

Associate Degree of Engineering (ADNG) - AssocDegEng

QTAC code (Australian and New Zealand applicants): Toowoomba campus: 907052; Distance education: 907055; Springfield campus: 927052

CRICOS code (International applicants): 054271G

	On-campus	Distance education
Semester intake:	Semester 1 (March) Semester 2 (July)	Semester 1 (March) Semester 2 (July)
Campus:	Springfield, 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, 4 years part-time or external	
Program articulation:	To: Bachelor of Engineering ; Bachelor of Engineering Technology	

Notes:

Please note that the Civil Engineering major is the only major that is available on-campus at Springfield in the ; [Associate Degree of Engineering](#).

Contact us

Future Australian and New Zealand students	Future International students	Current students
Ask a question Freecall (within Australia): 1800 640 678 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 usqassist@usq.edu.au

Agricultural Engineering major

This major prepares students for a career as an engineering officer. Students learn to apply practical analysis and technical principles to the areas of sustainable agricultural production, agricultural machinery hydraulics and hydrology.

USQ is the only institution in Australia that offers degrees specialising in Agricultural Engineering.

Career opportunities

Engineering or technical support officer in agricultural machinery, water resources engineering, irrigation, soil and water management, salinisation, drainage, mine rehabilitation, engineering problem solving and management.

Civil Engineering major

This major prepares students for a career as an engineering officer. Students learn to apply practical analysis and technical principles to the areas of design, testing, inspection, plant operation and manufacturing processes.

Career opportunities

The building and development of infrastructure, such as roads, railways, airfields, irrigation works, buildings, harbour facilities, dams, pipelines, sewers, tunnels, canals and disposal works.

Computer Systems Engineering major

This major prepares students for a career as an engineering officer. Students learn to apply practical analysis and technical principles to the areas of design and development of computer systems, including both hardware and software.

Career opportunities

Engineering applications of expert systems, hardware interfacing, computer sales, computer engineering technologist, computer manufacturing and computer systems officer.

Electrical and Electronic Engineering major

This major prepares students for a career as an engineering officer. Students learn to apply practical analysis and technical principles to the areas of design, testing, inspection, plant operation and manufacturing processes.

Career opportunities

Analogue and digital electronics, computer engineering, microprocessors and applications, measurement, instrumentation and control, robotics, telecommunications, microwaves, fibre optics, biomedical engineering, power stations, distribution and machines, defence services, electricity boards, government departments.

Environmental Engineering major

This major provides students with skills in environmental impact assessment and management, soil and water resource management, rehabilitation of degraded lands, and water supply and wastewater treatment. Basic studies in the engineering sciences provide the foundation for the specialist environmental engineering courses which comprise the core of the program.

Career opportunities

Water and wastewater treatment, river hydrology, soil conservation, irrigation, salinisation, drainage, mine site rehabilitation, environmental studies, water resources engineering, soil science, engineering problem solving and management.

Mechanical Engineering major

This major prepares students for a career as an engineering officer. Students learn to apply practical analysis and technical principles to the areas of design, testing, inspection, plant operation and manufacturing processes.

Career opportunities

Manufacturing refineries, mining, transportation, computing, energy and education industries, including consultancy, research, project planning and management design, development, supervision and commissioning of new systems, computer-aided design and manufacture of consumer products, machines and equipment, specialist technical sales.

Power Engineering major

Students will study electrical power generation, distribution and transmission, electrical power equipment and systems. Specification, design and analysis of electrical power equipment and systems are also covered.

Career opportunities

Power stations, electricity and power companies, component manufacturers and electronics industry.

Professional accreditation

A graduate of this program is eligible to apply for graduate membership of Engineers Australia as an Engineering Officer. After further professional development, a graduate member with an Associate Degree may apply for chartered status as an Engineering Officer and, when granted, may use the post-nominal OMIEAust CEngO.

Program aims

The [Associate Degree of Engineering](#) is a tertiary level program designed to educate engineering associates in the theory, methods and practices necessary to support professional engineers. To this end, the program is designed to provide a general understanding of a broad field of knowledge, with Electives available in most majors in the final stages of the program to allow a measure of specialisation.

