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Faculty of Architecture

The colour band on the spine of this Handbook is an approximation of the lining colour of the hood worn by Bachelors of Architecture of this University.

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A. GENERAL INFORMATION

Faculty Staff

Dean
Professor E. C. Parker, HonMArch, ASTM, FRAIA

Sub-Dean
R. J. Donaldson, BArch, ARAIA, ARIBA

Faculty Secretary
B. J. Kelleher, BE, BCom

Architecture

Professor
E. C. Parker, HonMArch, ASTM, FRAIA

Associate Professor
R. M. Deamer, MArch, ASTM, FRAIA

Senior Lecturers
H. C. Appleby, MArch; DipTCP(Sydney), FRAIA
H. K. Banarjee, BE(Calcutta), MTech(Indian Institute of Technology), PhD(Glasgow), MBA(Western Australia)
N. H. Clouten, BArch(Sydney), MArch(Ohio State), PhD(Edinburgh), FRAIA, ARIBA
P. Drew, BArch(New South Wales)
E. L. Harkness, BArch, MBdgSc(Sydney) MArch, FRAIA
S. C. Morton, ASTM, FRAIA, ARIBA, MRAPI

Lecturers
H. C. Clarke, BArch(Auckland), ARAIA, ARIBA, ANZIA
R. J. Donaldson, BArch, ARAIA, ARIBA
M. F. Park, BArch(New South Wales), ASTM, ARAIA
J. R. Rockey, BArch(New South Wales), PhD(Anglican, Rome), DPhil(Oxford), ARAIA

Tutor
Sue Cumming, BArch(Melbourne)

Computer Programmer
D. J. Malcolm

Departmental Secretary
Diane L. McNeil

Technical Staff
P. J. Thomas

Laboratory Craftsman
(Vacant)

Laboratory Assistant
P. R. Muller

Location

The Faculty of Architecture functions in a self-contained building on the University campus where it is located across the western footbridge beyond the Library and Union over the ring road and adjacent to the Metallurgy building. The nearest general car park is west of the Metallurgy building. See the frontispiece plan for further details.

The postal address is:

Faculty of Architecture
The University of Newcastle, N.S.W. 2308

The University telephone number is 68 0401.

The Departmental Office extension number is 361.

University of Newcastle Architectural Students' Association

Membership is open to both students and staff of the Faculty of Architecture as well as members of the architectural profession. Students of other faculties may be admitted as associate members. The Association aims at bringing together students at all levels within the Faculty and holds functions, both social and academic, including lectures by prominent members of the profession. Announcements of the Architectural Students' Association's activities are posted on the Notice Board in the Architecture building.

Professional Recognition

Holders of the degree of Bachelor of Architecture of the University are entitled to be registered as architects under the New South Wales Architects Act (No. 8, 1921, as amended) and the Regulations under that Act as amended.

An up-to-date copy of the Act and Regulations is held in the Departmental Office as is a stock of forms for application for registration as an architect.

Registered architects may apply to the New South Wales Builders Licensing Board for a license to practise as builders under the Builders Licensing Act (N.S.W. 1971).

Professional Association

Students enrolled in the Faculty of Architecture are advised to apply for student membership of the Royal Australian Institute of Architects. The Institute issues a wide range of publications and holds numerous functions both social and educational at specially reduced rates for students, all of which should be of interest and value to the student architect.
Advisory Prerequisites for Entry to the Bachelor of Science (Arch.) in 1979

Students intending to enter the Faculty of Architecture will find the Building Science, Structures and Data Processing units of the undergraduate course approved by the Faculty easier to handle if at the 1977 H.S.C. examination they have attempted at least 2 units of mathematics and 2 units of physics and received grades of 1, 2 or 3 in these subjects.

Student Representation in Faculty Affairs

Provision is made for student representatives to be elected to the Departmental Board and the Faculty Board of the Faculty. The Faculty Board has responsibility for the teaching and research activities of the Faculty and determines such examinations as may be held within the Faculty.

The Departmental Board considers any matters related to the academic and other activities of the Department of Architecture referred to it by its members or by the Faculty Board, Faculty of Architecture and reports or makes recommendations as it sees fit to the Head of the Department of Architecture or the Faculty Board as may be appropriate.

Financial Assistance

Financial assistance is available to full-time students attending the University subject to certain conditions. Information on these conditions is available from Student Administration.

Selection for Admission

Admission to the Faculty of Architecture is competitive and in determining selection, account is taken of the academic qualifications and experience possessed by the applicant.

Awards

N. B. Pitt - James Hardie Scholarship, tenable for one year in Australia or overseas, is awarded to a University of Newcastle Bachelor of Architecture of not more than 3 years standing or a Bachelor of Architecture final year student for postgraduate study or research into environmental problems having particular regard to the Newcastle area.

Prizes

Newcastle Gas Co. Prize
This prize, donated by the Newcastle Gas Co. Ltd, is awarded at the end of 3rd year to the outstanding student in Architecture IIB, Architecture IIIB.

P.G.H. Prize
The P.G.H. prize, donated by P.G.H. Industries Ltd, is awarded to the outstanding student graduating with the B.Sc.(Arch.) (3rd year).

Board of Architects of New South Wales Prize
The Board of Architects of N.S.W. Prize is awarded for the best academic performance in the Bachelor of Architecture degree course, if of sufficient merit.

Further information on prizes and awards may be obtained from University Administration.

Drawing Office Equipment

Each student should acquire the following essential equipment prior to commencing the course:
A double elephant drawing board for home use with tee square to match.
12" adjustable set square.
Set of drawing instruments including spring bows and a pair of 6" compasses adaptable for pencil, pen and divider attachments.
12" architectural (not engine divided) composition scale with 1:100, 1:50; 1:20 and 1:10 scales.
Ruling and freehand pens, pencils varying from hard (H) to soft (B).
Water and poster colours.
One 6' steel tape, combined for inches and metric.
Steel erasing shield.
Dusting brush.

Academic Dress

The Academic Dress worn by graduates of the Faculty of Architecture of the University of Newcastle is as follows:

Gowns
(a) Degree of Bachelor
A gown of black cloth as worn by Bachelors of Arts of the University of Cambridge.
(b) Degree of Master
A gown of black cloth as worn by Masters of Arts of the University of Cambridge.
B. DEGREE REQUIREMENTS

Students enrolled under Degree Requirements introduced in 1973 should consult the 1975 Faculty handbook.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE (ARCHITECTURE)

1. Definitions
In these Requirements, unless the contrary intention appears, "the Faculty" means the Faculty of Architecture and "the Faculty Board" means the Faculty Board of the Faculty of Architecture.

2. Timetable Requirements
No candidate may enrol in any year for any combination of subjects which is incompatible with the requirements of the timetable for that year.

3. Annual Examinations
The Annual Examinations shall normally be held at the end of Third Term.

4. Special Examinations
A candidate may be granted a special examination in accordance with the provisions of By-law 5.9.3.

5. Examination Grades
The results of successful candidates at Annual Examinations and Special Examinations shall be classified:
Pass, Credit, Distinction, High Distinction.

6. Grading of Degree
The degree of Bachelor of Science (Architecture) may be conferred as an ordinary degree or as a degree with merit.

7. Relaxing Clause
In order to provide for exceptional circumstances arising in particular cases, the Senate, on the recommendation of the Faculty Board, may relax any requirement.

8. Qualification for Degree
To qualify for the degree, a candidate shall:
(a) pass the subjects prescribed in Schedule A; and
(b) satisfy the Elective Requirements prescribed in Schedule B.

(c) Degree of Doctor of Philosophy
A gown of garnet cloth faced with silver grey to a width of 4 inches.

Caps and Bonnets
(a) Degree of Bachelor and Master
Men — a black cloth trencher cap
Women — a black Canterbury cap.

(b) Degree of Doctor of Philosophy
A black velvet bonnet with a silver cord.

Hoods
(a) Degree of Bachelor of Science (Architecture)
A full hood of black silk lined to a depth of 6 inches with garnet and a 1½ inch edging of silver grey.

(b) Degree of Bachelor of Architecture
A full hood of black silk lined to a depth of 6 inches with garnet.

(c) Degree of Master of Architecture
A full hood of black silk lined with garnet.

(d) Degree of Doctor of Philosophy
A hood of garnet lined with silver grey.
9. **A Subject**

(a) To complete a subject qualifying towards the degree, hereinafter called a subject, a candidate shall attend such lectures, tutorials, seminars, laboratory classes and field work and submit such written work as the Department concerned shall require.

(b) To pass a subject a candidate shall satisfy the requirements of the previous clause and pass such examinations as the Faculty Board concerned shall require.

10. **Prerequisites and Corequisites**

(a) Except with the permission of the Dean acting on the recommendation of the Head of Department offering the subject, a candidate may not enrol in any subject unless he has satisfied the requirements for prerequisites and has enrolled in or has already passed the corequisite prescribed for that subject.

(b) A candidate shall not enrol in a Part III subject until he has passed all Part I subjects prescribed for the course.

11. **Standing**

A candidate may be granted such standing in the course in recognition of work completed in another course, faculty or tertiary institution as may be determined by the Faculty Board.

12. **Withdrawal**

(a) A candidate may withdraw from a subject or course only by informing the Secretary to the University in writing and the withdrawal shall take effect from the date of receipt of such notification.

(b) A candidate who withdraws after the sixth Monday in second term from a subject in which he has enrolled shall be deemed to have failed in the subject save that, after consultation with the Head of Department concerned, the Dean may grant permission for withdrawal without penalty.

13. **Progression**

(a) Progression in the course shall be by subject;

(b) A candidate may not enrol in more than four subjects in any one academic year. The Dean may, in individual cases, relax this Requirement but only if he is satisfied that exceptional circumstances exist or the academic merit of the candidate warrants such relaxation.
REQUIREMENTS FOR THE DEGREE OF
BACHELOR OF ARCHITECTURE

1. Definitions
In these Requirements, unless the contrary intention appears, "the Faculty" means the Faculty of Architecture and "the Faculty Board" means the Faculty Board of the Faculty of Architecture.

