed buildings. Emphasis is placed on the integration of structural, mechanical and electrical systems with the architectural scheme.

11.203/1 Construction IIIA, Part 1
11.203/2 Construction IIIA, Part 2 } The syllabus of Construction IIIA taken over two years.

11.821/1 Construction A1 (Elective)

The study in depth of the principles of construction in relation to stability, loadings, safety and special applications of services. Topics also include principles of earthquake resistant construction, non-structural function of the building fabric, movement in buildings; plant and erection techniques.

11.821/2 Construction A2 (Elective)

A study of methods and research into new forms of construction, modular co-ordination, standardization and tools of research. Topics include flat-plate and lift-slab construction, prefabrication, construction planning and management, computer application to communication, erection, quality and management control.

11.822/1 Construction B1 (Elective)

Experimental investigation and research and interpretation of the results in an elected construction subject. Seminars for the exchange of discovered information. The topics will concentrate on development methods and techniques in construction including research tools, computers and model analysis.

11.822/2 Construction B2 (Elective)

Current and future trends in construction. Topics include limitation and disposal of waste, mechanical devices in building, industrialized building, construction planning and control, maintenance planning and replacement policy. Seminars to discuss results of research in Construction B1.

11.761 Soil Mechanics for Building

Determination of simple soil properties. Formation and classification of soils' classification tests. Fundamental characteristics of soils—clay mineralogy. Compaction. Permeability; stratification. Pore pressure and effective stress, seepage pressure, critical hydraulic gradient. Compression of soils. Retaining walls. Introductory foundation analysis. Principles of shear strength and application to slope stability.

STRUCTURES

The course covers structures as it affects the architect and the builder. Exercises in structural design and testing work in Structure Laboratory supplement the theoretical work.

11.221 Structures I

Force, stress, strain. Equilibrium. Properties of sections. Bending moment and shear force for determinate beams. Bending stresses and shear stresses. Basic design of timber beams. Loadings on structures. Bracing of buildings. Forces in determinate plane frames; polygon of forces, method of sections, resolution of forces. The Link Polygon. Laboratory work in connection with the above.

TEXTBOOK

Morgan, W. and Williams, D. T. *Structural Mechanics*. 2nd ed., Pitman, London, 1963.

11.222 Structures II

Buckling of columns and struts related to timber, steel and concrete. Design of beams in timber, steel and concrete. Design of reinforced concrete slabs and stairs. Design of masonry retaining walls. Design of trusses. Three-hinged arch. Indeterminate beams. Deflection of beams. Unsymmetrical bending. Principal stresses and Mohr circle. Simple building systems. Materials of construction: concrete (ingredients, properties, mix design, manufacture), steel, timber and plywood, etc. Laboratory work associated with the above.

TEXTBOOKS

Cassie, W. F. and Napper, J. H. *Structure in Building*. 3rd ed. Architectural Press, London, 1966.

Morgan, W. and Williams, D. T. *Structural Mechanics*. 2nd ed., Pitman, London, 1963.

11.223 Structures III

Analysis of indeterminate frames: moment distribution, three-moment equation, computers. Arches, portals, multi-storey frames. Design of two-way slabs. Design of columns, retaining walls and footings in reinforced concrete. Prestressed concrete elements. Flat plates. Ultimate design methods. Structural sandwich panels. Cold-rolled and tubular steel sections. Space structures. Laboratory work in connection with the above.

TEXTBOOKS

Grinter, L. E. *Elementary Structural Analysis and Design*. 2nd ed., Macmillan, New York, 1965.

Standards Association of Australia:

(i) *Code for Concrete in Buildings*. CA 2. The Association, Sydney, 1963 (serial).

(ii) *Code for Welding in Buildings*. CA 8, Part I. The Association, Sydney, 1965 (serial).

(iii) *Structural Steel Code*. CA 1. The Association, Sydney, 1968 (serial).

11.224/1 Structures A1 (Elective)

A study in depth of the mathematical analysis and design of basic architectural structures with an extension of the study into advanced and complex systems and future trends in the field. Typical topics include timber and plywood structures and stressed skin panels.

