SCHOOL OF SURVEYING

The School of Surveying offers a four year full-time course and a seven year part-time course both 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, but the basic surveying subjects are also included. In the third year the major surveying subjects appear: geodesy, photogrammetry, astronomy and land studies. With the addition of some elective courses these are continued into fourth year. The graduate can take up cadastral or property surveying, engineering surveying, geodetic surveying, photogrammetry, cartography or hydrographic surveying. The course is also an appropriate first qualification for those wishing to specialize in astronomy, satellite geodesy, geodynamics, computing and systems analysis, town and regional planning, land and resources development or environmental sciences.

The full-time and part-time courses have undergone comprehensive revision and 1973 is the transition year in the implementation of the new courses. In the full-time course, in 1973, Years 1 to 3 of the revised course and Year 4 of the old course are available, and in the part-time course, Stages 1 to 5 of the revised course and Stages 6 and 7 of the old course are available.

Features of the revisions include: decreased lecture time to allow use of teaching methods which involve more student participation; an extended period of professional experience in the final year; Land Studies, a group of subjects designed to provide a broad understanding of the ecology of land and its development; and a survey camp of six weeks in the final year. Throughout the course the theoretical studies are complemented by practical exercises in the field and the laboratory. Students make use of the most modern measuring instruments and computing equipment.

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 advised to gain practical experience under a Registered Surveyor. Some reduction in the period of practical experience required before registration may be granted because of practical experience gained during the University course, provided the New South Wales Surveyors' Board has been informed in the prescribed manner. Details are obtainable from the Registrar, Surveyors' Board, Department of Lands, Bridge Street, Sydney 2000.

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

374. SURVEYING—FULL-TIME COURSE

Bachelor of Surveying

		Hours per week	
		Lec.	Lab. Tut.
YEAR 1—SESSIONS 1 AND 2			
1.041	Physics IC	3	3
5.001	Engineering I	3	3
10.001	Mathematics	4	2
29.101	Surveying I	1½	3
29.181	Cartography	0	1½
		11½	12½
YEAR 2—SESSION 1			
10.022	Mathematics	2	2
29.102	Surveying II	4½	4½
29.151	Survey Computations I	3½	2½
31.212	Geometrical Optics	1½	1½
		11½	10½
YEAR 2—SESSION 2			
6.822	Electronics	1½	1½
8.711	Engineering for Surveyors	3	0
10.022	Mathematics	2	2
10.341	Statistics	3	0
29.192	Survey Camp*	—	
29.611	Land Studies I†	4	2
	General Studies Elective	2	1
		15½	6½

*Students must attend a two-week survey camp, held in October.

†A one-day field tutorial is an essential part of this course.

		Hours per week Lec.	Lab. Tut.
YEAR 3—SESSION 1			
8.712	Engineering for Surveyors	3	0
29.103	Surveying III	4	3
29.152	Survey Computations	1	2
29.612	Land Studies II†	4	1
36.411	Town Planning	1½	1½
	General Studies Elective	2	1
		15½	8½

†A one-day field tutorial is an essential part of this course.

YEAR 3—SESSION 2			
29.211	Geodesy I	4	2
29.311	Astronomy I	2	1
29.511	Photogrammetry I	3	3
29.613	Land Studies III	2	0
29.614	Land Studies Project	1	2
	General Studies Elective	2	1
		14	9

YEAR 4*†—SESSION 1		
29.193	Professional Training	5 Months
29.194	Survey Camp	{4 Weeks: Field {2 Weeks: Office

*Available in 1974.

YEAR 4*—SEMESTER 2			
29.212	Geodesy II	2	1
29.312	Astronomy II	2	1
29.512	Photogrammetry II	1½	1½
	Business Management	2	0
	General Studies Elective	2	1
	Two Electives†	4	2
		13½	6½

*Available in 1974.

†Electives chosen from:

29.213 Geodesy III
29.313 Astronomy III
29.513 Photogrammetry III
29.615 Land Studies
29.173 Project

		Hours per week SESSION 1 Lec.	Lab. Tut.	SESSION 2 Lec.	Lab. Tut.
YEAR 4†					
6.811	Electronic Instrumentation for Surveyors	1	0	1	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
36.411	Town Planning	1½	1½	0	0
	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).

†In 1973 only.

374. SURVEYING—PART-TIME COURSE

Bachelor of Surveying

		Hours per week Lec.	Lab. Tut.
STAGE 1			
1.041	Physics IC	3	3
10.001	Mathematics	4	2
		7	5

STAGE 2			
5.001	Engineering	3	3
29.101	Surveying	1½	3
29.181	Cartography	0	1½
		4½	7½

STAGE 3			
10.022	Mathematics	2	2
29.102	Surveying II	2	2½
29.151	Survey Computations I	2	1
		6	5½

		Hours per week Lec.	Lab. Tut.
STAGE 4			
6.822	Electronics (Session 2)	1½	1½
8.711	Engineering for Surveyors	1½	0
10.341	Statistics	1½	0
29.192	Survey Camp*	—	
29.611	Land Studies I†	2	1
31.212	Geometrical Optics (Session 1)	1½	1½
		7½	3

*Students must attend a two-week survey camp, held in October.
†A one-day field tutorial is an essential part of this course.

STAGE 5			
8.712	Engineering for Surveyors	1½	0
29.103	Surveying III	2	2
29.152	Survey Computations II (Session 2)	1	2
29.612	Land Studies II †	2	½
36.411	Town Planning (Session 1)	1½	1½
	General Studies Elective	1	½
		8/7½	4½/5

†A one-day field tutorial is an essential part of this course.

STAGE 6*			
29.211	Geodesy I	2	1
29.311	Astronomy I	1	½
29.511	Photogrammetry I	1½	1½
29.613	Land Studies III	1	0
29.614	Land Studies Project	½	1
	Two General Studies Electives	2	1
		8	5

*Available in 1974.

STAGE 7*			
29.212	Geodesy II	1	½
29.313	Astronomy II	1	½
29.512	Photogrammetry II	1	½
	Business Management	1	0
	Two Electives	2	1
		6	2½
	Survey Camp†	6 Weeks	

†Academic subjects are arranged to avoid survey camp.
*Available in 1974.
NOTE: In addition, the academic requirements of 29.193 Professional Training must be fulfilled prior to Stage 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

Prerequisite: None.

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, computer aided design, 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. eds. *Information Computers, Machines and Humans.* N.S.W. U.P.

REFERENCE BOOKS

Aitchison, L. *A History of Metals.* Vols. I & II. McDonald & Evans.
Dennis, W. H. *Extractive Metallurgy.* Pitman.
or
Gilchrist, J. D. *Extractive Metallurgy.* Pergamon
or
Newton, J. *Extractive Metallurgy.* Wiley.
Edel, D. H. *Introduction to Creative Design.* Prentice-Hall.
Guy, A. G. *Physical Metallurgy for Engineers.* Addison-Wesley.