

Master of Engineering Science (MENS) - MEngSci

CRICOS code (International applicants): 067689G

	On-campus	Distance education
Semester intake:	Semester 1 (February) Semester 2 (July)	Semester 1 (February) Semester 2 (July)
Campus:	Toowoomba	-
Fees:	Commonwealth supported place Domestic full fee paying place International full fee paying place	Commonwealth supported place Domestic full fee paying place International full fee paying place
Standard duration:	2 years full-time or 4 years part-time or by distance education	
Program articulation:	From: Graduate Certificate in Engineering Science ; Graduate Diploma of Engineering Science	

Contact us

Future Australian and New Zealand students	Future International students	Current students
Ask a question Freecall (within Australia): 1800 269 500 Phone (from outside Australia): +61 7 4631 5315 Email: studyeng@usq.edu.au	Ask a question Phone: +61 7 4631 5543 Email: international@usq.edu.au	Ask a question Freecall (within Australia): 1800 007 252 Phone (from outside Australia): +61 7 4631 2285 Email usq.support@usq.edu.au

Program focus

The [Master of Engineering Science](#) is tailored to provide a broad knowledge of Engineering and Spatial Science through a specialised suite of technical courses in nine different majors. The program is designed to provide an academic pathway to professional engineering for those who are qualified engineering technologists, or those who have a bachelor degree in a field allied to engineering. This program will provide graduates with a pathway to professional registration as practising Engineers in Australia.

Professional accreditation

The program has been accorded provisional accreditation by Engineers Australia and graduates are eligible for Graduate membership at the Professional Engineer level.

Program aims

The aims of the [Master of Engineering Science](#) are:

- to enable international and domestic students, who hold appropriate three or four year engineering qualifications or equivalent in the relevant specialisation (major field), to complete a postgraduate program that will lead to recognition as a Professional Engineer in Australia.
- the program can also provide a pathway to doctoral higher degree studies.

Program objectives

The objectives of the [Master of Engineering Science](#) are:

- to enable students to acquire, and demonstrate that they possess, the specified graduate attributes and capabilities.
- to enable students to acquire in-depth technical competence in one of the following fields:
 - Agricultural Engineering
 - Civil Engineering
 - Electrical and Electronic Engineering
 - Environmental Engineering
 - Geographic Information Systems
 - Mechanical Engineering
 - Power Engineering
 - Structural Engineering
 - Surveying
- to enable students from diverse and non-traditional backgrounds and locations to enrol in the program and to provide them with opportunities to acquire the skills necessary to complete the program in the normal time.
- to enable students to be empowered as learners through the provision of a wide range of teaching and learning styles and modes in their program.
- to prepare graduates to be eligible for graduate membership of Engineers Australia, and other appropriate professional bodies.

Admission requirements

To be eligible for admission to the program, candidates must possess one of the following requirements:

- an appropriate three year engineering degree in the relevant (cognate) specialisation (major field) awarded by an Australian university, or an equivalent qualification awarded by an Australian or overseas institution.
- an appropriate three or four year engineering degree in non-cognate specialisation (major field) awarded by an Australian university, or an equivalent qualification awarded by an Australian or overseas institution.*

* Entrants may need to undertake courses in addition to the recommended structure, which will involve study longer than the normal duration
International candidates for admission into this program must meet the University's English language proficiency requirements for postgraduate students. Please refer to Section 2.2.3 of the [Admissions Policy](#) .

The standing of degrees awarded by an overseas institution will be determined by reference to the Sydney Accord, and Washington Accord, of which Engineers Australia (EA) is a signatory, and Australia Education International (AEI) which is a federal government agency.

How to apply

Domestic students

[Application for postgraduate programs](#) may be made directly to USQ.

International students

This program is offered to international students. An international student is a person who is not an Australian or New Zealand citizen and not an Australian permanent resident. Please refer to [USQ International](#) for information about entry requirements, visa arrangements and how to apply.

Program fees

Commonwealth supported place

A Commonwealth supported place is where the Australian Government makes a contribution towards the cost of your higher education and you as a student pay a [student contribution amount](#), which varies depending on the courses undertaken. You are able to calculate the fees for a particular course via the [Course Fee Finder](#). Commonwealth Supported students may be eligible to defer their fees through a Government loan called [HECS-HELP](#).