11.224/2 Structures A2 (Elective)

A similar study to that of Structures A1, but encompassing large spans, space frames and shells.

TEXTBOOK

Salvadori, M. and Levy, M. *Structural Design in Architecture*. Prentice-Hall, Englewood Cliffs, N.J., 1967.

11.225/1 Structures B1
11.225/2 Structures B2 } (Electives)

Studies in depth by model and physical analysis of the design of basic architectural structures with an extention of the study into advanced and complex structures.

11.226 **Properties of Materials** (Elective)

New materials and new applications of old materials; their physical and chemical properties; economics; correct and incorrect uses. Topics covered include: structure of solids; linear and non-linear elastic materials in compression and tension; inelastic behaviour; strain hardening; elastic action and yielding in pure bending; complex stress analysis; torsion, elastic, inelastic and plastic; triaxial stresses; dynamic and thermal effects; creep, fatigue; hardness; corrosion; experimental methods used in determining these properties.

11.227 **Behaviour of Materials** (Elective)

Lectures and demonstrations by visiting specialists on the behaviour and characteristics of a range of building materials covering in particular the aspects of corrosion, abrasion, strength, fatigue, thermal and acoustic properties. Emphasis is given to the interaction between different materials.

11.831 **Structures A** (Building Elective)

This study aims to complete the builder's basic store of knowledge in Structures.

Structural calculations and acquaintance with Codes form the core of this work, mainly on statistically determinate structures. In some measure, studies in Construction have supplemented design, often providing examples for detailed calculation.

The ultimate aim is to attain a critical appreciation of structural design with special reference to efficiency of construction and cost.

BUILDING SCIENCE

The application of the methods and findings of science to the design and construction of buildings.

Study commences with basic physical phenomena and their mathematical description. The principles so established are applied to the analysis of the functional requirements of buildings, in terms of their ability to withstand and control the natural environment, and to satisfy human, thermal, visual and auditory requirements.

11.271 **Building Science I**

Mathematics

(a) Elementary computer programming; differentiation and integration of simple functions; the definite integral.

(b) Application to curve sketching, arc lengths, areas and volumes, moments of inertia, fluid pressures.

(c) Plane curves; conics and surfaces of revolution; quadric surfaces; ruled and warped surfaces; convex bodies; spherical trigonometry; projective configurations.

Physics

(a) *Mechanics and Properties of Matter*: Kinematics, Newton's Laws of Motion, work and energy. Atomistic description of mechanical properties of matter. Atomic structure of matter, elasticity, plasticity—dislocation, fracture, viscosity.

(b) *Electrostatics, Electromagnetism and D.C. Circuits*: Coulomb's Law, electric field, electric potential, capacitance. Electrical energy sources, conductors, resistivity, atomic view of conduction, e.m.f., Kirchoff's Law. Magnetic induction, torque on a coil in magnetic field, moving coil meter, Wheatstone Bridge, potentiometer, resistive-capacitive circuits, inductance, Faraday's Law, resistive-inductive circuits.

(c) *Wave Motion, Heat, Light and Sound*: Simple harmonic motion, wave motion, interference, Doppler effect, energy transfer. Sound, longitudinal waves, overtones, intensity levels, decibels, quality of sound. Light, e.m. spectrum, Huygens Principle, curved mirrors, lenses, dispersion, interference, polarization, photometry, colorimetry. Heat, heat capacity, Joule's equivalent, thermometry, convection, conduction, radiation, black body, emittance, absorptance.

TEXTBOOK

Halliday, D. and Resnick, R. *Physics Parts 1 and 2*. Combined Edition. Wiley, New York, 1966.

11.272 Building Science II

(a) The sky as a sphere; map projections as representations of a spherical surface; geometrical aspects of natural lighting and sun control. Sky factors, Waldram diagrams, daylight protractors.

(b) Sun position and its representation by solar charts; radiant energy from the sun; design of hoods; louvres and sun control devices.

(c) Thermal properties of buildings, heat transmission and insulation. Hygrometry and condensation. Principles of heating, cooling and natural ventilation.