2. Registration as a Candidate
(a) An application to register as a candidate for the degree shall be made on the prescribed form and lodged with the Secretary by the closing date indicated.
(b) To be eligible for registration as a candidate an applicant shall —
(i) have satisfied all requirements for admission to the degree of Bachelor of Science (Architecture) in the University of Newcastle; or
(ii) have satisfied all requirements of another university for an equivalent qualification approved for this purpose by the Faculty Board; or
(iii) in exceptional circumstances hold such other academic and professional qualifications as may be approved, by Senate on the recommendation of the Faculty Board.

3. Timetable Requirements
No candidate may enrol in any year for any combination of subjects which is incompatible with the requirements of the timetable for that year.

4. Annual Examinations
The Annual Examinations shall normally be held at the end of Third Term.

5. Special Examinations
A candidate may be granted a special examination in accordance with the provisions of By-law 5.9.3.

6. Examination Grades
The results of successful candidates at Annual Examinations and Special Examinations shall be classified as:
- Pass
- Credit
- Distinction
- High Distinction

7. Grading of Degree
(a) the degree of Bachelor of Architecture may be conferred as an ordinary degree or as a degree with honours;
(b) there shall be two classes of Honours, namely Class I and Class II.

8. Medals
The Faculty Board may recommend for the award of a University medal any candidate qualifying for admission to the degree with 1st Class Honours who, in its opinion, has displayed outstanding ability.

9. Relaxing Clause
In order to provide for exceptional circumstances arising in particular cases, the Senate, on the recommendation of the Faculty Board, may relax any requirement.

10. Qualification for Degree
To qualify for the degree, a candidate shall:
(a) pass the subjects prescribed in Schedule C; and
(b) satisfy the Elective Requirements prescribed in Schedule D.

11. Prerequisites and Corequisites
Except with the permission of the Dean acting on the recommendation of the Head of Department offering the subject, a candidate may not enrol in any subject unless he has satisfied the requirements for prerequisites and has enrolled in or has already passed the corequisite prescribed for that subject.

12. A Subject
(a) To complete a subject qualifying towards the degree, hereinafter called a subject, a candidate shall attend such lectures, tutorials, seminars, laboratory classes and field work and submit such written work as the Department concerned shall require.
(b) To pass a subject a candidate shall satisfy the requirements of the previous clause and pass such examinations as the Faculty Board concerned shall require.

13. Standing
A candidate may be granted such standing in the course in recognition of work completed in another course, faculty or tertiary institution as may be determined by the Faculty Board.

14. Withdrawal
(a) A candidate may withdraw from a subject or course only by informing the Secretary to the University in writing and the withdrawal shall take effect from the date of receipt of such notification.
(b) A candidate who withdraws after the sixth Monday in second term from a subject in which he has enrolled shall be deemed to have failed in the subject save that, after consultation with the Head of Department concerned, the Dean may grant permission for withdrawal without penalty.
15. **Progression**

(a) Progression in the course shall be by subject;
(b) A candidate may not enrol in more than four subjects in any one academic year. The Dean may, in individual cases, relax this Requirement but only if he is satisfied that exceptional circumstances exist or the academic merit of the candidate warrants such relaxation.

**SCHEDULE OF SUBJECTS — SCHEDULE C**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Prerequisites</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part IV</td>
<td>Architecture IVA</td>
<td>Architecture IVA or Architecture IVC</td>
</tr>
<tr>
<td></td>
<td>Architecture IVB</td>
<td>Architecture IVB</td>
</tr>
<tr>
<td>Elective IV</td>
<td>See Schedule D</td>
<td>Architecture IVA or Architecture IVC</td>
</tr>
</tbody>
</table>

**SCHEDULE OF SUBJECTS — SCHEDULE D**

**ELECTIVE REQUIREMENTS**

**Electives 1V and V**

A candidate shall select either:

(a) a subject or subjects offered by a department other than the Department of Architecture and approved by the Dean provided that the subject or subjects selected have not been passed previously by the candidate, or

(b) a subject offered by the Department of Architecture and approved by the Dean from the list of subjects approved for this purpose by the Faculty Board provided that the subject selected has not been passed previously by the candidate.

**Note**

The approved list of Elective subjects appears in the section "Faculty Policies" in the Faculty of Architecture handbook.

**REQUIREMENTS FOR THE DEGREE OF MASTER OF ARCHITECTURE**

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

2. An applicant for registration for the degree of Master shall have been admitted to a Bachelor's degree in Architecture in an approved university, provided that,

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

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

3. The applicants approved by the Senate shall register in one of the following categories:

   (i) Student in full-time attendance at the University.
   (ii) Student in part-time attendance at the University.
   (iii) Student working externally to the University.

4. 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 Senate. The programme shall include the preparation and submission of a thesis embodying the results of all original investigations or design relative to architecture. The candidate may submit also for examination any work he has published whether or not such work is related to the thesis.

5. The investigation or design, and other work as provided in paragraph 4 shall be conducted under the direction of a supervisor appointed by Senate or under such conditions as Senate may determine.

6. Every candidate shall submit three copies of the thesis as provided under paragraph 4*. All copies of the thesis shall be in double-spaced typescript, shall include a summary of approximately 200 words, and a certificate signed by the candidate to the effect that the work has not been submitted for a higher degree to any other university or institution. The ORIGINAL copy of the thesis for deposit in the Library shall be prepared and bound in a form approved by the University. The other two copies of the thesis shall be bound in such a manner as allows their transmission to the examiners without possibility of disarrangement.

It shall be understood that the University retains the three copies of the thesis and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the Copyright Act (1968) the University may issue the thesis in whole or in part in photostat or microfilm or other copying medium.
7. No candidate shall be considered for the award of the degree until the lapse of six complete terms from the date from which the registration becomes effective, save that in the case of a full-time candidate who has obtained the degree of Bachelor of Architecture with Honours or who has had previous research experience, this period may, with the approval of Senate, be reduced by not more than three terms.

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

* The thesis and other relevant work may be submitted to the Secretary at any time during the year, within the provisions of paragraph 7 of the Master of Architecture Requirements. In order that a successful candidate may have a reasonable chance of having his degree awarded at a conferring of degrees ceremony, the candidate should arrange for his thesis and other relevant work to be in the hands of the Secretary at least fourteen weeks prior to the date of such ceremony.

C. FACULTY POLICIES

Faculty Board policies of special interest to students are as follows —

Criteria for the Award of the Degree with Merit and Honours

(a) Condition for the Award of the B.Sc.(Arch.) degree with Merit. To be eligible for consideration for the award of the degree of B.Sc.(Arch.) with Merit, a student's averaged results in all subjects of that course should be of credit grade or above and there should be no continuing record of failure in any subject.

(b) Condition for the Award of the B.Arch. degree with Honours. To be eligible for the award of the degree of Bachelor of Architecture with Honours Class I a student's averaged marks in all subjects of that course shall be 72% or better and there shall be no failure in any subject.

To be eligible for the award of the degree of Bachelor of Architecture with Honours Class II, a student's averaged marks in all subjects of the course shall lie between 65% and 71% inclusive and there shall be no failure in any subject.

Conditions for the Granting of Standing as determined by the Faculty Board, Faculty of Architecture pursuant to clause 11 of B.Sc.(Arch.) and clause 12 of the B.Arch. degree requirements

(a) Subject to the approval of the Dean of the Faculty of Architecture, standing may be granted in a subject, subject-unit or subject sub-unit in recognition of work completed in another course in this university or any other tertiary institution.

(b) For the purpose of determining eligibility for the award of a degree with merit in the case of the B.Sc.(Arch.) degree or with honours in the case of the B.Arch. degree, of students admitted to either degree course with standing, results of those subjects completed within the University of Newcastle, N.S.W., only shall be taken into account in accordance with the relevant degree requirements.

Student Progression

As indicated in the degree requirements and the schedule of subjects, students proceed by subject and not by year. A student who is required to repeat a subject may, in exceptional circumstances and at the discretion of the Head of the Department, be granted standing in any passed unit or sub-unit of that subject. A student who has failed a subject should apply to the Head of the Department to determine whether any standing will be granted in units/sub-units of that subject.

Subjects incompatible with the elective requirements for the B.Sc. (Arch.) and B.Arch. degree courses.

The following subjects offered by departments other than the Department of Architecture, shall not be approved as elective subjects in respect of clause 8 Qualification for Degree sub clause (b) of the B.Sc. degree requirements and clause 10 Qualification for Degree sub clause (b) of the B.Arch. degree requirements because their content overlaps substantially with core subjects in the degree courses:

- Introductory Quantitative Methods
- Commercial EDP
- Legal Studies 1

Students may not enrol in the units CE111 Statics and ME111 Graphics and Engineering Drawing offered by the Faculty of Engineering.

List of subjects approved by the Faculty Board as electives to be offered by the Department of Architecture in 1979.

**B.Sc.(Arch.) Degree Course**

Elective I may be chosen from:
- Urban Design A
- Fine Arts

Electives II and III may be chosen from:
- Fine Arts
- Movements in Contemporary Architecture
- Urban Design A
- Urban Design B

**B.Arch. Degree Course**

Electives IV and V may be chosen from:
- Architectural Research
- Fine Arts
- Movements in Contemporary Architecture
- Urban Design A
- Urban Design B

Note: Students are advised that not all subjects listed will necessarily be offered in 1979.
D. SUBJECT DESCRIPTIONS

Preface

Subject descriptions are currently under review in the Department of Architecture and any variations and additional information to that shown below will be issued from the Departmental Office after the 1st February, 1979.

Subject Outlines and Reading Lists are set out in a standard format to facilitate easy reference. The policy adopted in this Handbook for interpretation of the various sections is set out below. This may not necessarily be the same policy adopted for other Faculty Handbooks.

(1) Name

The official subject name as included in the Schedule of the degree requirements. This name must be used when completing any forms regarding enrolment or variation of enrolment.

(2) Prerequisites

Before enrolling in the subject, a student shall have passed the subjects listed as prerequisites. In some cases an advisory prerequisite is stated and although this is not compulsory, it would be a distinct advantage for the student to have passed such a subject.

(3) Corequisite

A corequisite is a subject which should be taken concurrently with another subject if not previously passed.

(4) Hours

Subject hours may include lectures, tutorials or studio periods. The periods vary in length, but are normally of one or two hours duration. Students should read the timetable for details.

(5) Examination

The formal examination requirements are stated, however, progressive assessment is used in many subjects and students are required to make submissions of work as specified by lecturers and tutors. Periodic examinations are usually held during the year. Work completed during the year will be taken into account in assessing students' final resultant grades. Failure to submit written work may involve exclusion from examinations in accordance with the University By-Laws.