Domestic full fee paying place

Domestic full fee paying places are funded entirely through the full fees paid by the student. Full fees vary depending on the courses that are taken. You are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Permanent Humanitarian Visa holders, Permanent Resident visa holders and New Zealand citizens who reside outside Australia pay full tuition fees.

Domestic full fee paying students may be eligible to defer their fees through a Government loan called [FEE-HELP](#).

International full fee paying place

International students pay full fees. Full fees vary depending on the courses that are taken and whether they are studied on-campus, via distance education/online. You are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Program structure

The [Master of Engineering Science](#) comprises 16 units (14 single unit academic courses and a two unit academic course) and five practice courses. The structure is shown below:

Schedule A: Seven core courses (Eight units)

- [ENG5001 Professional Skills in Engineering](#)
- [MAT2500 Engineering Mathematics 3](#)
- [ENG3103 Engineering Problem Solving Computations](#)
- [ENG4104 Engineering Problem Solving Simulations](#)
- [ENG8001 Engineering and Surveying Research Methodology](#)
- [ENG8411 Research Project and Dissertation Part A](#)
- [ENG8412 Research Project and Dissertation Part B](#) (a two unit course)

Schedule B: A six course major (Six units)

Schedule C: Two Electives (Two units)

Schedule D: Five Practice Courses (Zero units), three of which are common to all majors

- [ENG3902 Professional Practice 1](#)
- [ENG4903 Professional Practice 2](#)
- [ENG4909 Work Experience - Professional](#)

Required time limits

Full-time students have a maximum of four years to complete this program. Part-time students have a maximum of eight years to complete this program.

A pro-rata adjustment of the maximum time period will apply for those students who transfer from one mode of study to another. A pro-rata reduction in the maximum time period will apply to students who are admitted to a program with advanced standing.

Major studies objectives

The major study provides students with knowledge and skills in a specific discipline. The nine major study areas in the [Master of Engineering Science](#) are:

Agricultural Engineering
Civil Engineering
Electrical and Electronic Engineering
Environmental Engineering
Geographic Information Systems
Mechanical Engineering
Power Engineering

Structural Engineering
Surveying

IT requirements

Students should refer to the section entitled Access to Information Technology Facilities in the General Faculty and Program Information section of this Handbook.

Residential schools

The major practical work requirements associated with each of the Faculty's programs are contained within a series of Practice Courses. These courses are designed to enhance learning, communication and practical skills through laboratory sessions, workshops, seminars, field trips and group activities.

Practice Courses may be undertaken in either on-campus or external mode. Students enrolling externally will be required to attend a compulsory residential school. However, students who enrol in Practice Courses in on-campus mode may be required to undertake a series of weekly activities and/or attend a compulsory residential school. The only final grades available in these courses are Pass (P) or Fail (F).

Practice Courses are zero unit courses that are a compulsory part of the program. However, they do not attract a student contribution charge for Australian residents or a tuition fee for international students. External students should ensure that they are able to attend the residential school prior to enrolling in a Practice Course.

Exit points

Students who have completed four courses in the program may satisfy the requirements for the [Graduate Certificate in Engineering Science](#) and therefore may apply to exit the program with a [Graduate Certificate in Engineering Science](#).

Students who have completed eight courses in the program may satisfy the requirements for the [Graduate Diploma of Engineering Science](#) and therefore may apply to exit the program with a [Graduate Diploma of Engineering Science](#).

Students who are unable to satisfactorily complete the program may apply to transfer to the [Bachelor of Engineering](#) or the [Bachelor of Spatial Science](#) as appropriate. They may also apply to have the courses completed in the [Master of Engineering Science](#) credited to their new program.

Exemptions

Candidates for admission to the program are eligible to seek advanced standing in the program, in accordance with existing University regulations. Studies used as the basis for advanced standing must normally have been completed within a period of five years prior to the date of application for advanced standing. The maximum number of exemptions and transfers permitted in this program will be eight units of courses. Students with advanced standing may with the approval of the Head of Discipline, need to substitute up to four courses in Schedule B with discipline courses at an appropriate level. Exemptions approved in this program will not automatically apply to other programs offered by USQ.