TEXTBOOKS

Drysdale, J. W. *Designing Houses for Australian Climates*. Australia—Commonwealth Experimental Building Station, Bulletin No. 6, 1952 (serial).

Phillips, R. O. *Sunshine and Shade in Australasia*. Australia—Commonwealth Experimental Building Station, Bulletin No. 8, 1963 (serial).

11.273 Building Science III

(a) The lighting of buildings; the eye and vision; general requirements of good lighting. Natural lighting from non-uniform skies; inter-reflected light. Use of charts, tables and other design aids. Artificial lighting; light sources and their spectral characteristics. Luminaires and light control; the lumen method of design. Quality of lighting and glare control.

(b) Fire in buildings; fire load; fire resistance of buildings.

(c) Acoustics, basic concepts and units. The ear and hearing. Transmission of air-borne and structure-borne sound; methods of noise control and

sound insulation. Design of auditoria including analysis of shape and control of reflected sound; sound absorbent materials. Simple sound reinforcement systems. Application to various building types.

TEXTBOOKS

British Lighting Council. *Interior Lighting Design Handbook*. 2nd ed. The Council, London, 1967.

Parkin, P. H. and Humphreys, H. R. *Acoustics, Noise and Buildings*. Faber & Faber, London, 1958.

11.841/1 Building Science A1 (Elective)

Lighting. Previous work in this area is taken in depth in the areas of apparent brightness and of scalar vector illumination as indices of the modelling and form-revealing character of lighting. Lighting equipment, economics of lighting and integration with air-conditioning.

11.841/2 Building Science A2 (Elective)

(a) *Acoustics and Sound Insulation*. Emphasizes the practical application of theoretical material. Principal topics include sound insulation and noise reduction in buildings and the use of acoustic models in auditoria design; **or**

(b) *Computer-Aided Design*. The use of the computer and the availability of programmes in architecture including computer graphics. Queues and linear programming and the techniques of information storage and retrieval. Practice in the production and application of programmes.

11.842/1 Building Science B1
11.842/2 Building Science B2 } (Electives)

Pre-requisites: 11.841/1 Building Science A1 or
11.841/2 Building Science A2

Supervised individual or group student research into an approved topic within the Building Science field.

GRAPHIC COMMUNICATION

The development of visual awareness and the practical skills basic to the observation, analysis and recording of appearance and to the construction of visualization and co-ordination drawings.

11.131 Graphic Communication I

Graphic Structure. Theory applied in technical and visual drawing. Vision and perception. Vision and illusion. Plastic elements. Symbol elements. Analysis and experiment with traditional media and grounds. Application in the graphic design problems.

Technical Drawing. Plane geometry. Plane curves of loci. Conics. Parallel projections of solid figures. Sections, intersections and interpenetrations. Surface developments. Architectural drawing conventions.

Visual Drawing. Perspective projection theory, and construction methods. Expedients and mechanical aids. Sciagraphy. Relationship to the three-dimensional illusion. Testing of theory through observation and experiment.

TEXTBOOKS

Biggs, J. R. *The Craft of Lettering.* Blandford Press, London, 1961.
Center, R. A. *Architectural Shadow Projection.* Cassell, Melbourne, 1967.
Hollis, H. F. *Teach Yourself Perspective Drawing.* E.U.P., London, 1955.

11.131/1 Graphic Communication I, Part 1;
11.131/2 Graphic Communication I, Part 2
} The syllabus of Graphic Communication I taken over two years.

11.132 Graphic Communication II

Graphic Structure. Analysis, in theory and in practice, of a communication process. Studies in the development of symbolic and literal systems of representation. Media studies include the more sophisticated contemporary range.

Technical Drawing. Extension and development from the Stage 1 series in the context of the Architectural design and construction programme.

Visual Drawing. Extension and development from the Stage 1 series in the construction of visualization and co-ordination drawings.

11.133 Graphic Communication III

Further extension of Graphic Communication II with special emphasis on analytical observation and the capacity to construct visualization and co-ordination drawings.

MANAGEMENT

11.311 Specifications and Reports
11.331 Estimating and Specifications

(a) *Estimating*

The practical methods used in the estimating of the financial cost of architectural works.