(6) Content

An outline of subject content.

(7) Suggested Preliminary Reading

A list of reading material which should help the student gain a basic understanding of a subject. This material should be read before attending the first lecture on the subject.

(8) Texts

Essential books which are recommended for purchase.

(9) References

Students should not restrict their reading to texts. Lists of other references will be issued to cover various aspects of the subject. Students may need to read all or part of a reference to gain an appreciation of a particular topic.

(10) Electives

A list of subject electives with relevant details will be available from the Faculty Secretary.

211700 Architecture IA

Prerequisites Nil

Hours See individual unit requirements

Examination See individual unit requirements

Content Arch. IA consists of the following units:

(i) 211701 Visual Studies
(ii) 211702 Data Processing
(iii) 211705 Man Environment Studies

(i) 211701 VISUAL STUDIES

Hours 3½ hours per week

Content Descriptive Geometry
Qualities of materials
Light, Shadow
Qualities of 2D and 3D
Texture and Relief
Qualities of Colour
Natural Growth
Proportion
Lettering, Graphics
Presentation — Media and Techniques
Sketching
Visual aspects of building detail
Consideration of other visual disciplines

Unit Requirements

Weekly studio and/or field sessions will be held. Regular Descriptive Geometry assignments will be set. Although a programme will be given for the other projects, a flexibility will be provided to encourage a self-realised development.

Assessment and Examination

Descriptive Geometry submissions will be given a guide grade. Other projects will generally not be given separate grades, but will be seen as part of a student's overall work in the Unit.

A submission of the complete year's work is to be made at the end of Term 3. The Final Grade for the Unit will be determined after review of this submission.
(ii) 211702 DATA PROCESSING

**Hours**
1 hour lecture and 1 hour tutorial per week

**Content**
(a) Data Processing
   - Introduction to Computer Programming using FORTRAN.
   - Some architectural applications such as shadow and sunlight penetration calculations.
   - The use of packages such as Perspective Plotting and Structural Frame Analysis.

(b) Information Retrieval
   - The use of libraries. Information filing.

**Unit Requirements**
Approximately 15 assignments (which include the running of computer and packages) and one essay (on information retrieval).

**Assessment and Examination**
One midyear test and one end of year test at the time of the final examinations, each of equal value of approximately 30%.

The assignments will count approximately 20% towards the final assessment.

The essay will count approximately 20% towards the final assessment.

**Text**
Watters, J. *Fortran Programming* (Heinemann 1972)

(iii) 211705 MAN ENVIRONMENT STUDIES

**Content**
Man Environment Studies consists of the following sub-units:
(a) 211706 Human Factors Engineering
(b) 211707 History of Architecture

(a) 211706 HUMAN FACTORS ENGINEERING
(Anthropometrics and Ergonomics)

**Hours**
Approx. 4 hour of formal class commitment per week plus not less than 1½ hours per week private supporting study.

**Content**
(a) First Term:
   - Introductory lectures and discussions of anthropometrics and ergonomics.
   - The students carry out a limited anthropometric survey to familiarise themselves with the measure of man.

(b) Second Term:
   - Full size models are made of any article that has its form determined ergonomically.
   - In preparation for making the model the student is required to carry out an investigation of the selected topic including, as appropriate, a bibliographic survey and/or field survey; and to justify conclusions and design proposals in a seminar submission.

(c) Third Term:
   - Seminar sessions on selected topics.
   - Topics studies in detail by students in past years include the design of office chairs, lounge chairs, cutlery, crockery, door handles, stair handrails, car seats, beds, surf boards, drafting table with chair, toilet seats, public outdoor seating, special design requirements for infants, school children, physically and mentally handicapped persons and geriatrics.

**Sub-Unit Requirements**
Within the outline of activities listed above:
(a) Students are required to attend all lectures and seminar discussions, to participate in discussion and take notes of all sessions — for it is the purpose of the course to assist the student to develop an ability in solving ergonomic problems. Practical experience is seen as a valuable vehicle toward that goal.
(b) The nature of submissions will be a function of the topic under study and will be determined in consultation with staff.
   - Submissions may be in the form of an essay, orthographies, models, and/or seminars in which any visual, audio or any other means of communication may be used.
(c) Students may elect to work on projects individually or in groups. Some projects may be specified to be individual submissions.

**Assessment and Examination**
Assessment will be progressive based on project submissions and seminars.

**References**
Chapanis, A. *Man-Machine Engineering* (Tavistock Publications 1965)
Sinaiko, H. W. *Selected papers on human factors in the Design and use of control systems* (Dover Publications 1961)
Kellermann, F. T. L. & other
   - *Vademecum Ergonomics in Industry* (Philips Technical Library 1963)

(b) 211707 HISTORY OF ARCHITECTURE

**Hours**
1 hour per week

**Content**
Topics may include:
   - Histories of architecture on the comparative method; vernacular architecture; theories of design; analysis of spatial forms, solid and visible forms of selected architectural styles; politics and architecture; architecture in the third world; modern neo-classical architecture in America; the revival of applied decoration in architecture; symbolism in architecture; post modern architecture; mannerism in contemporary architecture.
Sub-Unit Requirements
The student will initiate his or her own project in co-operation with the lecturer, who will guide and facilitate historical enquiries. The student may choose essay, seminar or audio-visual methods for the communication of projects.

Assessment and Examination
Projects will be assessed by the student and the lecturer. Both will propose a grade for each term's work. The Head of Department will correlate sub-unit, unit and subject grades.

Texts and References
To relate to projects.

211800 Architecture IB

Prerequisites
Nil

Hours
See individual unit requirements

Examination
See individual unit requirements

Content
Arch. IB consists of the following units:
(i) 211801 Structures
(ii) 211802 Construction
(iii) 211803 Environmental Technology

(i) 211801 STRUCTURES

Hours
1½ hours per week — includes lecture and tutorial

Content
Deals with two dimensional and three dimensional statics, internal actions in rigid bars and pin jointed frames.

Unit Requirements
Weekly tutorial and home assignments, two term examinations and final examination.

Assessment and Examination
First term examination 20%
Second term examination 20%
Final examination 40%
Tutorial and home assignments 20%
Each assignment carries equal weight.

Text

(ii) 211802 CONSTRUCTION

Hours
Lecture 1 hour per week
Tutorial/Studio 1½ hours per week
Field Trips Approx. 2 hours each for 3 trips per term
Excursions No set time but usually on the basis of 1 full day excursion per term

Content
The unit offers an introduction to methods of building construction based on the limitations of:
1) walk up
2) light framed construction
3) simple load bearing construction

This involves the coverage of:
1) Conventional and light timber framed domestic construction
2) Post and beam portal frames and non load bearing in fills
3) Alternatives to the above including proprietary metal framing systems.

Complementary to this is a coverage of site investigation methods. Fabrication, joinery, materials and finishes are covered in relation to the content matter and all elements are reviewed in their context as design elements.

Techniques of documentation and communication are covered using drafted, written and 3D model methods.

Assessment of submissions is orientated towards providing an adequate feedback of information after submission.

Lectures and tutorials are arranged in similar order to those processes occurring on the building site to display the need for complete job/trade co-ordination.

Unit Requirements
Drawn submissions include both freehand and mechanical scaled detail drawings of the various elements being treated. Generally assignments are set on the basis of one per week and submission times based on the particular problem in hand.

All assignments set must be submitted by the end of the term in which they were set.

Specialised reports are called for which include:
1) footing failure in a selected building
2) several detailed reports on the total progress of a selected building under construction
3) the demolition of a building displaying traditional methods of construction and observing those elements which have failed or remained effective.

Group work includes the submission of various scaled construction models.

Attendance is considered a matter for the individual student but attendance at studio sessions as a working group is highly stressed.

Assessment and Examination
Assignments are set generally on a weekly basis but include extensive investigation reports which are submitted at the end of each term.

Marks for these assignments are averaged with those for short term quizzes and this result is used as 70% of the end of year result.

The remaining 30% is composed of the result of a formal end of year examination.

The final result becomes 1/3 of the final subject result along with Environmental Technology and Structures. Assignments are reviewed and commented upon by the lecturer and a grading only given.

Texts and References
To be advised.
(iii) 211803 ENVIRONMENTAL TECHNOLOGY

Content
Environmental Technology unit consists of the following sub-units
(a) 211804 Properties of Materials
(b) 211805 Building Services

(a) 211804 PROPERTIES OF MATERIALS

Hours
Lecture 1 hour per week
Field Trips 1 per section as required
Excursions These are usually combined with field trips in Construction.

Content
The sub-unit investigates the properties of most building materials including
1) Cement and Concrete
2) Timber
3) Ceramic Materials
4) Concrete products
5) Metals
6) Stone
7) Plastics
8) Glass
9) Protective Coatings and Preservatives.

Particular attention is offered to the
1) Properties
2) Characteristics
3) Hazards
4) Special requirements
5) Grading, measuring
6) Use as a technical element
7) Use as a design element of each of or a group of the materials covered.

Guest lecturers representing various trade bodies are invited to offer special information on their products in the light of future developments in availability, relative cost, efficiency, etc. Various manufacturing processes are visited.

Sub-Unit Requirements
Assignments are set at the completion of each stage which involve the submission of research reports, diagrams, sketches of the work covered and include an assignment dealing with a material or combination of materials which explore an alternative material technology.

Assessment and Examination
The results of section assignments are averaged with the results of term quizzes all of which are assessed and marked by the lecturer. This result is used as 60% of the end of year result.
The final result produced is averaged with that for the Properties of Materials sub-unit to form 1/3 of the total result for Architecture IB along with Structures and Construction.

Texts and References
To be advised.

(b) 211805 BUILDING SERVICES

Hours
Lecture 1 hour per week
Field Trips 1 per section as required
Excursions These are usually combined with field trips in Construction.