Program objectives

Graduates of the program should be able to demonstrate:

- a knowledge of a branch of engineering practice, appropriate to those functioning at engineering associate level in that branch of the engineering work force
- the ability to analyse and propose solutions to technical problems in accordance with established practices and precedents
- the potential to assume technical responsibility for the completion of tasks and provide a support function for engineers
- an awareness of their limitations and a willingness to seek advice and accept direction from senior engineering associates, engineering technologists and professional engineers
- an ability to communicate effectively both orally and in writing
- a capacity to adapt to changing circumstances and to master new techniques
- appropriate administrative and manual skills
- an aptitude to undertake further learning and study.

Admission requirements

Applicants shall normally:

- have studied four semester units and achieved an exit assessment of 'Sound Achievement' or better in the Queensland Senior Secondary School subject: English. It is recommended that applicants should also have satisfactorily completed the subject: Mathematics B (Mathematics A is assumed)

or

- be able to demonstrate that they have achieved an equivalent standard in these subjects at another institution

and

- **Australian applicants:** have achieved a Queensland Overall Position (OP) band, or an equivalent Rank based on qualifications and previous work experience, at or above the specified cut-off level
- **International applicants:** must have met the University's [English language](#) requirements or have completed the University's [ELICOS/EAP](#) program.

How to apply

Domestic students

[Application for undergraduate programs](#) may be made through the Queensland Tertiary Admissions Centre (QTAC). The same procedure applies whether you plan to study on-campus or by distance education.

If you completed Year 12 at a Queensland secondary school you will be assessed for entry on the basis of your Overall Position (OP) or equivalent score. Year 12 students from other states or territories are considered for entry on the basis of their UAI, ENTER or TER and the subject prerequisites indicated. Other applicants will be based on their overall Rank.

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](#).

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 [Associate Degree of Engineering](#) program consists of core, major study and in most majors Elective components. Students enrolled in the [Associate Degree of Engineering](#) program may undertake a specialisation in one of seven major discipline areas:

- Agricultural Engineering
- Civil Engineering
- Computer Systems Engineering
- Electrical and Electronic Engineering
- Environmental Engineering
- Mechanical Engineering
- Power Engineering.

The [Associate Degree of Engineering](#) program consists of 16 Academic courses that can be completed in two years of full-time study or four years of part-time study. The program is available in on-campus and external modes of study.

The program structure for each of the major studies in the [Associate Degree of Engineering](#) is shown in the following pages.

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.

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

External students are required to attend a number of [residential schools](#) during their program. These are associated with Practice courses and are normally conducted at the end of Semester 3 (February), or during the mid-semester recess in Semester 2 (September/October).

Practice Courses

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. The recommended enrolment pattern for Practice courses is shown in the Recommended Enrolment Pattern in each program entry in this Handbook.

Safety boots are compulsory in engineering laboratories for several of the Practice courses and are strongly recommended for all other Practice courses.

[ENG1901 Engineering Practice 1](#) is the first in a series of Practice courses designed to enable students to acquire engineering and professional practice skills, including practical and teamwork skills, problem solving and engineering judgement. It is designed principally to cater for the needs of recent school leavers and those lacking any significant experience of the engineering work force. Students who have a trade certificate and have been employed in the engineering industry for some time may be able to claim exemption from the course.

2010 Residential school schedule

Students should refer to the [2010 Residential School schedule](#) for a complete list of courses that require residential schools and the dates in which they are scheduled.

Students enrolled in Practice courses in Semester 3 2010 who will be attending a Residential School in February 2011 should consult the [2010 Residential School schedule](#) for correct dates.

Articulation

Students who have completed an associate diploma or an associate degree program in engineering at a Queensland university within the last five years are eligible to claim up to a maximum of 16 units of advanced standing in the [Bachelor of Engineering Technology](#) program if studying in the same discipline area.

Exit points

Students who, for whatever reason, are unable to complete the [Associate Degree of Engineering](#), and who satisfy all of the requirements of the Diploma of Engineering Studies (refer back to the 2006 USQ Handbook), may be permitted to exit with that award.

Other information

Full-time, on-campus students may, with the permission of the appropriate Program Coordinator, undertake courses by external study. This may be desirable if students wish to extend the range of courses open to them in the Elective areas.