Methods used for estimating; standard mode of measurement; examples of "building up" the elements of a unit cost for pricing a bill of quantities; typical problems in estimating costs of building works.

Measuring and methods of adjusting variation; comparison of costs for alternative methods of construction related to structural parts of buildings; preparation of preliminary estimates from sketch plans.

(b) *Specifications*

The principles and methods and the changing trends involved in the compilation of a specification complementing other architectural documents.

Definition, objects and purposes of a specification; evolution of specifications; specification as a contract, legal and working document; relationship to Bill of Quantities and drawings; schedules; reference material; specification writing; "Master" specifications; outright and performance specifications; prime cost and provisional sums; specification sections, clauses and language; preparation and format of specifications; printing, binding and distribution.

Explanation of documents; general conditions; specifications of individual "trades"; schedule of p.c. and provisional sums; specifications for alterations, additions and new works; specification assignment.

(c) *Reports*

The presentation of technical information, both written and graphical.

The nature of communication; preparation of draft for a report; presentation and structure of reports; style and punctuation.

TEXTBOOKS

Cooper, B. M. *Writing Technical Reports*. Penguin Books, Harmondsworth, 1964.

Marsh, D. *Specification Writing*. Hill of Content, Melbourne, 1967.

11.321 Professional Practice

The ethical, legal and common standards and responsibilities governing the relations between the architect, the client and the builder; office practices and procedures; financial aspects of the practice of architecture and building.

(a) Historical background; professional institutions; code of ethics; conditions of engagement; scale of professional charges; specialist consultants.

(b) The Architects' Registration Act of New South Wales. Laws of contract; types of contract; articles of agreement; relationship of contracting parties and the architect; architects' responsibilities; negligence; arbitration; litigation; statutory controls; copyright.

(c) Office administration; correspondence; reports; insurance; finance; tenders; contract administration; organization of the building industry; problems of practice.

11.711 Quantity Surveying I

Instruction in the method of obtaining from plans and specifications and otherwise the quantities of material and labour necessary in the construction of a building and other structures. The use of scales, figures, dimensions, plans, sections, elevations and details in relation to quantities. Techniques used in taking off and billing of quantities.

11.712 Quantity Surveying II

Traditional methods of quantity surveying: Different methods of recording dimensions: billing techniques: conventional and diversified format of bills: variations, rise and fall, progress payments: elemental cost planning programmes: professional practice in Quantity Surveying: instruction in the use of the Australian Standard Method of Measurement of Building Works.

11.721 Estimating I

Methods used for estimating; standard mode of measurement; profit; establishment and other on-cost charges; awards, insurance, taxes, etc.; scale of fees and charges by local and other authorities.

The subject matter for each trade or operation includes: current material prices; schedule of labour units. Memoranda in respect to: weights, mixing proportions and yields of materials, waste allowances, working costs and depreciation of plant, scaffolding, etc.; examples of "building up" the elements of a unit cost for pricing a bill of quantities; topical problems in estimating costs of building works.

Measuring and methods of adjusting variations; grouping of unit items to obtain a bulked cost rate for different structural parts of buildings; comparison of costs for alternative methods of construction related to structural parts of buildings; preparation of preliminary estimates from sketch plans.

TEXTBOOK

Thackray, R. N. *Estimating*. N.S.W.U.P., Sydney, 1960.

11.722 Estimating II

Further examples of estimating the costs of unit rates for various trades and operations for building projects; pricing of a selected bill of quantities; construction scheduling; preparing a forecast of costs for a project which is at the preliminary planning stage.

11.731 Management I

Introduction to scientific management principles, administration and supervision. Principles of organization. Individual and group behaviour. The structure of the building industry. Types of contracts, contract documents. Building Acts and Regulations, Codes, Local Government Authority powers, fees and approvals. Industrial relations—employment; industrial organizations. Safety and accident prevention. Technical supervision.

11.732 Management II

Management functions—planning, organizing, staffing, directing, co-ordinating, controlling and appraisal. Construction planning and control. Critical path method. Functions of personnel—job specifications—organization structure. Administrative procedures. Conditions of contract. Cost analysis—statistical data—work study. Reports and records—conduct of meeting. Technical supervision.