Enrolment

Students should note that some of the courses specify enrolment requirements (prerequisites). Students should therefore refer to the Course Specification section of the USQ Web to determine the enrolment requirements for the courses they intend enrolling in. Students should avoid enrolling in courses for which they do not have sufficient pre-requisite knowledge. Students will be expected to rectify any deficiencies in their pre-requisite knowledge by private study, guided if necessary by the examiners of the relevant courses. Students should contact Faculty Administration if they encounter problems while enrolling in courses with requisites.

Agricultural Engineering Major recommended enrolment pattern

Major study: Agricultural Engineering (Major Study Code: 16215)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering	1	1,2	1	1,2			
MAT2500 Engineering Mathematics 3	1	2	1	2			Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations	1	2	2	2			Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG4104 Engineering Problem Solving Simulations	2	2	3	2			Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology	1	1,2			3	1,2	
ENG8411 Research Project and Dissertation Part A	2	1	4	1			
ENG8412 Research Project and Dissertation Part B	2	2	4	2			Pre-requisite: ENG8411
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
ENV3104 Hydraulics II	1	1	2	1			Pre-requisite: ENV1101 or ENV2103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
AGR3305 Precision and Smart Technologies in Agriculture			2	1			
ENV5205 Solid and Liquid Waste Treatment	2			1			Pre-requisite: ENV4203 or ENV4204 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
AGR4305 Agricultural Soil Mechanics	2	1	4	1			
AGR3303 Agricultural Materials and Post-Harvest Technologies	2	1	3	1			
ENV4106 Irrigation Science	2	2	3	2			Pre-requisite: AGR3304 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8101 Technological Impact and its Management		1		1			
ENG8103 Management of Technological Risk		2		2			
ENG8104 Asset Management in an Engineering Environment		1		1			
ENG8205 Technology Management Practice		2		2			
AGR3304 Soil Science		1		1			
MEC4406 Robotics and Machine Vision		2		2			Pre-requisite: MEC2401 or ELE2103
ENV4203 Public Health Engineering		2		2			Pre-requisite: ENV1101 or ENV2103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS

Major study: Agricultural Engineering (Major Study Code: 16215)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
ENV4204 Environmental Technology		1		1			Pre-requisite: MAT1100 or MAT1500 or Students must be enrolled in one of the following programs: GCEN or GDET or METC or MENS or GCNS or GDNS or MSST
ENV4107 Water Resources Engineering		2		2			Pre-requisite: (ENV3104 and ENV3105) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GCEN or GDNS or MENS
ENV3105 Hydrology		2		2			Pre-requisite: ENG2102 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or PGCN or GDNS or MENS
MEC3303 System Design		2		2			Pre-requisite: MEC2301 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or GCNS or GDNS or MEPR or MENS
Schedule D: Practice Courses Students must complete the following five practice courses.							
ENG3902 Professional Practice 1		1	2	3	2		
ENG4903 Professional Practice 2		2	1	4	2		Pre-requisite: ENG3902
ENG4909 Work Experience - Professional		2	2	4	2		
AGR3903 Soil and Water Engineering Practice 2[^]		2		3	2		
AGR3905 Agricultural Engineering Practice[^]		1		2	3		

Footnotes

~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.

[^] This course is not offered in the on-campus mode. On-campus students should enrol in the external mode of this course.

Civil Engineering Major recommended enrolment pattern

Major study: Civil Engineering (Major Study Code: 16216)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering		1	1,2	1	1,2		
MAT2500 Engineering Mathematics 3		1	2	1	2		Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations		1	2	1	2		Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG4104 Engineering Problem Solving Simulations		2	2	3	2		Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology		1	1,2			3	1,2
ENG8411 Research Project and Dissertation Part A		2	1	4	1		
ENG8412 Research Project and Dissertation Part B		2	2	4	2		Pre-requisite: ENG8411

