		Hours per week			
		SESSION 1		SESSION 2	
		Lec.	Lab. Tut.	Lec.	Lab. Tut.
YEAR 4					
5.051	Thesis	0	6	0	6
5.062	Communications	1	1	1	1
5.324	Automatic Control Engineering	2	1	2	1
18.012	Industrial Engineering IIA	2	1	2	1
18.022	Industrial Engineering IIB	2	1	2	1
18.551	Operations Research	2	1	2	1
	General Studies Elective	1	½	1	½
Plus one elective from:—					
4.913	Materials Science	2	1	2	1
5.332	Dynamics of Machines II				
5.413	Mechanics of Solids II				
18.431	Design for Production				
		12	12½	12	12½

INDUSTRIAL ENGINEERING—PART-TIME COURSE

Bachelor of Science (Engineering)

This course is of six years' duration and leads to the degree of Bachelor of Science (Engineering).

For outline of the first four stages see the Mechanical Engineering part-time course.

STAGE 5					
5.071	Engineering Analysis	2½	1	2½	1
5.112	Mechanical Engineering Design	1½	1	1½	1
5.331	Dynamics of Machines	1½	½	1½	½
14.001	Introduction to Accounting	1½	0	1½	0
18.011	Industrial Engineering IA	1½	½	1½	½
18.021	Industrial Engineering IB	1½	½	1½	½
	General Studies Elective	1	½	1	½
		11	4	11	4
STAGE 6					
18.012	Industrial Engineering IIA	2	1	2	1
18.022	Industrial Engineering IIB	2	1	2	1
18.431	Design for Production	2	1	2	1
18.551	Operations Research	2	1	2	1
	General Studies Elective	1	½	1	½
		9	4½	9	4½

SCHOOL OF SURVEYING

The School of Surveying offers a four-year full-time course and a seven-year part-time course, each leading to the degree of Bachelor of Surveying. The degree can also be attained through a combination of part-time and full-time study.

The course is designed to provide the appropriate academic training for a professional surveyor working in any of the many branches of surveying. Since these branches cover a wide range, the course is broad in its scope. First and second years are concerned mainly with the basic sciences. Basic surveying is also included and in the third year the major surveying subjects appear: geodesy, photogrammetry, astronomy and cadastral surveying. With the addition of some applied sciences, these are continued into fourth year. A feature of the course is the inclusion of General Studies in the later years and stages. The graduate can take up cadastral or property surveying, engineering surveying, geodetic surveying, photogrammetry, cartography or hydrographic surveying.

Throughout the course the theory is illustrated by means of practical applications in field or laboratory exercises. The field work enables the student to use modern optical and electronic instruments. Full-time students must attend a survey camp for two weeks during each of Years 2 and 3 of their course and part-time students must attend a two-week survey camp during each of Stages 4 and 6 of their course. In addition, all full-time students are required to engage in approved training for a period of not less than forty days after the completion of Year 2 and for a further period of not less than forty days after the completion of Year 3. Part-time students are required to obtain a minimum of three years of approved practical experience concurrently with their course of study. The Bachelor of Surveying degree may be awarded as a Pass degree, Honours Class I, or Honours Class II in two divisions. Honours are awarded in recognition of superior performance throughout the course.

Students wishing to become Registered Surveyors after graduation are also strongly advised to gain practical experience under a Registered Surveyor. Some reduction in the period of practical experience required before registration may be sought because of practical experience gained during a student's course of study, provided the Board of Surveyors has given prior agreement to the recognition of this experience. Details are obtainable from the Registrar, Board of Surveyors, Department of Lands.

The degree of Bachelor of Surveying confers exemption from all written examinations of the Board of Surveyors.

SURVEYING—FULL-TIME COURSE

Bachelor of Surveying

		Hours per week for 2 sessions	
		Lec.	Lab. Tut.
YEAR 1			
1.041	Physics IC	3	3
5.001	Engineering I	3	3
10.001 / 10.011	Mathematics I *or* Higher Mathematics I	4	2
29.801	Surveying I	2	4
		12	12
YEAR 2			
2.212	Physics IIT	1½	1½
8.711	Engineering for Surveyors	2½	½
10.022	Mathematics	2	2
10.341	Statistics	1½	0
25.131	Geology for Surveyors†	1	1½
29.802	Surveying II	2	2½
29.841	Surveying Computations	1½	1
29.892	Survey Camp*	—	—
	General Studies Elective	1	½
		13	9½

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

*Students must attend a two-week survey camp which is held during October.

YEAR 3			
8.712	Engineering for Surveyors	2	0
29.803	Surveying III	1½	1½
29.821	Geodesy I	2½	1½
29.831	Astronomy I	2	½
29.842	Surveying Computations	1	1
29.851	Photogrammetry I	1½	1½
29.881	Land Law, Utilization and Valuation†	3	0
29.893	Survey Camp*	—	—
	Two General Studies Electives	2	1
		15½	7

*Lectures cease in Session 2 for three weeks when students must attend the survey camp (29.893).