11.733 Management III

Construction management. Construction analysis—preplanning. Construction methods—appraisal and quantitative decision making. Case studies and models for construction planning. Services aspects of construction.

14.001 Introduction to Accounting

An introduction to the nature, purpose and conceptual foundation of accounting. Information systems including accounting applications. Analysis and use

of accounting reports. Relevance of accounting to managerial and technological functions including planning, decision making and control.

TEXTBOOKS

Anthony, R. N. *Essentials of Accounting.* Addison-Wesley, 1964.
Moore, C. L. and Jaedicke, R. K. *Managerial Accounting.* 2nd ed., South-Western, 1967.

14.012 Accounting for Builders

A treatment of accounting information for management purposes. Management planning and control, including such techniques as critical path method.

TEXTBOOKS

Burke, W. L. and Smyth, E. B. *Accounting for Management.* Law Book Co., 1966.
Lu, F. P. S. *The Critical Path Method of Construction Management.* Caxton Press, Christchurch, N.Z., 1964.
Moore, C. L. and Jaedicke, R. K. *Managerial Accounting.* 2nd ed., South-Western, 1967.

14.051 Law for Builders I

Introduction to the law, including brief outline of sources of law in New South Wales and the system of judicial precedent.

General principles of law of contract. Some special forms of building contract. General principles of law of agency. Sale of goods and hire purchase law. Law of negotiable instruments. Law of partnership. General principles of insurance law. Commercial arbitration. General introduction to the law of bankruptcy and company law.

TEXTBOOK

Yorston, R. K. and Fortescue, E. E. *Australian Mercantile Law.* 13th ed., Law Book Co., Sydney, 1965.

14.052 Law for Builders II

Introduction to industrial law, including reference to Commonwealth and State statutory provisions dealing with conciliation and arbitration. State and Commonwealth awards. Industrial disputes. Employers' associations. Trade unions. Introduction to real property and local government law.

TEXTBOOKS

Dey, J. F. and McKenzie, D. B. *An Outline of Industrial Law.* Law Book Co., Sydney, 1965.
Sykes, E. I. *The Employer, the Employee and the Law.* 2nd ed., Law Book Co., Sydney, 1964.

TOWN PLANNING

11.411 Town Planning

The study of factors influencing the direction of the development and use of land in the public interest.

Objectives of town and regional planning; historical background; contemporary planning techniques; New South Wales planning law and administration; elements of urban design; new towns; parks and playing fields; housing and neighbourhood planning; traffic and transport; the central area; elements of civic design; the city of the future.

TEXTBOOK

Brown, A. J. and Sherrard, H. M. *Town and Country Planning.* 2nd ed. A. & R. Sydney, 1969.

11.412 Town Planning A (Elective)

An extension of 11.411 Town Planning with opportunities for students to carry out individual investigations. The results of these investigations are presented at group seminars. Topics should normally emphasize the architectural aspects of town planning.

11.431 Town Planning Theory and Practice I

Fundamental human needs. Improving the quality of human life in urban areas. Improving the physical environment. The planning process: objects, civic survey, plan preparation and implementation. The nature and purpose of zoning. The elements of a residential neighbourhood. Studio and field exercises in civic survey, environmental studies, and the layout of residential areas.

TEXTBOOK

Brown, A. J. and Sherrard, H. M. *Town and Country Planning.* 2nd ed. A. & R. Sydney, 1969.

11.432 Town Planning Theory and Practice II

The town—its elements and structure. Town geometry. The metropolis—its characteristics and problems of expansion. Theories of urban growth and structure. The central area, district and regional shopping centres. Metropolitan communications and major open spaces. The satellite city. Housing. Urban renewal. Studio and field exercises in the preparation of (*a*) a development plan for a "new town" and (*b*) a redevelopment scheme for an obsolete urban area.

TEXTBOOK

Gibberd, F. *Town Design.* 4th ed., Architectural Press, London, 1962.