Content
The sub-unit extending over 3 terms provides an introduction to services connected to or located within a building. This involves an investigation of the following:
1. Water Supply and Reticulation
2. Sanitation Appliances
3. Waste and Soil Services
4. Drainage Services
5. Refuse Disposal
6. Electrical Installation
7. Gas Services
8. Heating, Ventilation and Air Conditioning
9. Vertical and Horizontal Transport systems

Particular attention is offered to
1) Integration and co-ordination of Services
2) Economy
3) Efficiency
4) Human Aspects
5) Technical Aspects

No attempt is made at this stage to offer expertise in the design of systems in detail. However a general understanding and working knowledge of services is aimed at. Detailed expertise is expected to come from later years in this sub-unit. Students are expected to attain an understanding of what services exist or are necessary, what they do, where they are situated, how they work, how they co-ordinate and their advantages and disadvantages.

Sub-Unit Requirements
Assignments are set which involve the submission of research reports, diagrams, sketches, etc. of services under investigation. Students are required to complement the lecture course by personal investigation of and consequent reporting on selected examples of service installations.

Assessment and Examination
The results of section assignments are averaged with the results of term quizzes all of which are assessed and graded by the lecturer. This result is used as the end of year result.
The final result produced is averaged with that for the Properties of Materials sub-unit to form 1/3 of the total result for Architecture IB along with Structures and Construction.

Texts and References
To be advised.
211900 Architecture IC

Prerequisites
Nil

Corequisites
Architecture IA & IB

For details regarding Architecture C subjects see page 52 of this handbook.

212800 Architecture IIA

Prerequisites
Architecture IA

Hours
See individual unit requirements

Examination
See individual unit requirements

Content
Arch. IIA consists of the following units:
(i) 212801 Visual Studies
(ii) 212802 Data Processing
(iii) 212805 Man Environment Studies

(i) 212801 VISUAL STUDIES

Hours
3 hours per week

Content
Development of selected topics in Visual Studies I
Field Sketching
Sculpture
Printmaking
Building Detail

Unit Requirements
Weekly studio and/or field sessions will be held. Although a programme
will be given for the projects, a flexibility will be provided to encourage
a self-realised development.

Assessment and Examination
Projects will generally not be given separate grades, but will be seen as
part of a student's overall work in the Unit.
A submission of the complete year's work is to be made at the end of
Term 3. The Final Grade for the Unit will be determined after review
of this submission.

Texts and References
Nil

(ii) 212802 DATA PROCESSING

Content
Data Processing consists of the following sub-units:
(a) 212803 Statistics
(b) 212804 Computing Studies

(a) 212803 STATISTICS

Hours
Lecture
one and a half/hour/week
Tutorials
to be integrated with lecture

Content
1. Introduction
Nature of statistics; History of statistics.

2. Sets and Probability
Sets and subsets, Set operations, Sample Space,
Counting, Probability, Probability Laws,
Conditional Probability, Bayes' Rule.

3. Distribution and Random Variables
Concept of a Random Variable, Discrete
Probability Distributions, Continuous
Probability Distributions, Empirical
Distributions, Percentiles, Deciles and Quartiles,
Joint Probability Distributions.

4. Organisation of Data
Table, Graphical Methods, Measures
of Central Tendency and Dispersion.

5. Mathematical Expectations
Expected value of a random variable, Laws of
Expectation, Special Mathematical Expectations,
Properties of Variance, Chebyshev's Theorem.

6. Probability Distributions and Applications
Binomial, Hypergeometric, Poisson & Normal
Distributions. Use of Normal Distribution
Curve and Table.

Sub-Unit Requirements
It is a one-term sub-unit of lectures and tutorials.

Assessment and Examination
Class Assignments 50%
End of Term Examination 50%

Text
Walpole, R. E. Introduction to Statistics 2nd edn (Macmillan)

References
Feller, W. An Introduction to Probability Theory and its
Application Vol. 1 (Wiley)
Neter, J. & others Fundamental Statistics for Business and Economics
(Allyn & Bacon)
Sherlock, A. J. An Introduction to Probability and Statistics
(Edward Arnold)
Clark, T. C. & Schkade, L. L. Statistical Methods for Business Decisions (South
Western)

(b) 212804 COMPUTING STUDIES

Hours
Approximately 1½ hours per week

Content
Lectures and tutorials on the FORTRAN computing
language and batch processing on the ICL 1904 A
computer.
Development of a computer program to calculate
solar altitude and azimuth angles for any time of day
for any day of year.
Use of this program to calculate position of shadows.
Use of perspective package PERSDRAW.
Use of plane frame stress package PLANEFRA.M.

Assessment and Examination
Two 1½ hour examinations together with assignments.

Text
Watters, J. Fortran Programming (Heinemann
1972)
(iii) 212805 MAN ENVIRONMENT STUDIES

Content
Man Environment Studies consists of the following sub-units:
(a) 212806 Social Sciences
(b) 212807 History of Architecture

(a) 212806 SOCIAL SCIENCES

Hours
Approximately 1 hour per week

Content
Social Sciences sets out to examine how Architecture serves man's spiritual, aesthetic and physical needs. The transmission of value systems through the built environment are illustrated by discussions on the influences of social, political and economic thought on the designer. Studies on the history of technological innovation, human institutions and ideas of social progress will portray how ideals and movements shape society and determine architectural expression.

Sub-Unit Requirements
Selected assignments into the social aspects of Architecture aim to assist the student's personal development and awaken his professional convictions by exercising his ability to refine research material, define social objectives, and understand the complexity of the social phenomena.

Assessment and Examination
Term papers and final examination.

Texts and References
Pacey, A. The Maze of Ingenuity: Ideas and Idealism in the Development of Technology (M.I.T. 1976)
Schumacher, E. F. Small is Beautiful: A Study of Economics as if People Mattered (Abacus 1974)

(b) 212807 HISTORY OF ARCHITECTURE

Hours
1 hour per week

Content
Topics may include:
histories of architecture on the comparative method; vernacular architecture; theories of design; analysis of spatial forms, solid and visible forms of selected architectural styles; politics and architecture; architecture in the third world; modern neo-classical architecture in America; the revival of applied decoration in architecture; symbolism in architecture; post modern architecture; mannerism in contemporary architecture.

Sub-Unit Requirements
The student will initiate his or her own project in co-operation with the lecturer, who will guide and facilitate historical enquiries. The student may choose essay, seminar or audio-visual methods for the communication of projects.

Assessment and Examination
Projects will be assessed by the student and the lecturer. Both will propose a grade for each term's work. The Head of Department will correlate sub-unit, unit and subject grades.

Texts and References
To relate to projects.

212820 Architecture IIB

Prerequisite
Architecture IB

Hours
See individual unit requirements

Examination
See individual unit requirements

Content
Arch. IIB consists of the following units:
(i) 212821 Structures
(ii) 212822 Construction
(iii) 212823 Environmental Technology

(i) 212821 STRUCTURES

Hours
1½ hours per week including lectures and tutorials

Content
1. Uniaxial Loading
   Force/deflection relationships; elastic and non-elastic behaviour; stress and strain; material properties; Poisson effect; axial deflections; strain energy; axially loaded curved members.
2. State of Stress
   Direct stresses and shear stresses; general 3-dimensional state of stress; uniaxial, biaxial and triaxial loading as special cases; principal stresses and maximum shear stresses and their directions; Mohr’s stress circle.
3. State of Strain
   Normal, area and volumetric strains; shear strain; general state of strain; principal strains, maximum shear strains and their directions, Mohr’s strain circle.
4. Elastic Stress Strain Relationships
   Principal stresses and principal strains; shear stresses and shear strains; combined normal and shear stresses and strains; Young’s Modulus, Poisson’s Ratio, Shear modulus.
5. Internal Force Diagrams
   Axial force, shear force, bending moment and torsion diagrams; use of static equilibrium to derive external reactions and internal forces.
6. Bending and Shear Stresses in Flexure
   Cross-section properties, centroid location, first and second moment of area. Computation of direct bending stresses; elastic and elastic-plastic behaviour. Flexural stiffness; computation of flexural deflections by integration of moment-curvature relationship. Shear force, computation of shear stresses in flexure; combined direct and shear stresses in flexure-resultant principal stress directions.
7. Combined Bending and Axial Load
   Elastic case: computation of maximum and minimum stresses.
8. Column Behaviour
   Short columns, buckling, Euler critical load, intermediate bracing, effective length; end conditions; critical stress, eccentric loading.
9. Torsion
   Shear flow, shear, centre, solid; circular section, hollow sections, open sections.

Unit Requirements
Weekly tutorial and home assignments, limited amount of laboratory work and submission of laboratory report on group basis, two term examinations and final examination.

Assessment and Examination
First term examination 20%
Second term examination 20%
Final examination 40%
Tutorial and home assignments 20%
Each assignment carries equal value but each laboratory report carries weight equal to five assignments.

Text

Reference
Timoshenko, S. Strength of Materials Part I (Van Nostrand)

(ii) 213822 CONSTRUCTION

Hours
A total of 2 1/2 hours per week including lectures, studio work and excursions.

Content
Following the precept that design is indivisible and that the subject and its units, the technologies, the unit construction is considered as an area of study in collaboration with the projects required to be accomplished and integrated with the synthesis subject of Group II.
The constructional studies are concerned with the basic technology of load bearing wall construction up to five stories in height.
The student should become acquainted with technical literature, constructional detail, methods appropriate to the course content. The series of lectures includes consideration of:

Foundations
Soils,
Safe bearing values,
Cut and fill,
Larger projects with mixed foundations,
Site, including sampling and testing methods of soil strata,
Excavation and earth moving,
Requirements of local Government Building Ordinance No. 70.

Footings
Use and application of all types of footings for various structural systems.

Basements and Cellars
Retaining walls,
Soil drainage,
Waterproofing,
Cantilever slabs,
Hydrostatic pressure,
Methods of de-watering.

Masonry Walls
Load bearing construction methods,
Jointing of dissimilar materials,
Wall thicknesses required by Ordinance 70,
Expansion joints,
Applications of damp proof courses and flashings,
Wall facings in brick, stone, masonry, veneers, plastering,
Ceramic tiles,
Terracotta,
Applied finishes,
Floors,
Concrete floors on fill and suspended,
Formwork for concrete slabs,
Beams and columns,
Materials used for supporting formworks and stripping methods,
Upper timber floor constructions,
Floor finishes,
Granolithic terrazzo sheet and tile materials.

Roofs
Truss forms and their construction in timber and steel,
Jointings and fastenings,
Ventilation and glazing,
Sheet roof coverings,
Box gutters,
Parapets and verges.