Major study: Civil Engineering (Major Study Code: 16216)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
CIV3403 Geotechnical Engineering	1	2	2	2			Pre-requisite: CIV2401 or CIV2403 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
CIV3505 Structural Analysis	1	1	2	1			Pre-requisite: MEC2402 and MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
CIV3506 Concrete Structures	1	1	2	1			Pre-requisite: CIV2503 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
CIV5704 Road and Street Engineering	1		2	2			
ENV3104 Hydraulics II	2	1	3	1			Pre-requisite: ENV1101 or ENV2103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
CIV4508 Structural Design II	2	1	3	1			Pre-requisite: CIV3505 and CIV3506 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8101 Technological Impact and its Management		1		1			
ENG8104 Asset Management in an Engineering Environment		1		1			
ENG8802 Advanced Prestressed Concrete						2	
ENG8803 Mechanics and Technology of Fibre Composites						1	
CIV3703 Transport Engineering		2		2			
ENV3105 Hydrology		2		2			Pre-requisite: ENG2102 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or PGCN or GDNS or MENS
ENV4107 Water Resources Engineering		2		2			Pre-requisite: (ENV3104 and ENV3105) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GCEN or GDNS or MENS
ENV4204 Environmental Technology		1		1			Pre-requisite: MAT1100 or MAT1500 or Students must be enrolled in one of the following programs: GCEN or GDET or METC or MENS or GCNS or GDNS or MSST
ENV4203 Public Health Engineering		2		2			Pre-requisite: ENV1101 or ENV2103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENV5205 Solid and Liquid Waste Treatment				1			Pre-requisite: ENV4203 or ENV4204 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
SVY4203 Urban and Regional Planning		1		1			

Major study: Civil Engineering (Major Study Code: 16216)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule D: Practice Courses Students must complete the following five practice courses.							
ENG3902 Professional Practice 1	1	2	3	2			
ENG4903 Professional Practice 2	2	1	4	2			Pre-requisite: ENG3902
ENG4909 Work Experience - Professional	2	2	4	2			
CIV3907 Civil Systems Practice[^]	1		1	3			Pre-requisite: CIV2503 or Students must be enrolled in one of the following Programs: GDNS or MENS
CIV4908 Civil Design Practice[^]	1		2	2			Pre-requisite: CIV4508 or Students must be enrolled in one of the following Programs: MEPR or GDNS or MENS

Footnotes

~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.

[^] This course is not offered in the on-campus mode. On-campus students should enrol in the external mode of this course.

Electrical and Electronic Engineering Major recommended enrolment pattern

Major study: Electrical and Electronic Engineering (Major Study Code: 16217)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering	1	1,2	1	1,2			
MAT2500 Engineering Mathematics 3	1	2	1	2			Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations	1	2	1	2			Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG4104 Engineering Problem Solving Simulations	2	2	2	2			Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology	1	1,2			3	1,2	
ENG8411 Research Project and Dissertation Part A	2	1	4	1			
ENG8412 Research Project and Dissertation Part B	2	2	4	2			Pre-requisite: ENG8411
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
ELE4605 Fields and Waves	1	1	3	1			Pre-requisite: (MAT1502 and ELE2103 and ELE2601) or Students must be enrolled in the following Program: MEPR or MENS
ENG8101 Technological Impact and its Management	1	1		1			
ENG8104 Asset Management in an Engineering Environment	1	1		1			
ELE3107 Signal Processing	1	2		2			
ELE4606 Communication Systems	2	2	4	2			Pre-requisite: (ELE2504 and ELE2601) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or MENS

Major study: Electrical and Electronic Engineering (Major Study Code: 16217)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
ELE4607 Advanced Digital Communications*		1					Pre-requisite: ELE1301 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8205 Technology Management Practice		2		2			
ENG8103 Management of Technological Risk		2		2			
ELE3307 Real Time Systems		2		2			Pre-requisite: ELE1301 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ELE3807 Power Systems Analysis		1		1			
ELE3105 Computer Controlled Systems		1		1			Pre-requisite: ELE2103 or Students must be enrolled in one of the following Programs: GCNS or GCEN or GDNS or MEPR or MENS or METC
ELE3305 Computer Systems and Communications Protocols		1		1			
MEC4406 Robotics and Machine Vision		2		2			Pre-requisite: MEC2401 or ELE2103
Schedule D: Practice Courses Students must complete the following five practice courses.							
The following three:							
ENG3902 Professional Practice 1	1	2	3	2			
ENG4903 Professional Practice 2	1	1	3	2			Pre-requisite: ENG3902
ENG4909 Work Experience - Professional	2	2	4	2			
And two from the list below:							
ELE2912 Electrical and Electronic Practice B	1	1	2	3			Pre-requisite: ELE1801 and ELE1301 and ELE1502
ELE2913 Electrical and Electronic Practice C	2	2	3	2			
ELE3914 Electrical and Electronic Practice D	2	1	3	2			Pre-requisite: ELE1801 and ELE1301 and ELE1502