11.433 Town Planning Theory and Practice III

National and regional planning. Village planning. Patterns of urban and rural land uses. Industrial development and decentralisation. Responsibilities of Commonwealth, State and Local Governments for planning policies. Regional

development committees. Citizen participation in planning. National Capital cities. Studio and field exercises in the preparation of a regional planning scheme for (*a*) a rural area and (*b*) a metropolis.

TEXTBOOK

Rodwin, L. ed. *The Future Metropolis*. Constable, London, 1962.

11.434 Town Planning Theory and Practice IV

Introduction to location theory and spatial interaction models. Existing and emerging techniques in the collection, projection and analysis of planning data. Decision-making, problems of prediction and choice. Planning strategies. Operational models. Programming. Preparation of policies, programmes and budgets for detailed physical development or redevelopment plans including the design of operational models.

11.435 Civic Survey Camp

Fifth year students are required to attend a Civic Survey Camp of up to two weeks' duration. The camp will be held in or near an appropriate country centre. Students under staff supervision will study the character and function of a regional centre, patterns of rural settlement, and rural land use classifications.

11.441 Design II for Town Planners

The lectures are those given in the subject of 11.112 Design II but the studio exercises are specially adapted for planning purposes, and to emphasize environmental design problems.

11.442 Civic and Landscape Design

Relationship of buildings, spaces and landscape. Street architecture, street furniture. Height, floor space and building regulations; architectural controls. Design envelopes. Three dimensional redevelopment schemes. Preservation of buildings of architectural and historic interest. History and principles of landscape design. Open spaces. Trees and tree planting.

11.451 History of Town Planning

The origin of urban centres. Geographical, social, economic and political factors influencing urban settlement. Elements of Egyptian, Greek and Roman town planning. Medieval communities. The meaning of the Renaissance. The Baroque city. The Agrarian and Industrial Revolutions. Nineteenth century social reforms and planning theories. The Garden City movement. The significance of the Barlow, Scott and Uthwatt Reports. The British New Towns. The evolution of Australian town planning. Contemporary cities.

TEXTBOOK

Mumford, L. *The City in History*. Secker & Warburg, London, 1961.

11.461 Civic Engineering

Road location, design and construction. The provision of public utility services: town water supply, sewerage treatment and disposal, electricity and gas supply, telephone communications. Drainage. Ports, railways, aerodromes.

11.471 Planning Law and Administration

The purpose of town planning legislation and its evolution in the United Kingdom. The N.S.W. Local Government Act, 1919 (and relevant Ordinances), in particular Parts XI, XII and XIIA; residential district proclamations, subdivision regulations; preparation, approval and implementation of planning schemes. Interim development control, compensation, betterment, resumption, appeals. The State Planning Authority Act, 1963. Nature of legislation in other States.

TEXTBOOK

N.S.W.—*Parliament*—Statutes. *Local Government Act 1919.* Govt. Printer, Sydney, 1966.

11.481 Land Valuation and Economics

General principles of urban and rural land valuation. Unimproved and improved capital values. Valuation of leasehold and freehold land. Subdivisional value of land. Valuation of buildings. Relevant Acts and Regulations. N.S.W. Land and Valuation Court proceedings and decisions. National income and its distribution, employment, housing, economics of location. Compensation and betterment. Cost-benefit analysis of planning. Financial planning and budgeting. Investment criteria.

THESES

11.171A and 11.171B Thesis (Architecture)

A specialized individual study taken under staff supervision with the object of allowing the student either to gain knowledge in some aspect of architecture which is not covered in the course or to increase his knowledge of some aspect which has been covered. As such the thesis is essentially evidence of this individual study. The study does not require original experimental research for the purpose of discovering new facts or the testing of an hypothesis. Neither is it an essay permitting the student's unsupported opinion. The topic of the thesis is submitted by the student for the approval of the Professor of Architecture at the beginning of the fifth year and the completed thesis submitted for examination towards the end of the sixth year.

11.491 Thesis (Town Planning)

An individual study of an approved subject similar to 11.171A and 11.171B but done in one year by Town Planning students.