Unit Requirements
The student will be expected to progressively read and carry out a literature research for each of the lectures and to prepare a report, including sketches, on each of the six major subsections of the unit subject unit and to prepare fully communicative detailed drawings for each subsection.
During the second or third term, depending on the synthesis project working drawings and give detail sheets of the students submission in the C subject is required. The prepared folio of working drawings and details is to be submitted with a report of 3,000 words, typed, fully describing and commenting on the constructional methods used.

Attendance at lectures and studio periods for discussions with lecturers is an essential co-requisite as will be seen from the method of assessment and examination.

Assessment and Examination
All assignments and submissions will be assessed and marked by the lecturer who will award marks in percentages for:
(a) Each of the six assignments.
(b) Working drawings and detail assignment which will have a factor of seven.
(c) Each of the two term tests set.
(i) The total of the marks so awarded in a, b, and c, will be directly averaged to determine a year's mark which shall form 60% of the final mark in the subject unit.

(ii) The final end of year examination percentage mark will form 40% of the final mark in the subject unit. By adding the resultant marks of (i) and (ii) so will be determined the final mark and grade in the subject unit.

Texts and References
To be advised.

(iii) 212823 ENVIRONMENTAL TECHNOLOGY
Content
Environmental Technology consists of the following sub-units:
(a) 212824 Building Science
(b) 212825 Building Services

(a) 212824 BUILDING SCIENCE
Hours
Approx. 1.5 hours of formal class commitment per week plus not less than 3 hours per week private supporting study.

Content
Lectures, seminars, laboratory work and field survey studies in the assessment of the thermal environment, natural ventilation and solar radiation control. There will be emphasis placed upon fenestration design that integrates design for the internal thermal environment, natural ventilation or air-conditioning, and solar radiation control with the structure and fabric of the external walls of a building. The aim will be that the student no longer thinks in terms of a sun screening device but rather in terms of fenestration design and building envelope design. A lecture series will be offered on detailed fenestration design of modern buildings in cities throughout the world.

As a vehicle to gaining an insight into basic rationale in design for climate, students will research and present in seminar form studies of indigenous architecture in a variety of climatic zones and cultures.

Sub-Unit Requirements
(a) Students are required to attend all lectures, laboratory sessions and seminars and to submit all assignments.

(b) The student should determine by discussion with the lecturer, the appropriate method of communicating submissions.

Assignments, will include analytical numerate calculations, subjective field surveys, three dimensional analysis or orthographics and scale model analysis and design. Scale model analysis will be carried out for solar radiation control and design for natural ventilation. The student is advised to establish a store of model materials including cardboard, coloured papers, glue, masking tapes, balsa wood and perspex as model work will be carried out not only in this subject but also in a number of other subjects.

Note: Students are advised to orient their behaviour to working on models in the architecture building where advice and guidance can be obtained during tutorial sessions. It is not possible to effectively advise a student on the appropriateness of his design if the student insists that he works on his model at home and delivers it as a "fait accompli" on the submission date.

Assessment and Examination
Students' grading in the subject will be based upon 60% progressive assessment for assignments and seminars presented throughout the year; and 40% for an end of year examination. Progressive assessment has been accepted as fundamental to the method of presenting this subject and students must make submissions by the due date.

Texts
Giovoni, B. Man, Climate and Architecture (Elsevier 1969)

Commonwealth Experimental Building Station, Sydney.
Technical Studies:
No. 24 Climate and House Design
No. 36 Selected Australian Climate Data for use in Building Design
Bulletins:
No. 3 Climate and House Design
No. 6 Designing Houses for Australian Climate
Notes on the Science of Building:
No. 1 Design for Climate — Hot, Arid & Humid
No. 21 Design for Climate — Temperate Climate
No. 32 Design for Climate — Cold Winter Climate.

References
Bedford, T. Basic Principles of Ventilation and Heating (H. K. Lewis 1948)

Students will be issued with a comprehensive bibliography on commencement of study in this sub-unit.

(b) 212825 BUILDING SERVICES
Hours 1 hour per week

Content
The sub-unit provides a detailed investigation of selected services from the point of view of the Architect's responsibility.

The following areas will be dealt with:
House Drainage in sewer areas
Materials used, correct use of fittings, house drainage design, house drainage principles, inspection, testing.
House Drainage in unsewered areas
Disposal of liquid wastes in unsewered areas.
Sanitary Plumbing
Materials used, stock design in relation to the type of building and positioning of fixtures. Positioning of fixtures to simplify and reduce sanitary plumbing costs. Flushing systems.

Water supply in reticulated areas
Primary formalities for supply, service from main to meter, materials, sizes. Position of service in relation to water main and building. Service pipes from meter to fixtures, laid underground, above ground, concealed in the building. Water supply to high rise buildings, pumping, storage, pressure vessel storage.

Hot water supply
Central heating and distribution is not discussed. The following question is posed: The Architect is commissioned to design (a) a home, (b) block of home units, (c) block of residential flats, i.e., Bachelor flat, one bed room unit, family unit, etc. The available systems are discussed (not brands) merits and demerits, the hot water needs according to number of people and their occupations, running costs, the discussion being the basis on which the Architect will advise his client regarding the hot water system to be installed.

Gas Services
The basis of design of the service and formula (recorded only in notes) for pipe sizing. Position of gas services on or within the building and effect on building appearance.

The final 1/3 of the year involves the detailed consideration of the following:
1. Security and Protection equipment
   a) Lighting services
   b) Fire Fighting hydrants and services.
2. Waste Processing
   Collection, disposal, utilisation, maintenance and cleaning equipment, stand by plant.
3. Co-ordination of services
   Planning, By-Laws, Sub-contracts for engineering services.

Sub-Unit Requirements
Assignments are set which involve the submission of research reports, diagrams, sketches, etc. of services under investigation. Students are expected to complement the lecture/tutorial/demonstration course by personal investigation of and consequent reporting on selected examples of service installation.

Assessment and Examination
The results of set projects are used to produce a progressively assessed result for the sub-unit. No formal examination is offered.

The result produced is averaged with that for lighting/acoustics sub-unit to form 1/3 of the total result for Architecture IIB along with structures and construction.

Texts and References
To be advised.

212840 Architecture IIC
Prerequisite: Architecture IC
Corequisites: Architecture IIA or IIB
For details of Architecture C subjects see page 52 of this handbook.

213800 Architecture IIIA
Prerequisite: Architecture IIA
Hours: See individual unit requirements
Examination: See individual unit requirements
Content: Architecture IIIA consists of the following units:
(i) 213801 Visual Studies
(ii) 213802 Data Processing
(iii) 213801 Man Environment Studies

(i) 213801 VISUAL STUDIES
Hours: 1½ hours per week
Content: Development of selected topics in Visual Studies (Arch. IIA)
Photography
Building Detail
Life Drawing
Man/Space Projects
Light/Kinetics

Unit Requirements
Weekly studio sessions will be held. Although a programme will be given for the projects, a flexibility will be provided to encourage a self-realised development.

Assessment and Examination
Projects will generally not be given separate grades, but will be seen as part of a student's overall work in the Unit. A submission of the complete year's work is to be made at the end of Term 3. The Final Grade for the Unit will be determined after review of this submission.

Reference: deMaré, Eric Photography 5th edn (Penguin 1970)

(ii) 213802 DATA PROCESSING
Content: Data Processing consists of the following sub-unit:
(a) 213803 Statistics

(a) 213803 STATISTICS
Hours: 1 hour per week
Content: 1. Sampling Theory
Sampling Distributions, Sampling Distributions of the Mean, Sampling Distribution of the Differences of the Mean, Student's $t$ Distribution, Chi-square Distribution, $F$ Distribution.
2. Estimation Theory


3. Tests of Hypothesis

Hypotheses about the State of the World, Types I & II Errors, One-tailed and Two-tailed Tests, Testing Concerning Means and Variances, Goodness of Fit Test, Test for Independence, Sign & Tests.

4. Regression and Correlation

Linear Regression, Estimation of Parameters, Prediction, Test for Linearity of Regression, Correlation.

5. Computer Applications

Use of standard packages.

Sub-Unit Requirements

It is a one-term sub-unit of lectures and tutorials.

Assessment

Class Assignments 50%
End-of-Term Examination 50%

Text

Walpole, R. E. Introduction to Statistics 2nd edn (Macmillan)

References

b) Neter, J. & others Fundamental Statistics for Business and Economics (Allyn & Bacon)
c) Sherlock, A. J. An Introduction to Probability and Statistics (Edward Arnold)
d) Clark, T. C. & Schkade, L. L. Statistical Methods for Business Decisions (South-Western)

(iii) 213804 MAN ENVIRONMENT STUDIES

Content

Man Environment Studies consists of the following sub-units:

(a) 213805 Social Sciences
(b) 213806 History of Architecture

(a) 213805: SOCIAL SCIENCES

Hours Approximately 1 hour per week

Content

This sub-unit complements the social science unit of the previous year by studying environmental effects on individuals and communities. Architectural psychology examines questions of colour, space and place while sociological problems of group dynamics illustrate how far architecture goes beyond the disciplines of art, building and business.

Sub-Unit Requirements

Objective surveys and assessment of buildings, spaces and places will ascertain, to a certain extent, their value and effectiveness as well as provide data for the student’s future use.

