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 is divided into eight parts of one session each and can also be attained through a combination of part-time and full-time study. Part 7 comprises professional training and a survey camp.

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. 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. As far as possible each stage of the part-time course is equivalent to one part (one session) of the full-time course. However Stage 7 includes the Survey Camp of Part 7 as well as subjects of Part 8.

The existing part-time course will be phased out over the period 1975-1980. It will be replaced by a sandwich course. Students attending the sandwich course will attend full-time for one session per year, and will be free to undertake full-time employment for the remainder of the year, approximately 35 weeks. The minimum time for completion of the sandwich course will be seven years, as for the present part-time course. It will

also be possible for a student in the sandwich course to attend for both sessions in a year, thus decreasing the length of his course by one year.

The transition arrangements are as follows: part-time students who commenced before 1973 will be unaffected. Those who commenced in 1973 will move into the sandwich system in 1975 and each year from then on will attend full-time for one session of each year. Students commencing the part-time course in 1974 will enter the sandwich system in 1976.

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

	н	Hours per weel	
			Lab.
YEAR	1—SESSIONS 1 AND 2 (PARTS 1 and 2)	Lec.	Tut.
1.001	Physics I	3	3
5.010	Engineering A*	4	2
5.030	Engineering C†	3	2
10.001	Mathematics I	4	2
29.101	Surveying I	$1\frac{1}{2}$	3
29.181	Cartography	0	1 1

^{*}Materials Option (Session 2).

[†]Introduction to Systems and Computers Option (Session 1).

FACULTY OF ENGINEERING

YEAR 2—SESSION 1 (PART 3)

$ \begin{array}{c} 2 \\ 1\frac{1}{2} \\ 2 \\ 3\frac{1}{2} \\ 1\frac{1}{2} \end{array} $	2 0 4 2½ 1½
101	10
	$\frac{1^{\frac{1}{2}}}{-}$

		Hours p	e <mark>r week</mark> Lab.
VEAR	2—SESSION 1 (PART 4)	Lec.	Tut.
6.822 8.711 10.022 10.341	Electronics Engineering for Surveyors	1½ 3 2 1½	1½ 0 2 0
29.102	Surveying II Survey Camp*	1½ —	1 ½ -
	Land Studies I† General Studies Elective	4 2	2 1
		15½	8

^{*}Students are required to attend a two-week survey camp, held in October, which is equivalent to 80 class contact hours.

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

YEAR 3—SESSION 1 (PART 5)

	5-5255261(1 (11111-1)	2	Λ
8.712	Engineering for Surveyors	.	•
29.103	Surveying III	4	3
	Survey Computations II	1	2
29.612	Land Studies II†	4	i
	Town Planning General Studies Elective	$\frac{1\frac{1}{2}}{2}$	1½ 1
		15½	81/2

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

YEAR 3—SESSION 2 (PART 6)

	Land Studies III	2	2
29.614	Land Studies Project	2	1
	General Studies Elective		
		14	9

YEAR 4—SESSION 1 (PART 7)

29.193	Professional Training	5 Months
29.194	Survey Camp*	\(\) \(\)

*Students are required to attend a six-week survey camp, equivalent to 40 hours of class contact per week.

Hours per week

YEAR 4—SESSION 2 (PART 8)	Lec.	Lab. Tut.
29.212 Geodesy II	2	1
29.312 Astronomy II	2	1
29.512 Photogrammetry II	1 ½	11/2
Management	2	0
General Studies Advanced Elective	2	1
Two Electives†	4	2
	13½	6 1

†Electives chosen from:

29.213	Geodesy	TTT
Z9.Z13	Georgesy	111

29.313 Astronomy III

29.513 Photogrammetry III

29.615 Land Studies

29.173 Project

374. SURVEYING—PART-TIME COURSE Bachelor of Surveying

		Hours pe	
STAGE	1	Lec.	Lab. Tut.
1.001	Physics I	3	3
0.001	Mathematics I	4	2
		7	5
STAGE	2		
5.010	Engineering A*	4	2
5.030	Engineering C†	3	2
29.101	Surveying I	1 ½	3
	Cartography	0	11/2

		Hours p			per week		
		SESSI	ON 1	SESS	ION 2		
STAG 1 10.022	-	Lec.	Lab. Tut.	Lec.	Lab. Tut.		
29.102	Engineering Mathematics II	2	2	2	2		
29.151	Surveying II	1	$1\frac{1}{2}$	3	$3\frac{1}{2}$		
47.131	Survey Computations I	$3\frac{1}{2}$	$2\frac{1}{2}$	0	0		
		61/2	6	5	5½		
STAGI	E 4						
6.822	Electronics	0	0	$1\frac{1}{2}$	1 ½		
8.711	Engineering for Surveyors	3	0	0	0		
10.341		1 ½	0	-	•		
29.192	Survey Camp*	0	0	1 1	0		
29.611	Land Studies I†	0	•	0	0		
31.212	- -,	•	0	4	2		
	General Studies Elective	1 ½	$1\frac{1}{2}$	0	0		
	Somethir Diddies Elective	1	1.	1	1		

2

8

STAGE 5

29.103 29.152 29.612	Engineering for Surveyors Surveying III Survey Computations II Land Studies II† Town Planning General Studies Elective	1½ 2 1 0 1½ 1	0 2 2 0 1½ ½	1½ 2 0 4 0	0 2 0 1 0
		7	6	81/2	3 ½