Footnotes

* Only offered in even years.

~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.

Environmental Engineering Major recommended enrolment pattern

Major study: Environmental Engineering (Major Study Code: 16218)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering	1	1,2	1	1,2			
MAT2500 Engineering Mathematics 3	1	2	1	2			Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations	1	2	1	2			Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS

Major study: Environmental Engineering (Major Study Code: 16218)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
ENG4104 Engineering Problem Solving Simulations	2	2	2	2			Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology	1	1,2			3	1,2	
ENG8411 Research Project and Dissertation Part A	2	1	4	1			
ENG8412 Research Project and Dissertation Part B	2	2	4	2			Pre-requisite: ENG8411
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
AGR3304 Soil Science	1	1	2	1			
ENV3104 Hydraulics II	1	1	2	1			Pre-requisite: ENV1101 or ENV2103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENV5205 Solid and Liquid Waste Treatment[^]	2		3	1			Pre-requisite: ENV4203 or ENV4204 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENV4204 Environmental Technology	2	1	3	1			Pre-requisite: MAT1100 or MAT1500 or Students must be enrolled in one of the following programs: GCEN or GDET or METC or MENS or GCNS or GDNS or MSST
ENV4107 Water Resources Engineering	2	2	3	2			Pre-requisite: (ENV3104 and ENV3105) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GCEN or GDNS or MENS
ENV4203 Public Health Engineering	1	2	4	2			Pre-requisite: ENV1101 or ENV2103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8101 Technological Impact and its Management		1		1			
ENG8103 Management of Technological Risk		2		2			
ENG8104 Asset Management in an Engineering Environment		1		1			
ENG8205 Technology Management Practice		2		2			
CLI8204 Global Environmental Systems				1			
ECO8012 Tools and Techniques for Sustainable Development				2		2	
ENV4106 Irrigation Science		2		2			Pre-requisite: AGR3304 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENV3105 Hydrology		2		2			Pre-requisite: ENG2102 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or PGCN or GDNS or MENS
SVY4203 Urban and Regional Planning		1		1			
Schedule D: Practice Courses Students must complete the following five practice courses.							
ENG3902 Professional Practice 1	1	2	3	2			
ENG4903 Professional Practice 2	2	1	4	2			Pre-requisite: ENG3902

Major study: Environmental Engineering (Major Study Code: 16218)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
ENG4909 Work Experience - Professional	2	2	4	2			
AGR3903 Soil and Water Engineering Practice 2^	1		2	2			
ENV3904 Environmental Engineering Practice^	1		3	3			Pre-requisite: ENV4203 or Students must be enrolled in one of the following Programs: GDNS or MENS

Footnotes

- ^ This course is not offered in the on-campus mode. On-campus students should enrol in the external mode of this course.
~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.

Geographic Information Systems Major recommended enrolment pattern

Major study: Geographic Information Systems (Major Study Code: 16219)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering	1	1,2	1	1,2			
MAT2500 Engineering Mathematics 3	1	2	1	2			Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations	1	2	1	2			Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG4104 Engineering Problem Solving Simulations	2	2	2	2			Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology	1	1,2			3	1,2	
ENG8411 Research Project and Dissertation Part A	2	1	4	1			
ENG8412 Research Project and Dissertation Part B	2	2	4	2			Pre-requisite: ENG8411
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
GIS3405 Spatial Analysis and Modelling	1	2	2	2			
GIS3406 Remote Sensing and Image Processing	1	2	2	2			
ENG8103 Management of Technological Risk		1		1			
SVY3202 Photogrammetry and Remote Sensing	1	1	1	1			
GIS4407 Web Based Geographic Information System	2	2	3	2			Pre-requisite: GIS1402 or Students must be enrolled in one of the following Programs: GCGS or GDST or MSST or GCNS or GCST or GDNS or MENS
ENG8101 Technological Impact and its Management	2	1	4	1			
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8205 Technology Management Practice		2		2			
CIS8010 Information Systems Project Management		2		2			
ECO8012 Tools and Techniques for Sustainable Development				2		2	
ENG8104 Asset Management in an Engineering Environment		1		1			