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

		Hours per week			
		SESSION 1		SESSION 2	
		Lec.	Lab. Tut.	Lec.	Lab. Tut.
YEAR 4					
6.811	Electronic Instrumentation for Surveyors	1	0	1	0
11.411	Town Planning	1½	1½	0	0
25.303	Geophysics for Surveyors*	3	0	0	0
29.081	Thesis	3	0	3	0
29.822	Geodesy II	2	1½	2	2½
29.832	Astronomy II	1½	1	1½	1
29.852	Photogrammetry II	1	3½	1	3½
29.882	Cadastral Surveying	1½	½	1½	½
	General Studies Elective	1	½	1	½
		15½	8½	11	8

*A one-day Geophysical field tutorial is an essential part of this subject (Session 1 only).

SURVEYING—PART-TIME COURSE

Bachelor of Surveying

		Hours per week for 2 sessions	
		Lec.	Lab. Tut
STAGE 1			
1.041	Physics IC	3	3
10.001 / 10.011	Mathematics I *or* Higher Mathematics I	4	2
		7	5
STAGE 2			
5.001	Engineering I	3	3
29.801	Surveying I	2	4
		5	7
STAGE 3			
1.212	Physics IIT	1½	1½
8.711	Engineering for Surveyors	2½	½
10.022/1	Mathematics II, Part I	1	1
29.841	Surveying Computations	1½	1
	General Studies Elective	1	½
		7½	4½

		Hours per week for 2 sessions	
STAGE 4		Lec.	Lab. Tut.
10.022/2	Mathematics II, Part II	1	1
10.341	Statistics	1½	0
25.131	Geology for Surveyors†	1	1½
29.802	Surveying II	2	2½
29.892	Survey Camp*		—
	General Studies Elective	1	½
		6½	5½

†Two one-day field tutorials are an essential part of the course.
*Students must attend a two-week survey camp which is held during October.

STAGE 5			
8.712	Engineering for Surveyors	1½	0
29.803	Surveying III	1½	1
29.831	Astronomy I	1½	½
29.842	Surveying Computations	1	½
29.881	Land Law, Utilization and Valuation*	2½	0
	General Studies Elective	1	½
		9	2½

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

		Hours per week			
		SESSION 1		SESSION 2	
STAGE 6		Lec.	Lab. Tut.	Lec.	Lab. Tut.
6.811	Electronic Instrumentation for Surveyors	1	0	1	0
25.303	Geophysics for Surveyors†	3	0	0	0
29.821	Geodesy I	1½	1½	1½	1½
29.851	Photogrammetry I	1½	1	1½	1
29.882	Cadastral Surveying	1½	½	1½	½
29.893	Survey Camp*		—		—
	General Studies Advanced Elective	1½	0	1½	0
		10	3	7	3

†A one-day Geophysical field tutorial is an essential part of this subject (Session 1 only).
*During Session 2 students must attend the three-week survey camp (29.893). The camp must be attended in the year in which the student completes the last subject in the group 29.803, 29.821, 29.831 and 29.851.

STAGE 7					
11.411	Town Planning	1½	1½	0	0
29.822	Geodesy II	2	1½	2	2½
29.832	Astronomy II	1½	1	1½	1
29.852	Photogrammetry II	1	3½	1	3½
		6	7½	4½	7

DESCRIPTIONS OF SUBJECTS

TEXT AND REFERENCE BOOKS

(For General Studies subjects see the Department of General Studies Handbook.)

SCHOOL OF MECHANICAL AND INDUSTRIAL ENGINEERING

5.001 Engineering I

A. *Introduction to Engineering*

(i) *Engineering Technology*: *Materials.* Classification of materials in common use, occurrence of raw materials, processing of raw materials, refinements and properties of materials.

(ii) *Computers — Introduction and Concepts*: Introduction to computers to follow the computer work in Mathematics I. To develop:—(a) familiarity with algorithms; (b) the use of procedure oriented languages; and (c) an introduction to computing equipment.
Systems — Introduction and Concepts: Concepts and Introduction to Systems. To give students an appreciation of some of the concepts used in engineering, to relate the concepts to phenomena within their experience, and to illustrate them by case histories and engineering examples. Quantities. Concepts. Components. Systems.

(iii) *Introduction to Engineering Design*: Engineering method, problem identification, creative thinking, mathematical modelling, materials and processes, communication of ideas, the place of engineering in society.

TEXTBOOKS

Harrisberger, L. *Engineersmanship.* Wadsworth.
or
Krick, E. V. *Introduction to Engineering and Engineering Design.* Wiley.
Karbowiak, A. E. & Huey, R. M. ed. *Information Computers, Machines and Humans.* N.S.W. U.P.

REFERENCE BOOKS

Aitchison, L. *A History of Metals.* Vols. I & II. McDonald & Evans.
Beakley, G. C. & Leach, H. W. *Engineering: An Introduction to a Creative Profession.* Collier-Macmillan.
Dennis, W. H. *Extractive Metallurgy.* Pitman.
or
Gilchrist, J. D. *Extractive Metallurgy.* Pergamon.
or
Newton, J. *Extractive Metallurgy.* Wiley.
Dixon, J. R. *Design Engineering.* McGraw-Hill.
Edel, D. H. *Introduction to Creative Design.* Prentice-Hall.
Guy, A. G. *Physical Metallurgy for Engineers.* Addison-Wesley.