213820 Architecture IIIB

Prerequisite

Architecture IIB

Hours

See individual unit requirements

Examination

See individual unit requirements

Content

Architecture IIIB consists of the following units:

(i) 213821 Structures
(ii) 213822 Construction
(iii) 213825 Environmental Technology
(i) \textbf{213821 Structures} \\
\textbf{Content} \\
The following areas will be covered: \\
\textbf{Wind Forces AS1170 Part II} \\
Basic principles. Design wind velocity and pressure. \\
Pressure coefficients. Slides and example computations. \\
\textbf{Dead and Live Loads AS1170 Part I} \\
Static weight of materials. Variable Live Loads — \\
floors, ceilings, roofs. Dynamic loads. Surveys of \\
loading. Example computations. \\
\textbf{Construction, Fire and Earthquake Loading} \\
Combustible content, fire testing and fire ratings, fire 
protection. \\
\textbf{Qualitative Consideration of the Criteria of Structural 
Design} \\
Strength, Deflection, Creep, Torsional Buckling, 
Lateral Buckling, Instability. \\
\textbf{Qualitative Consideration of the Structural Behaviour 
of Superstructure} \\
Isostatic and Indeterminate, Simple Beams, Trusses, 
King Post, Warren Girder, Member Joints, Space 
Frames, Hypostatic and Indeterminate, Fixed End/ 
Continuous Beams, Rigid Frames, Portals, Multi­ 
storey Frames, Vierendeel Girder, R.C. Frame, 
Flat Plate/Slab. \\
\textbf{Review of SAA Building Codes and Material} 
\textbf{Specifications} \\
Loading Codes, Steel Structures, Cold-formed 
Structures, Welding Code, High Strength Bolting 
Code, Lift Code, Crane and Hoist Code, Concrete 
Structures, Prestressed Concrete, Brickwork Code, 
Concrete Block Masonry Code, Light Timber 
Framing Code. \\
\textbf{Steel Structures AS1250} \\
Design of Beams, Trusses, Columns and Struts, 
Tension Members, Design examples. Design Aids — 
AISC Safe Load Tables for Structural Steel. \\
\textbf{Concrete Structures AS1480} \\
Ultimate Strength and Working Stress Methods, 
Development Length Concept, Design of Slabs, 
Beams, Columns, Footings, Design examples, Design 
Aids — Aust. R.C. Design Handbook by Cement & 
Concrete Association of Australia. \\
\textbf{Brickwork Code AS1640} \\
Structural vs. Cottage Brickwork, Design Principles, 
Slenderness Ratio and Lateral Stability, Allowable 
Stresses, Testing, Design Examples. \\
\textbf{Designation of Architectural Foundations with some} 
\textbf{Basic Calculations} \\
Classification of Soils, Methods of Testing, Bearing 
Capacity, Settlement and Deformation, Problems and 
Failures. \\
\textbf{Architectural Foundations} \\
Pad and Strip Footings, Raft Floors, Bearing on Rock, 
Piling Retaining Walls. \\

\textbf{Assessment and Examination} \\
The lecturer will award marks in grades for the assignments and term 
tests and these will be combined with the marks of the final examination to 
determine the final mark and grade in the subject. \\

\textbf{Texts and References} \\
The Building Codes and Standards as set out in the content section 
above.

(ii) \textbf{213822 Construction} \\
\textbf{Content} \\
Lectures and assignments covering the following aspects of framed construction as applied to high-rise and 
heavy industrial buildings: \\
Performance and maintenance, foundations — 
footings — building failures, framing systems, 
bracing, connection of members, basements, floors, 
walls, roofs, cladding, internal elements and finishes, 
service installations, fire protection, fire resisting 
construction, special consideration of industrial 
building types, control joints, sealants, finishes and performance of materials. \\

\textbf{Subject Requirements} \\
Assignments, drawings, reports, and three or four organised field trips. \\

\textbf{Texts and References} \\
To be advised.

(iii) \textbf{213825 Environmental Technology} \\
\textbf{Content} \\
Environmental Technology consists of the following 
sub-units: 
(a) \textbf{213826 Building Science} 
(b) \textbf{213827 Building Services} \\
\textbf{(a) 213826 Building Science} \\
\textbf{Hours} \\
Approx. 1½ hours per week of formal class 
commitment plus not less than 3 hours of supporting 
private study per week. \\
\textbf{Content} \\
Lectures, tutorials, seminars, laboratory work and 
field surveys in the assessment of, and design for, 
electric lighting, day lighting and architectural 
acoustics. \\
\textbf{Unit Requirements} \\
Lighting: 
Most calculation assignments will be carried out under 
tutorial conditions. 
Assignments will include electric illumination design for 
incandescent and fluorescent installations, daylight illumination 
and permanent supplementary artificial lighting of interiors. Students will be required to collate for their personal
reference a catalogue of luminaires currently available including general purpose, commercial, industrial and special purpose luminaires for auditorium and stage design.

One tenth full size models will be used to design for effective integrated design of daylighting, Solar radiation control and permanent supplementary artificial lighting of interiors — for which purpose the Department of Architecture's artificial skies and heliodon table will be made available to students at any time that the Architecture building is generally agreed to be open.

The use of models is aimed at visual integration of design concepts and their objective and subjective analysis which would otherwise be abstract. The use of models is argued as an alternative means of design and perhaps a preferable means. Certainly the models offer experience in the three dimensional revelation of a design concept otherwise denied the student. Experience gained working with models may lead to confidence in making abstract calculated design proposals.

Acoustics:
A series of lectures will be offered on the basic concepts of hearing, noise control, transmission of airborne and structure borne sound, absorption of acoustic material, transmission loss and control of sound together with acoustic requirements of special purpose auditoria.

Students will engage in field surveys and record ambient sound pressure levels, transmission loss in building and analyse the reverberation time, and diffusion properties of auditoria. Laboratory work will include measurement of the sound absorption of materials, some aspects of psychoacoustics and model analysis.

Students will research selected topics and present their findings in seminars. Students may work in groups or individually. Students must attend all lecture, tutorial and seminar sessions and complete all assignments issued.

Assessment and Examination
Progressive assessment of assignments, term tests, seminars will constitute a value of 60% of the student’s final assessment. The remaining 40% will be based upon an end of year examination.

Texts
Parkin, P. H. & Humphreys, H. R. Acoustics Noise and Buildings
Lawrence, A. Acoustics in Building
British Lighting Council Interior Lighting Design.

References
Beranek, L. L. Music Acoustics and Architecture
Krudsen, V. O. & Harris, C. N. Acoustical Designing in Architecture
Furrer, W. Room and Building Acoustics and Noise Abatement
Hopkinson, R. G. Architectural Physics: Lighting
Westinghouse Lighting Handbook.
I.E.S. Lighting Review (Journal).

(b) 213827 BUILDING SERVICES

Hours Approximately ½ hour per week

Content
The subject unit is presented by way of a series of lectures and installation inspections offering the student further detailed design information on particular engineering services incorporated in the building of larger projects.

The building services studies are concerned with the technology and economics and the special skills of the design of complex environmental systems and systematic engineering techniques applicable in the field of design and paralleled to those of Architecture.

The students should become acquainted with technical literature and details of engineering services and installations in buildings together with methods appropriate to equipment and distribution for those services included in the course content.

The series of lectures includes:

1. Coordination of engineering services
   - Conceptual design,
   - Economics and performance,
   - Cost investment.

2. Air Supply
   - Types of systems,
   - Zoning,
   - Distribution,
   - Duct design,
   - Plant design,
   - Noise transmission.

3. Power Supply
   - Electrical installation,
   - Distribution of power,
   - Sub-stations,
   - Heating and refrigeration systems,
   - Heat, exchanges,
   - Gas installation,
   - Appliances and fittings for each of the power services.

4. Water Supply
   - Steam installation,
   - Water storage,
   - Water sprinkler systems,
   - Hot and cold water distribution systems.

5. Transportation
   - Principles of lift designs,
   - Cues,
   - Control and planning,
   - Escalators,
   - Pneumatic tubes,
   - Moving footsteps.

6. Communication Services
   - Telephones,
   - Television,
   - Sound amplifying and monitoring systems.

7. Contractual Co-ordination
   - Planning of structure,
   - Structural codes,
   - By-laws,
   - Sub-Contract pertaining to Engineering services.
**Sub-Unit Requirements**

The student will be expected to carry out literature research for each of the lectures and to prepare a report, including sketches, on each of the seven major subsections of the subject unit.

During the second or third term depending on the synthesis project he will be required to prepare drawings of co-ordinated engineering services applicable to his previous submission in the C subject of Group 3 and submit a report of 2,000 words, typed, fully describing and commenting on the services involved and the methods used to co-ordinate them.

An inspection of 3 existing installations of particular services will be undertaken during the year on which the student is to prepare a report covering equipment, installation, distribution and the co-ordination of the particular installation.

Attendance at lectures and discussions with lecturers is an essential corequisite as a means for the student to gain a professional understanding of engineering service problems in order that he may incorporate such equipment and services as may be required for his submission in the C subject of Group 3.

**Assessment and Examination**

All assignments and submissions will be assessed and marked by the lecturer who will award marks in percentages for:

(a) Each of the seven assignments.

(b) The engineering services design submission.

(c) For term tests set.

(i) The total of the marks so awarded in a, b and c will be directly averaged to determine a year’s mark which shall form 60% of the final mark in the subject unit.

(ii) The final end of year examination percentage mark will form 40% of the final mark in the subject unit.

By adding the resultant marks of (i) and (ii) so will be determined the final mark and grade in the subject unit.

**Texts**

Kinzey & Sharp

Maver, T.

Burberry, P.

**References**

Woods, R. I.

Whiteley, R.

**Selected journal articles.**

213840 Architecture IIIC

**Prerequisite**

Architecture IIC

**Corequisites or Prerequisites**

Architecture IIIA or IIB

For details of Architecture C subjects see page 52 of this handbook.

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214700 Architecture IVA

**Prerequisites**

Nil

**Hours**

See individual unit requirements

**Examination**

See individual unit requirements

**Content**

Architecture IVA consists of the following units:

(i) 214701 Professional Practice

(ii) 214704 Management for the Architect

(iii) 214705 Law for the Architect

**i) 214701 PROFESSIONAL PRACTICE**

**Hours**

1 hour per week

**Examination**

To be advised

**Content**

The architecture profession; aims, functions, education, registration, institutes and associations. Architectural services; description, client agreements, fees, briefs, responsibility. Consultants; description, services, agreements, fees, co-ordination. Sequence for a hypothetical project; obtaining commission, correspondence and communications; agreements; briefing; surveys; client and other approvals; project analysis; consultants and cost control; preliminary sketches and estimates; client meetings; minutes; final sketch plans and estimates; preliminary working drawings and schedules; tender documents and procedures; contract documents and formalities; bills of quantities; specifications; consultants' documents; contract administration; clerk of works, inspection, reports, instructions; site meetings and minutes; certificates; checks re bonds, insurances, times etc.; variations; trade detail; P.C. items; provisional sums and nominated sub-contracts; practical and final completion certificates; maintenance and defects liability period; maintenance manuals and work as executed drawings; final accounts. Competitions. Communication; verbal and written expression, letters, reports and specifications. Social patterns; human relationships and judgment, professional ethics, clients professionals, builders, sub-contractors, public and private works, building finance.

**Texts and References**

To be advised.