Major study: Geographic Information Systems (Major Study Code: 16219)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
ENV4204 Environmental Technology		1		1			Pre-requisite: MAT1100 or MAT1500 or Students must be enrolled in one of the following programs: GCEN or GDET or METC or MENS or GCNS or GDNS or MSST
GIS3404 Geographic Data Visualisation		1		1			
CIS5001 Information Systems Strategy		1,2		1,2			
SVY4203 Urban and Regional Planning		1		1			
SVY3201 Sustainable Urban Design and Development		2		2			
Schedule D: Practice Courses Students must complete the following five practice courses.							
ENG3902 Professional Practice 1	1	2	3	2			
ENG4903 Professional Practice 2	2	1	4	2			Pre-requisite: ENG3902
ENG4909 Work Experience - Professional		2		2			
GIS2901	1	3	2	3			
GIS3901	2	2	3	2			

Footnotes

~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.

Mechanical Engineering Major recommended enrolment pattern

Major study: Mechanical Engineering (Major Study Code: 16220)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering	1	1,2	1	1,2			
MAT2500 Engineering Mathematics 3	1	2	1	2			Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations	1	2	1	2			Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG4104 Engineering Problem Solving Simulations	2	2	2	2			Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology	1	1,2		1	3	1,2	
ENG8411 Research Project and Dissertation Part A	2	1	4	1			
ENG8412 Research Project and Dissertation Part B	2	2	4	2			Pre-requisite: ENG8411
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
ENG8103 Management of Technological Risk	1	2	2	2			
ENG8104 Asset Management in an Engineering Environment	1	1	4	1			
MEC3102 Fluid Mechanics	2	1	3	1			Pre-requisite: (MAT2500 and MEC2101) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS

Major study: Mechanical Engineering (Major Study Code: 16220)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
MEC3302 Computational Mechanics in Design	1	1	1	1			Pre-requisite: (MEC2304 and MEC2401 and MEC2402) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
MEC3303 System Design	1	2	3	2			Pre-requisite: MEC2301 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or GCNS or GDNS or MEPR or MENS
MEC3403 Dynamics II	2	2	3	2			Pre-requisite: (MEC2401 and MAT2500) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8101 Technological Impact and its Management		1		1			
ENG8803 Mechanics and Technology of Fibre Composites						1	
ENG8205 Technology Management Practice		2		2			
MEC4103 Heat Transfer		1		1			Pre-requisite: MEC3102 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or MENS
MEC3203 Materials Technology		1		1			Pre-requisite: MEC1201 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or GCNS or GDNS or MEPR or MENS
MEC3204 Production Engineering		2		2			
ENG4004 Engineering Project and Operations Management		2		2			
MEC4104 Energy Technology		1		1			Pre-requisite: (MEC2101 and MEC3102) or MEC2106 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
Schedule D: Practice Courses Students must complete the following five practice courses.							
The following two:							
ENG3902 Professional Practice 1	1	2	3	2			
ENG4903 Professional Practice 2	2	1	4	2			Pre-requisite: ENG3902
ENG4909 Work Experience - Professional	2	2	4	2			
And two from the list below:							
MEC3903 Mechanical Practice 3	1	2	3	2			
MEC3904 Mechanical Practice 4	2	2	4	2			
MEC3905 Mechatronic Practice			4	2			

Footnotes

~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.