GRADUATE SUBJECTS

1.291G Introductory Mathematical Physics

Revision and extension of background materials; S.H.M., wave theory; Fourier analysis; complex numbers; electrical circuit analogies; statistics and computation.

1.292G Acoustic Theory A

Characteristics of sound and vibration; the wave equation; sound propagation in solid, liquid and gaseous media, impedance, resonance and modes; pulses; complex sound waves; Fourier analysis.

1.293G Electro-Acoustics

Principles of design of sound reinforcement systems for speech and music; artificial reverberation; ambiophony; assisted resonance; special requirements for translation, language laboratories, etc. Specification of sound systems. Characteristics of microphones, amplifiers and loudspeakers.

11.910G History of Landscape Design

Early cultures and their impact upon the primitive landscape through farming, transport and settlement patterns. Religious and social influences as reflected in the design of parks and gardens throughout history. Architectural expression and aesthetic beliefs. The Industrial Revolution and its effect upon the humanized landscape.

11.912G Landscape Engineering

(a) Classification of soils, shear, compaction, consolidation and permeability. Stability of walls, embankments, cuttings and earth dams. Common causes of failure and remedial measures.

(b) Elementary hydrostatics and hydraulics. Bernoulli's Theorem, flow through orifices, over notches, in channels and pipes. Pumps and reticulating equipment.

11.913G Theory and Practice of Landscape

Aesthetic philosophies of landscape design; scale, texture and colour. Design, construction and maintenance in urban and rural environments, including highways, residential areas, parks and gardens. Erosion control and shore protection. Landscape surveys and analyses, specifications, contracts and office procedure.

11.914G Forestry and Horticulture

Principal commercial trees—identification—planting techniques, care and maintenance, including fire and insect pests, and felling techniques. Forest nursery practice and forest economics.

Characteristics, identification and specific requirements of selected plants

and shrubs. Soil requirements and cultivation. Grasses, lawn and playing field construction. Use of herbicides and selective weed killers—control of insect pests.

11.915G Landscape Design

A series of design assignments involving the application of lecture material. It is anticipated that extra-mural work will be necessary in addition to the studio periods provided for this subject.

11.920G Theory of Neighbourhood Planning

The neighbourhood concept: its historical evolution and development. The contributions of Ebenezer Howard, Unwin and Parker, Clarence Perry, Stein and Wright, Frank Lloyd Wright, Le Corbusier, Walter Burley Griffin, Frederick Gibberd, Steen Eiler Rasmussen, and others. Neighbourhood structure, elements and form. Relationship to town and metropolitan planning.

TEXTBOOK

Carver, H. *Cities in the Suburbs*. University of Toronto Press, Toronto, 1962.

11.921G Practice of Neighbourhood Planning

Dwelling types. Residential densities. The design and layout of groups of dwellings, open spaces, streets and pathways in high, medium and low density housing estates. Mixed development. Subdivision patterns and standards. Community facilities including shopping and civic centres. Urban renewal in living areas. Organization of neighbourhood development.

11.922G Communications and Public Utilities

Interaction of land use and transportation. Vehicular and pedestrian circulation patterns. Traffic function and capacity of district and neighbourhood roads. Principles and practice of local road construction, water supply, sewage treatment and disposal, and drainage. Local supply of electricity, gas, telephone, and other services.

11.923G Land and Housing Economics

Outline of principles and practice of land valuation with special emphasis on valuation of residential land and buildings. Rating and taxing systems. Effect of zoning and redevelopment on land values. National income and its distribution. Goals of a modern economy. Demand and supply analysis. Economics of road transport and public utilities in urban development. The costs of urban growth. Cost-benefit analysis.

11.924G Urban Sociology

A sociological approach to the study of urban phenomena. Lectures will deal with both methodological and theoretical issues relating to the study of urban social structures. Seminars will provide students with the opportunity to examine critically a number of community studies. A research project will be undertaken by each student.

11.925G Housing Law and Administration

Housing acts and regulations at Commonwealth, State and local levels. Related town planning acts and ordinances. Commonwealth-State Housing Agreements. The organization and administration of public housing authorities. Significant overseas housing policies.