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(ii) 214704 MANAGEMENT FOR THE ARCHITECT

**Hours**

1 hour per week

**Assessment and Examination**

Grades will be determined after the assessment of two of the following examination papers:

<table>
<thead>
<tr>
<th>Term</th>
<th>Paper Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
<td>2 hour paper</td>
</tr>
<tr>
<td>Term 2</td>
<td>2 hour paper</td>
</tr>
<tr>
<td>Term 3</td>
<td>3 hour paper</td>
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</tbody>
</table>
Candidates who sit the Term 3 paper will be required to answer questions from Term 3 topics and the topics from one other term.

### Content

Theories and research results relevant to problems of administration from the behavioural sciences viewpoint. Topics include behavioural models, values and attitudes, learning, perception, motivation, creativity, problem-solving, communications, group dynamics and leadership. These are treated in relation to the classical managerial functions, and the management of specialized functional areas, such as personnel, marketing, production and finance.

### Texts


### (iii) 214705 LAW FOR THE ARCHITECT

#### Hours

2 hours per week over half the academic year

#### Examination

To be advised

#### Content

Nature and source of law (including case law and the doctrine of precedent, Commonwealth and State court systems and statute law and statutory interpretation; derivation of the Australian legal system and the Australian federation; "the adversary system" (including lawyers, litigation, procedure and evidence and the "expert" witness); classifications and areas of law; aspects of administrative law relating to the regulation of practising professions; aspects of contract law (e.g. interpretation of express terms and the implication of terms); aspects of the law of tort, viz. the development of liability for professional negligence.

### Texts

- Shier, B. J. L. & Lindgren, K. E.: *An Introduction to Business Law* 3rd edn (Law Book Co. 1977)

Notes supplied by Department of Legal Studies.

### References

- Vermeesch, R. B.: *Business Law of Australia* 3rd edn (Butterworths)
- Lindgren, K. E.

### 214800 Architecture IVB

#### Prerequisites

Nil

#### Hours

See individual unit requirements

#### Examination

See individual unit requirements

#### Content

Architecture IVB consists of the following units:

(i) 214801 Construction

(ii) 214802 Specification

(iii) 214803 Estimating

### (i) 214801 CONSTRUCTION

#### Hours

1½ hours per week

#### Assessment and Examination

- First Term Assignment 15%
- Second Term Assignment 20%
- Attendances 15%
- Final Examination 50%

#### Content

(i) **Multi-storey Buildings**


(ii) **Floor Systems**


(iii) **Prestressed Concrete Structures**

Introduction, materials; prestressing systems, end anchorages; loss of prestress; friction; analysis of sections for flexure, shapes of prestressed concrete sections, partial prestress and nonprestressed reinforcements, continuous beams, slabs, design examples, case studies.

(iv) **Shell Structures**


#### References

A list of references is available from the Department of Architecture.

### (ii) 214802 SPECIFICATIONS

#### Hours

To be advised

#### Examination and Assessment

- First Term Assignment 15%
- Second Term Assignment 20%
- Attendances 15%
- Final Examination 50%

#### Content

(a) History of Specifications and Early Forms of Contract Administration.
(b) Introduction to Specification Writing and Evolution and Purposes of the Document.
(c) Tender Documents.
(d) Contract Documents and Legal Significance.
(e) Modes and Methods of Specification Writing.
(f) Sources of Information and Methods of Collating.
(g) Format and Layout. Terms and Discussion of Various Units.
(h) Study of Formal Guide Specification and its manipulation and adaption to various forms of Contract.

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Text
Marsh, D. F. Specification Writing (Hill of Content)

(iii) 214803 ESTIMATING

Hours To be advised
Assessment and Examination
First term examination 25%
Second term examination 25%
Third term examination 25%
Library work and report writing and drawings 25%
Each report and drawing carries equal value.

Content
(a) History of Estimating and Quantity Surveying.
(b) Development of Modern Contract Documents and Quantity Surveying.
(c) Introduction to Preparation of Cost Estimates for Building Works.
(d) Sources of Availability of Information and Pricing Information.
(e) Methods of Estimating.
(f) Study of the Unit "Rate" System for Compilation of Estimates.
(g) Bills of Quantities. Types utilised and modes of preparation and use in the Industry.
(h) Elemental Cost Analysis Systems and Introduction to Cost Planning Processes.
(i) Legal Significance of Estimates; Valuations and Appraisals.
(j) Study of Rise and Fall Procedures.

Texts Nil

214900 Architecture IVC
Prerequisites Nil
Corequisites Architecture IVA or IVB
For details of Architecture C subjects see page 52 of this handbook.

215500 Architecture VA
Prerequisite Architecture IVA
Hours See individual unit requirements
Examination See individual unit requirements
Content Architecture VA comprises the following units
(i) 215501 Professional Practice
(ii) 215502 Management for the Architect
(iii) 215503 Law for the Architect

(i) 215501 PROFESSIONAL PRACTICE
Hours 1 hour per week
Examination To be advised
Texts To be advised.

(ii) 215502 MANAGEMENT FOR THE ARCHITECT
Hours 2 hours per week
Examination To be advised
Content Management for the design and construction of buildings; conventional systems, management consultants, construction management, project management. Framework for the management of any project; concepts and principles, definitions development and implementation. Project control; concepts and techniques structure and life cycle. Network analysis scheduling and control; CPA/CPM, PERT, Precedence Networks. System methodology; theory models for definition, planning scheduling and control phases. Conventional and fast-track systems. Case studies. Interpersonal dynamics; communication, leadership and conflict in project team organisation. Force field analyses; driving and restraining forces. Transactional analyses; recognition of personal ego states and definition of transactional games. Management games and case study exercises. Seminars with practicing professionals, consultants, builders and other members of the building industry.
Texts To be advised.

(iii) 215503 LAW FOR THE ARCHITECT
Hours 2 hours per week over half the academic year
Examination To be advised
Content Commercial arbitration and the Arbitration Act 1902; Parts XI-XIIB of the Local Government Act 1919 (NSW) and the general nature and structure of townplanning schemes in N.S.W.; a detailed study of the standard forms of building contract in use in N.S.W.; aspects of the law relating to copyright in architects' drawings and plans; the Architects Act 1921 (NSW); the Builders' Licensing Act 1973 (NSW).
References To be advised.
215520 Architecture VB

Prerequisites
Architecture IVB

Hours
See individual unit requirements

Examination
See individual unit requirements

Content
Architecture VB consists of the following units:
(i) 215521 Construction
(ii) 215522 Specifications
(iii) 215523 Estimating

(i) 215521 CONSTRUCTION

Hours
2 hours per week

Examination
To be advised

Content
First Phase: To develop a design proposal to a stage where structural and service problems have been satisfactorily solved and the solutions presented in a drafted and specified form.
Second Phase: To integrate the constructional, structural and services into the design process and illustrate by drafted and written means the solutions in respect of a particular project.

References
As required for each individual project.

(ii) 215522 SPECIFICATIONS

Hours
1 hour per week

Examination
To be advised

Content
Detailed dissection and analysis of guide specifications for a range of building types from simple to complex construction. Review of preliminaries, all trade sections, services specifications, specification for nominated sub-contractors and specialist works. Case studies and exercises in specification analysis, writing and production. Performance specifications, dimensional co-ordination, computer techniques, word processing and production.

References
To relate to projects.

(iii) 215523 ESTIMATING

Hours
1 hour per week

Examination
To be advised

Content
Detailed dissection and analysis of construction estimating. Preliminaries and all trade sections are reviewed. Contractors and nominated sub-contractors tenders and quotations are analysed, assessed and reported. Estimating exercises and case studies. Building construction economics, cost planning and cost control.

References
To be advised.

215540 Architecture VC

Prerequisites
Architecture IVC

Corequisites
Architecture VA or VB

For details of Architecture C subjects see page 52 of this handbook.

ELECTIVES OFFERED BY THE DEPARTMENT OF ARCHITECTURE

216005 Architectural Research

Hours
Approximately 2 hours per week

Prerequisite
B.Sc.(Arch.)

Assessment and Examination
Three term projects and a final essay of 3000 words, will be required.

Content
Research may extend into Architectural biography, architectural psychology; educational and social reform; political philosophy and community experiments as these concern environmental issues; Land, labour and conservation questions; utopias.

Subject Requirements
The student will initiate his or her own projects in co-operation with the lecturer, who will guide and facilitate his enquiries. The student will be free to choose essay, seminar or audio-visual methods of presentation.

References
To relate to projects.

NOTE: Architectural Research is only available as Elective IV or Elective V of the B.Arch. course.

216013 Fine Arts

Hours
Approximately 4 hours per week

Prerequisite
Nil
Assessment and Examination

A grade will be given for each of the two Essays and for the Visual Test. These three grades will be average to establish the Final Grade for the year.

Content

Aspects of the development of Western Art.

Subject Requirements

Weekly Lectures/Tutorials will be held. During the year two Essay assignments will be set and at the end of the year a Visual Test will be given individually.

References

To be advised.

216014 Movements in Contemporary Architecture

Hours

3-1 hours per week, seminar and research work. There will be a number of one day excursions through the year.

Prerequisite

Architecture IIA — History of Architecture sub-unit.

Assessment and Examination

The three seminar papers will have a value of 10% each of the final assessment, and the research report, the remaining 70%. Assessment of student papers will be carried out by the lecturer and the student group. Assessment will be progressive, there being no end of the year examination.

Content

The aim of this course is to give students an opportunity to familiarise themselves with the current philosophical issues in contemporary architecture and to enable him to investigate some selected movement, group, or aspect to which he is particularly drawn.

There will be no formal lectures, rather a programme of seminars will be planned which will allow each student to present his findings on a selected topic and to discuss this with his fellow students.

Topics for discussion and research may include:

- The crisis in modern architecture,
- Pop architecture,
- Politics in architecture,
- Architecture in the 3rd world,
- Modern neo-classical architecture in America,
- The new Rationalism,
- The revival of applied decoration in architecture,
- The nature and uses of symbolism,
- The architectural language of post-modern architecture,
- Mannerism in contemporary architecture 1920 — (Japan, U.S.A. and Europe),
- The ‘Whites’ and ‘Grays’,
- The nature of Robert Venturi’s theory of architecture.