Power Engineering Major recommended enrolment pattern

Major study: Power Engineering (Major Study Code: 16221)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering	1	1,2	1	1,2			
MAT2500 Engineering Mathematics 3	1	2	1	2			Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations	1	2	1	2			Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG4104 Engineering Problem Solving Simulations	2	2	2	2			Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology	1	1,2			3	1,2	
ENG8411 Research Project and Dissertation Part A	2	1	4	1			
ENG8412 Research Project and Dissertation Part B	2	2	4	2			Pre-requisite: ENG8411
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
ELE3307 Real Time Systems	1	2		2			Pre-requisite: ELE1301 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG8103 Management of Technological Risk		2		2			
ELE3803 Electrical Plant	2	1		1			Pre-requisite: ELE1801 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8104 Asset Management in an Engineering Environment	2	1		1			
ELE3805 Power Electronics Principles and Applications	2	2	4	2			Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ELE3807 Power Systems Analysis	2	1	3	1			
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8101 Technological Impact and its Management		1		1			
ELE3305 Computer Systems and Communications Protocols		1		1			
ENG8205 Technology Management Practice		2		2			
CIV2605 Construction Engineering		1		1			
CIV2403 Geology and Geomechanics		2		2			Pre-requisite: CIV1501
GIS1401 Geographic Data Presentation		1		1			
GIS1402 Geographic Information Systems		2		2			
ENV4204 Environmental Technology		1		1			Pre-requisite: MAT1100 or MAT1500 or Students must be enrolled in one of the following programs: GCEN or GDET or METC or MENS or GCNS or GDNS or MSST
ELE3107 Signal Processing		2		2			
MEC2106 Introduction to Thermo-Fluids							Pre-requisite: MAT1500 and CIV1501

Major study: Power Engineering (Major Study Code: 16221)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
MEC4104 Energy Technology		1		1			Pre-requisite: (MEC2101 and MEC3102) or MEC2106 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
Schedule D: Practice Courses Students must complete the following five practice courses.							
The following three:							
ENG3902 Professional Practice 1	1	2	3	2			
ENG4903 Professional Practice 2	1	1	3	2			Pre-requisite: ENG3902
ENG4909 Work Experience - Professional	2	2	4	2			
And two from the list below:							
ELE2912 Electrical and Electronic Practice B	1	1	2	3			Pre-requisite: ELE1801 and ELE1301 and ELE1502
ELE2913 Electrical and Electronic Practice C	2	2	3	2			
ELE3914 Electrical and Electronic Practice D	2	1	3	2			Pre-requisite: ELE1801 and ELE1301 and ELE1502

Footnotes

~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.

Structural Engineering Major recommended enrolment pattern

Major study: Structural Engineering (Major Study Code: 16222)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering	1	1,2	1	1,2			
MAT2500 Engineering Mathematics 3	1	2	1	2			Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations	1	2	1	2			Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG4104 Engineering Problem Solving Simulations	2	2	2	2			Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology	1	1,2			3	1,2	
ENG8411 Research Project and Dissertation Part A	2	1	4	1			
ENG8412 Research Project and Dissertation Part B	2	2	4	2			Pre-requisite: ENG8411
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
CIV3403 Geotechnical Engineering	1	2	2	2			Pre-requisite: CIV2401 or CIV2403 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
CIV3505 Structural Analysis	1	1	2	1			Pre-requisite: MEC2402 and MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS

Major study: Structural Engineering (Major Study Code: 16222)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
							Following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
CIV3506 Concrete Structures	1	1	2	1			Pre-requisite: CIV2503 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
CIV4508 Structural Design II	2	1	3	1			Pre-requisite: CIV3505 and CIV3506 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8802 Advanced Prestressed Concrete]						2	
ENG8803 Mechanics and Technology of Fibre Composites						1	
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8101 Technological Impact and its Management		1		1			
ENG8104 Asset Management in an Engineering Environment		1		1			
ENG8103 Management of Technological Risk		2		2			
ENG8205 Technology Management Practice		2		2			
ENG8801 Code-Based Structural Design						1	
ENG8804 Advanced Design Practice using Finite Element Analysis						2	
ENG8805 Design of Offshore Wharves and Jetties						2	
ENG4004 Engineering Project and Operations Management		2		2			
Schedule D: Practice Courses Students must complete the following five practice courses.							
ENG3902 Professional Practice 1	1	2	3	2			
ENG4903 Professional Practice 2	2	1	4	2			Pre-requisite: ENG3902
ENG4909 Work Experience - Professional	2	2	4	2			
CIV3907 Civil Systems Practice^	1		1	3			Pre-requisite: CIV2503 or Students must be enrolled in one of the following Programs: GDNS or MENS
CIV4908 Civil Design Practice^	1		2	2			Pre-requisite: CIV4508 or Students must be enrolled in one of the following Programs: MEPR or GDNS or MENS

Footnotes

] Offered odd years only

~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.