11.941G Construction

Elements of construction, single and multi-storey buildings; building services; materials. Exercises in analysis of architectural and engineering drawings.

11.942G Acoustic Theory B

Characteristics of airborne sound sources, speech, musical instruments, machinery, traffic; vibration and structure-borne sound. Sound power and sound intensity; propagation of sound in open air, sonic boom. I.S.O. Standards for acoustic measuring apparatus and measurement of sound powers and intensity. Practical field and laboratory measurements.

TEXTBOOK

Lawrence, A. B. *Architectural Acoustics.* Elsevier Architectural Science Series, London, 1970.

11.943G Subjective Acoustics

Perception of sound and vibration; frequency, intensity and time dependence; subjective scales of loudness; speech intelligibility, masking; echo discrimination; noise annoyance; hearing damage criteria, ear protection and hearing conservation programmes.

TEXTBOOK

van Bergeijk, W. A., Pierce, J. R. and David, E. E. *Waves and the Ear.* Heinemann, London, 1961.

11.944G Applied Acoustics A

Airborne and impact sound transmission in buildings; single, multiple and complex partitions; floors; flanking transmission. Machinery and services noise reduction, vibration reduction and duct silencers. Criteria for sound insulation in buildings; methods of specification. Community noise and town planning; zoning and traffic engineering; effect of screens, embankments, distance. I.S.O. Standards of measurement of Sound Transmission Loss in the field and laboratory; practical measurements.

TEXTBOOKS

Beranek, L. L. *Noise Reduction.* McGraw-Hill, N.Y., 1960.

Lawrence, A. B. *Architectural Acoustics.* Elsevier Architectural Science Series, London, 1970.

11.945G Applied Acoustics B

Room acoustics; subjective and objective criteria. Classical development of reverberation theory. Echoes, diffusion, rise and decay times; steady state and transient response. Sound reflectors and absorbers. Geometrical, statistical and model analyses of rooms. I.S.O. Standards of measurement of sound absorption coefficients. Field and laboratory exercises.

11.949G Research Project

An individual topic to be selected from one of the following fields; physical theory; machinery, duct and vibration noise; building insulation; community noise; room acoustics; or electro-acoustics.

11.961G Building Components

Advanced study of the properties of building materials and units: moisture behaviour, condensation, shrinkage, creep, expansion, corrosion, noise isolation, heat transfer. Manufacturing processes. Methods of prefabrication. Techniques of building research.

11.962G Advanced Construction I
11.963G Advanced Construction II

Construction methods: plant, formwork, transport, assembly and erection. Individual building elements: foundations; floors and walls (lift slab and flat plate, slip and climbing forms); industrial buildings and frame design; prestressed concrete design and construction. Construction problems of high rise buildings. Discussion of materials of construction; timber engineering; the use of aluminium and plastics; lightweight concrete; sandwich panels.

11.964G Construction Planning I

Construction analysis, methods of estimating, use of statistical data and dissection for control functions. Cost analysis and cost control analysis of elements and activities.

11.965G Construction Planning II

Operations research, mathematical techniques in decision-making and computer techniques. Network analysis, graphical presentation of logic and critical path planning and scheduling.

11.966G History of Building

Development of materials, structures and building methods. Design principles of historical buildings. Survey of present techniques and a review of future possibilities in development: industrialization, use of new materials, new philosophy of design.

11.967G Advanced Equipment and Services

Fabrication and installation of services for large building projects: lifts, air conditioning, fire services. Refrigeration facilities. Cool-houses. Large industrial installations of services.

11.968G Building Operations

Efficiency and general productivity factors in building work. Site organization. Job specification for personnel and standard procedure on buildings. Work study —method study and work measurement. Developing better building methods and improved controls.

43.211G Botany and Ecology

Plant morphology, anatomy and cytology—growth and reproduction—respiration, photosynthesis, nutrition, transpiration and water relations. Principles of plant classification and the use of a flora. Plant diversity. Elementary genetics.

The role of the environment in plant development—plant adaptations. Community origin, development and structure. The nature and measurement of the interrelationships of plants with climate, soil and organisms—ecosystem dynamics.

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