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

		Hours 1	per week
STAGE 6		Lec.	Lab.
29.211 Geo	desy I	2	1
29.311 Astr	ronomy I	1	1 1
29.511 Phot	togrammetry I	11	1 ½
29.613 Land		1	0
29.614 Land	d Studies Project	4	1
Gene	eral Studies Elective	1	$\frac{1}{2}$
Gene	eral Studies Advanced Elective	1	1/2
		8	5
STAGE 7* §			
29.212 Geod	desy II	1	1
29.313 Astro	onomy II	1	$\frac{1}{2}$
29.512 Photo	ogrammetry II	1	2 1 2
	agement	1	0
	Electives‡	2	1
29.194 Surve	ey Camp†	_	-
		6	2½

\$Students who have completed Stage 6 in 1973 should enrol in this stage, and should consult the School's Enrolment Officer.

‡Electives chosen from

29.213 Geodesy III

29.313 Astronomy III

29.513 Photogrammetry III

29.613 Land Studies

29.173 Project

†Students are required to attend a six-week survey camp, equivalent to 40 hours of class contact per week. Academic subjects are arranged so as not to clash with the camp.

^{*}Students are required to attend a two-week survey camp, held in October, equivalent to 80 class contact hours.

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

^{*}The academic requirements of the subject, 29.193 Professional Training must be fulfilled normally before a student attempts Stage 7.

1980		STAGE: a part-time stage of the existing course, NSTAGE: NSTAGE: PART: one session of the revised course equivalent in material to one part. one session of the revised one session of the part: PART: PART PART 8 PART 5 PART 6 PART 7 PART 8	
9761		a part-time stage of the existing or NSTAGE: A part-time stage of the revised course, which comprises eight parts. PART 7 PART 8 PART 7 PART 8 PART 5 PART 5 PART 15 PA	
8261		NSTAGE 7 RT 5 RT 5 RT 4 RT 4 RT 4	FULL-TIME COURSE
		PA PA	PART 7
1977	SE	E 6 6 PART 4 4 PART 3	PART 8
	H COUR	NSTAGE 7 NSTAGE 6 PART 5 PART 4 PART 3 PART 3	E PART 7 PART 5
.9261	SANDWIC	6 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	FULL-TIME COURSE PART 7 PART 8 PART 3 PART 6 PART 3 PART 4 P
13	IE AND	NSTAGE 7 NSTAGE 6 NSTAGE 5 NSTAGE 5 PART 4 PART 3 PART 3 PART 3	ULL-TIM PART 7 PART 5 PART 3
1975	PART-TIME AND SANDWICH COURSE	E 7 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	PART 8 PART 6 PART 7 PART 7
SI SI	_	NSTAGE 7 NSTAGE 6 NSTAGE 5 NSTAGE 1 NSTAGE 1 NSTAGE 1 PART 3	PART 7 PART 5 PART 3 PART 1
1974		NSTAGE 7 NSTAGE 6 NSTAGE 6 NSTAGE 5 NSTAGE 4 NSTAGE 3	PART 8 PART 6 PART 1 FART 1 FIST 1 and 2)
19		NSTA NSTA NSTA NSTA NSTA NSTA	PART 7 PART 8 PART 5 PART 6 PART 3 PART 4 YEAR 1 (Parts 1 and 2)
73		8 6 6 8 6 8 6 8 8 8 8 8 8 8 8 8 8 8 8 8	
1973		STAGE 6 NSTAGE 6 NSTAGE 5 NSTAGE 3 NSTAGE 3 NSTAGE 3 NSTAGE 3	YEA PART 5 PART 3 YEAR 1 (Pa
YEAR		Class commencing in 1967 1968 1969 1970 1971 1972	Class commercing in 1970 1971 1972 1973 1973

DESCRIPTIONS OF SUBJECTS

TEXT AND REFERENCE BOOKS

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

SCHOOL OF MECHANICAL AND INDUSTRIAL ENGINEERING

5.010 Engineering A

Engineering Mechanics I: Two and three dimensional force systems, composition and resolution of forces, laws of equilibrium. Statics of rigid bars, pin-jointed frames. Shear force, axial force, bending moment. Simple states of stress. Kinematics of the plane motion of a particle. Kinetics of the plane motion of a particle; equations of motion, dynamic equilibrium, work and energy.

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.

and either

- (i) Materials: An introductory course on the production, structure, and properties of the main types of engineering materials, with a brief introduction to the process used in shaping and fabricating them.
- (ii) (Civil Engineering students must take this option) Introduction to Materials I: Role of engineering materials in design process. Traditional and new engineering materials. Concepts of stress and strain. Structure of crystalline and amorphous solids. Phase diagrams. Transformatoins at constant temperature and constant cooling rate. Tensile test. Relationship of macro properties to structure. Compression test.

TEXTBOOKS

Svensson, N. L. Introduction to Engineering Design. N.S.W. U.P.

Waldron, K. J. Engineering Mechanics. Wiley.

Walshaw, A. C. SI Units in Worked Examples. Longman. and

For Introduction to Materials 1:

Richards, C. W. Engineering Materials Science. Chapman & Hall.