Texts and References

Jencks, C.  The Language of Post-Modern Architecture (1977)
Jencks, C.  Architecture 2000 (Studio Vists 1977)
Venturi, R.  Complexity and Contradiction in Architecture (Museum of Modern Art 1966)

216012 Urban Design A

Hours

4 hours per week

Prerequisite

Nil

Assessment and Examination

Projects will be assessed by the student and lecturer. Both will propose a grade for the year's work, though the lecturer will be responsible, as subject examiner, for the final grade.

Content

Topics may include:

- Urban history, physical planning, locational factors, social factors, built form studies, communication systems, urban economics, legal and political studies, urban design projects, the philosophy of cities, the history of urbanism, the pre-industrial city, political and social reform in the Victorian City, urban utopianism, the development of the garden city idea and community experiments.

Subject Requirements

The student will initiate his or her own projects in co-operation with the lecturer, who will act as a resource and facilitator.

Texts and References

To relate to projects.

216003 Urban Design B

Hours

4 hours per week

Prerequisite

Urban Design B

Assessment and Examination

As for Urban Design A
Content
This subject carries on from Urban Design A.

Subject Requirements
As for Urban Design A.

Texts and References
To relate to projects.

Details of Architecture C Subjects
The following applies to the subjects
211900 Architecture IC
212840 Architecture IIC
213840 Architecture IIIC
214900 Architecture IVC
215540 Architecture VC

Information presented in the Architecture A and B subjects is brought together firstly as an intellectual and philosophical perspective of architecture and related subjects and secondly as a basis for design. From 1978 the Architecture C subjects have been taught on a vertically integrated basis.

Vertical integration in this context means that students eligible to enrol in Architecture IC through VC may elect to work with staff of their own choice.

Members of staff of the Department of Architecture have drawn up individual statements on the aims, means, assessment and grading procedures they intend to use in Architecture C subjects. These statements will be available from the Departmental Office prior to the beginning of First Term.

With the exception of newly enrolling students, students are requested to nominate in order of preference two staff members with whom they would prefer to work.

Students are asked to discuss their proposed programmes before the commencement of First Term.

The following points should be kept in mind:
1. Projects should be planned to enable a stage to be completed at the end of Term 1.
2. Students may transfer from one group to another at the end of Term 1, at which time the work of the student will be assessed and graded.
3. Students may request one re-assessment and re-grading for a completed project or stage.
4. The staff will give notice of their intention to be sole examiner or to examine by jury.

5. A check list of Architecture A and B core subject data and design factors has been compiled by staff for use in Architecture C subjects. These check-lists relate to each Architecture C subject from IC through VC and are detailed below.

6. Students may expect to receive a grade.

DESIGN DATA CHECK LISTS

Architecture IA

(i) 211701 VISUAL STUDIES
End Term 1
- Plane Geometry
- Orthographic, Auxiliary, Sectional Projections
- Pictorial Projections
- Shadow Projection
- 2D Perspective
- Lettering/Graphs
- 2D Organisation
- Colour (Introduction)
- Sketching

End Term 2
- Application 2P Perspective
- 1P, 3P, Direct Projection Perspectives
- Surface Development
- Presentation — Pencil, Ink, Watercolour
- Collage, Texture, Relief
- Colour Development

End Term 3
- 3D Organisation
- Sketching

(ii) 211705 MAN ENVIRONMENT STUDIES
(a) 211706 HUMAN FACTORS ENGINEERING
Term 1
- Anthropometrics — the measure of man: consideration for the accommodation of persons of various stature as opposed to designing for an 'average person'.

Term 2
- Preferred ergonomic design of: door handles, handrails, steps, taps, toilet pedestals, bath, sinks, stoves, cupboards, dining chairs and tables, office furniture, theatre seating, drafting furniture or of any item used by man in buildings which an architect might be required to take responsibility for selection or design.

Term 3
- Before designing an item first assess the suitability of existing items. A thorough study of existing items might reveal a preferred ergonomically designed item.

Architecture IB

(ii) 211802 CONSTRUCTION
1. Can the proposal be erected with materials, methods and labour available.
2. Is the system efficient and economical.
3. Does the system make use of efficient and rational technology.
4. Have alternative systems been considered.
5. Is the construction system an integral part of the proposal.
6. Has the construction been considered since the conception of the proposal. Has it been "tacked on" later with enforced compromises in the proposal.
7. Can the proposal be easily disassembled or altered and extended.
8. Is the proposal waterproof, draughtproof, tolerably flexible, stable.
9. Can the structure and components accommodate movement, deflection, thermal and moisture movement.
10. Is the system acceptable to local authorities.

211803 ENVIRONMENTAL TECHNOLOGY

(iii) 211804 PROPERTIES OF MATERIALS

(a) 211805 BUILDING SERVICES

1. Co-ordination between service installations.
2. Integration of services into proposal.
3. Have services been considered since conception of proposal.
4. Access to services for alterations, additions or maintenance.
5. Compliance with the requirements of local authorities.
6. Selection of suitable materials for the proposal.
7. Selection of suitable fittings for the proposal.
8. Does each service installation provide optimum human comfort conditions. These need to be defined — noise, temperature, speed, acceleration, vibration, re-fill time, privacy, safety, etc.
9. Is the service proposal efficient. Can waste products be re-cycled for use within the proposal or by other services.
10. Is there a services proposal.

Architecture IIB

(ii) 212823 ENVIRONMENTAL TECHNOLOGY

(i) 212824 BUILDING SCIENCE

1. Altitude and bearing of the sun.
2. Vertical and horizontal shadow angles from any wall.
3. Design of non-redundant sunscreen including orthographies, development of surfaces and model construction.
5. Calculation of solar heat loads on walls and glazing behind sunscreens.
6. The effect on human thermal comforts of air temperature, relative humidity, radiant temperature, air movement, cooling power of the air as a function of air speed.
7. Effective temperature indices.
8. Natural ventilation.
9. Condensation.
10. Passive and active design for the optimal utilisation of solar energy in building design including solar air conditioning.
11. Orientation of a building, its form and fenestration texture as a function of optimal utilisation of solar light and heat energy.
12. Design for climate: specifically for hot-dry, hot-wet, temperate and cold climates.

Architecture IIIA

(i) 213801 VISUAL STUDIES

End Term 1 Basic course in Photography — visual communication potential. Please note students have no facilities in Department.

End Term 2 Figure Drawing.

Project during Terms 1 and 2 to consider visual aspects of building detail — R.C. frame construction, Office Interior. Consideration of materials and their relationships, surfaces, finishes, fixtures, fitments, hardware, lighting, windows, doors, furniture, soft furnishing, display/graphics, services etc.

Project requires visual communication.

End Term 3 Light/Kinetics Programme to develop understanding of the properties, qualities and potential of light — co-ordinated with lighting in Building Science.

Architecture IIIB

(iii) 213825 ENVIRONMENTAL TECHNOLOGY

(a) 213826 BUILDING SCIENCE

Lighting
1. Effect of sunscreens for particular orientations upon the quality and quantity of daylight admitted.
2. Glare — direct or by reflection.
3. Discomfort glare, disability glare.
4. Electric lighting to supplement daylighting.
6. Use of models — particularly for daylight design — which integrate the many variables of fenestration design, surface colour, form and texture and interior design.

**Acoustics**
1. Planning principles in locating noisy and quiet areas.
2. Sound reduction in rooms.
3. Sound transmission loss through walls.
4. Desirable acoustic environments.
5. Form, texture, volume, materials, reverberation time, reflection sequence of room types: lecture room, drama theatre, cinema, church, opera house, music rehearsal room, broadcasting studio, concert hall.
6. Design for speech intelligibility in over reverberant rooms.
7. Assessment of acoustic environments.

**NOTE:** Further Checklists will be available from the Department of Architecture office.

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### Subject Computer Numbers for Architecture Courses

The subjects selected should be written on the enrolment form in the following manner.

<table>
<thead>
<tr>
<th>Computer Number</th>
<th>Subject Name</th>
<th>Computer Number</th>
<th>Names of Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>211700</td>
<td>Architecture IA</td>
<td>211701</td>
<td>Visual Studies</td>
</tr>
<tr>
<td>211702</td>
<td>Data Processing</td>
<td>211703</td>
<td>Information Handling</td>
</tr>
<tr>
<td>211704</td>
<td>Computing Studies</td>
<td>211705</td>
<td>Man Environment Studies</td>
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<tr>
<td>211706</td>
<td>Human Factors Engineering</td>
<td></td>
<td>History of Architecture</td>
</tr>
<tr>
<td>211800</td>
<td>Architecture IB</td>
<td>211801</td>
<td>Structures</td>
</tr>
<tr>
<td>211802</td>
<td>Construction</td>
<td>211803</td>
<td>Environmental Technology</td>
</tr>
<tr>
<td>211804</td>
<td>Properties of Materials</td>
<td></td>
<td>Building Services</td>
</tr>
</tbody>
</table>
| 211900          | Architecture IC      | 211900          | Elective I                         | Elective component(s)
| 212800          | Architecture IIA     | 212801          | Visual Studies                     |
| 212802          | Data Processing      | 212803          | Statistics                         |
| 212804          | Computing Studies    | 212805          | Man Environment Studies            |
| 212806          | Social Sciences      | 212807          | History of Architecture            |
| 212820          | Architecture IIB     | 212821          | Structures                         |
| 212822          | Construction         | 212823          | Environmental Technology           |
| 212824          | Building Science     | 212825          | Building Services                  |
| 212840          | Architecture IIC     | 212840          |                                       |
| 219200          | Elective II          | 213801          | Visual Studies                     |
| 213802          | Data Processing      | 213803          | Statistics                         |
| 213804          | Man Environment Studies |             | Social Sciences                    |
| 213806          | History of Architecture |           |                                    |
| 213820          | Architecture IIIB    | 213821          | Structures                         |
| 213822          | Construction         | 213823          | Construction                       |
| 213824          | Estimating           | 213825          | Environmental Technology           |
| 213826          | Building Science     | 213827          | Building Services                  |
| 213840          | Architecture IIIC    | 213840          |                                       |
| 219300          | Elective III         | 213800          | Elective component(s)              |
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<tr>
<td>214700</td>
<td>Architecture IVA</td>
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<td>Professional Practice</td>
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<td>214802</td>
<td>Specifications</td>
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**Electives Offered by the Department of Architecture**

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