^ This course is not offered in the on-campus mode. On-campus students should enrol in the external mode of this course.

Surveying Major recommended enrolment pattern

Major study: Surveying (Major Study Code: 16223)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
Schedule A: Core Courses Students must complete all seven courses listed in this schedule.							
ENG5001 Professional Skills in Engineering	1	1,2	1	1,2			
MAT2500 Engineering Mathematics 3	1	2	1	2			Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS

Major study: Surveying (Major Study Code: 16223)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
							ing Programs: GCEN or GDET or METC or MENS
ENG3103 Engineering Problem Solving Computations	1	2	1	2			Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG4104 Engineering Problem Solving Simulations	2	2	2	2			Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
ENG8001 Engineering and Surveying Research Methodology	1	1,2				1,2	
ENG8411 Research Project and Dissertation Part A	2	1	4	1			
ENG8412 Research Project and Dissertation Part B	2	2	4	2			Pre-requisite: ENG8411
Schedule B: Major Courses Students must complete all six courses listed in this schedule.							
ENG8103 Management of Technological Risk		2		2			
SVY2105 Survey Computations B	1	2	2	2			Pre-requisite: SVY2106 or Students must be enrolled in one of the following Programs: GCNS or GCST or GDNS or GDST or MSST or MENS
SVY3201 Sustainable Urban Design and Development		2		2			
SVY3107 Geodetic Surveying B	1	2	2	2			Pre-requisite: SVY1110 or Students must be enrolled in one of the following Programs: GCNS or GCST or GDNS or GDST or MSST or MENS
ENG8104 Asset Management in an Engineering Environment	2	1	4	1			
SVY3304 Cadastral Surveying	1	2	2	2			Pre-requisite: (SVY1102 and SVY1104) or Students must be enrolled in one of the following Programs: GCNS or GCST or GDNS or GDST or MSST or MENS
Schedule C: Elective Courses Students must complete two of the courses listed in this schedule.~							
ENG8101 Technological Impact and its Management	2	1	4	1			
ECO8012 Tools and Techniques for Sustainable Development			4	2		2	
SVY4203 Urban and Regional Planning		1		1			
GIS3406 Remote Sensing and Image Processing		2		2			
SVY2106 Geodetic Surveying A	1	1	1	1			Pre-requisite: SVY1110 or Students must be enrolled in one of the following Programs: GCNS or GCST or GDNS or GDST or MSST or MENS
SVY4309 Practice Management for Spatial Scientists	2	1	4	1			
SVY4304 Land and Cadastral Law	2	2	3	2			
SVY3202 Photogrammetry and Remote Sensing	2	1	4	1			
Schedule D: Practice Courses Students must complete the following five practice courses.							
ENG3902 Professional Practice 1	1	2	3	2			
ENG4903 Professional Practice 2	2	1	4	2			Pre-requisite: ENG3902
ENG4909 Work Experience - Professional	2	2	4	2			
SVY2903 Surveying and Spatial Science Practice 3	1		2	3			Pre-requisite: SVY1901 and SVY1102 or Students must be enrolled in one of the following Programs: GCNS or GDNS or MENS

Major study: Surveying (Major Study Code: 16223)							
Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)		
	Year	Sem	Year	Sem	Year	Sem	
SVY3904 Surveying and Spatial Science Practice 4 [^]	2		4	2			Pre-requisite: SVY2903 or Students must be enrolled in one of the following Programs: GCNS or GDNS or MENS

Footnotes

- ~ Level 8 courses from other Faculties may be chosen as electives with the approval of the Head of Discipline.
- [^] On-campus students should enrol in the external offering of this course.