In exceptional cases, a Head of Discipline, in consultation with the Discipline Consultative Committee, may permit a student to enrol in an Elective course other than those specified for the accredited program, provided the course is drawn from another accredited associate degree program offered by the Faculty of Engineering and Surveying. **Students who wish to enrol in courses other than those listed, must obtain written approval prior to enrolling in the course.**

To satisfy the requirements of the program students must complete all of the Academic courses and the Practice courses in the following tables that show the recommended enrolment patterns for on-campus and external

students. Students following a non-standard enrolment pattern should consult the [course synopses](#) section of this Handbook to ascertain if a course is offered in another term.

Engineering Pathways

A special Pathway has been developed for students who intend to study the [Bachelor of Engineering Technology](#) or the [Bachelor of Engineering](#) once they have completed the [Associate Degree of Engineering](#) program. Pathway to the [Bachelor of Engineering Technology](#) or the [Bachelor of Engineering](#) maximises the advanced standing (exemptions) students will receive in these programs. A Pathway to the [Bachelor of Engineering Technology](#) or the [Bachelor of Engineering](#) has been developed for each of the following [Associate Degree of Engineering](#) majors into the equivalent major:

- Agricultural Engineering
- Civil Engineering
- Computer Systems Engineering
- Electrical and Electronic Engineering
- Environmental Engineering
- Mechanical Engineering
- Power Engineering

Pathway to the [Bachelor of Engineering Technology](#) or the [Bachelor of Engineering](#) has been specially developed for students who study part-time. Full-time students may seek approval to follow the Pathway to the [Bachelor of Engineering Technology](#) or the [Bachelor of Engineering](#), but it is not timetabled for on-campus students.

Students must have the approval of their Head of Discipline to undertake the Pathway to the [Bachelor of Engineering Technology](#) or the [Bachelor of Engineering](#). Students are strongly advised to consider and apply for approval for this Pathway as soon as possible in order to maximise the credit they will receive in the [Bachelor of Engineering Technology](#) or the [Bachelor of Engineering](#). This should be done prior to the commencement of the second year of studies if possible.

The Head of Discipline will also consider a student's GPA before granting approval.

Once approval is granted, their Head of Discipline will advise them of the courses they should study when granting approval for them to follow the Pathway to the [Bachelor of Engineering Technology](#) or the [Bachelor of Engineering](#).

Agricultural Engineering Major

Academic and Practice Courses

To satisfy the requirements of the program, students must complete all of the Academic and Practice courses in the following table that shows the recommended enrolment patterns for on-campus and external students for our Toowoomba campus. Students following a non-standard enrolment pattern should consult the [course synopses](#) section of this Handbook to ascertain if a course is offered in another term.

Students enrolled in the external offer of a Practice course **must attend** the Residential School <http://www.usq.edu.au/handbook/current/resschoolsched.html> for that course. In some cases students enrolled in the on-campus mode may also be required to attend the residential school. Students should only enrol in a Practice course when they are able to attend the residential school for that course.

Elective courses

Elective courses are included in the list of Academic courses. Students should select these courses from the Electives table.

Agricultural Engineering Pathway

It is recommended that students wishing to continue into the [Bachelor of Engineering Technology](#) (Agricultural Engineering) or [Bachelor of Engineering](#) (Agricultural Engineering) programs using a Pathway should have completed at least eight courses, including [MAT1500 Engineering Mathematics 1](#), with a GPA > 5. Pathway

students should enrol in [ENG2002 Technology, Sustainability and Society](#) and [MEC2402 Stress Analysis](#) as electives.

Agricultural Engineering Major recommended enrolment pattern

Major study: Agricultural Engineering (Major Study Code: 16245)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic and Practice Courses								
ENG1002 Introduction to Engineering and Spatial Science Applications <	1	1	1	1,2				
ENG1500 Engineering Fundamentals *	1	1	1	1				OE
ENG1100 Introduction to Engineering Design >	1	2	1	1,2				
ENG1101 Introduction to Engineering Problem Solving	1	1	2	1,2				
CIV1501 Engineering Statics	1	2	1	2,3				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
MEC1201 Engineering Materials <	1	1	2	1,2				
ENG2102 Engineering Problem Solving and Analysis	1	2	2	2				Pre-requisite: ENG1101
SVY1500 Spatial Science for Engineers	1	2	2	2				
AGR2302 Agricultural Machinery ###	2	1	3	1				
ENV2103 Hydraulics I	2	1	3	1				Pre-requisite: CIV1501
Elective	2	1	4	1				
Elective	2	1	4	1				
AGR2301 Agricultural Science	2	2	4	2				
CIV2403 Geology and Geomechanics	2	2	3	2				
ENV3105 Hydrology	2	2	4	2				Pre-requisite: ENG2102 or Students must be enrolled in one of the following Program s: GCEN or GDET or METC or MEPR or GCNS or PGCN or GDNS or MENS
Elective	2	2	4	2				
Practice Courses								
ENG1901 Engineering Practice 1 <	1	1	2	2,3			C	
CIV2901 Geology and Geomechanics Practice	2	2	2	2,3			C	
ENV2902 Hydraulics Practice ^	2	2	3	3			C	Pre-requisite: ENV2103 or ENV1101
AGR2902 Field Practice	2		3	3			C	

Footnotes

- < The on-campus offering of this course has been timetabled for Semester 1. Students may consider the alternative semester however they may experience timetable clashes.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENG1500 Engineering Fundamentals](#) with [MAT1500 Engineering Mathematics 1](#). Please refer to the notes in the General Information — Undergraduate Program Section of the Faculty's entry in this Handbook.
- > The on-campus offering of this course has been timetabled for Semester 2. Students may consider enrolling in semester 1 however they may experience timetable clashes.
- ### Not offered externally in 2010. Next external offering 2011.
- ^ Students who have completed SVY2905 but not [ENV2901 Soil and Water Engineering Practice 1](#) prior to 2010 should enrol in [ENV2901 Soil and Water Engineering Practice 1](#) in 2010 rather than [ENV2902 Hydraulics Practice](#). [ENV2901 Soil and Water Engineering Practice 1](#) will not be offered after 2010.
- OE** Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

For students transferring from one program to another a complete list of enrolment requirements are available in the [synopses of courses](#) at the end of this Handbook.

Students wishing to continue into the Bachelor of Engineering Technology (Agricultural Engineering) or Bachelor of Engineering (Agricultural Engineering) programs using a Pathway should have completed at least eight courses, including [MAT1500 Engineering Mathematics 1](#), with a GPA > 5. Pathway students should enrol in [ENG2002 Technology, Sustainability and Society](#) and [MEC2402 Stress Analysis](#) as electives.

Agricultural Engineering Major Elective courses

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	
Any Approved BEngTech (Agr Eng) course							
or							
AGR3304 Soil Science		1		1			
AGR3305 Precision and Smart Technologies in Agriculture						1	
ENG2002 Technology, Sustainability and Society		1,2		2,3			
MAT1500 Engineering Mathematics 1		1		1			OE
MAT1502 Engineering Mathematics 2		1,2		1,2			OE
MEC2402 Stress Analysis		1		1			Pre-requisite: CIV1501 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or GCN S or GDNS or MENS
ENV2201 Land Studies		1		1			
AGR3303 ##							

Footnotes

Not offered on-campus in 2010. On-campus students should enrol in the external offering of this course.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Other courses may be admissible as an elective. However, students must obtain approval from the relevant Head or Associate Head prior to enrolling in the course.

Civil Engineering Major

Academic and Practice Courses

To satisfy the requirements of the program students must complete all of the Academic and Practice courses in the following table that shows the recommended enrolment patterns for on-campus and external students for our Toowoomba and Springfield campuses. Students following a non-standard enrolment pattern should consult the [course synopses](#) section of this Handbook to ascertain if a course is offered in another term.

Students enrolled in the external offer of a Practice course **must attend** the Residential School <http://www.usq.edu.au/handbook/current/resschoolsched.html> for that course. In some cases students enrolled in the on-campus mode may also be required to attend the residential school. Students should only enrol in a Practice course when they are able to attend the residential school for that course.

Elective courses

Elective courses are included in the list of Academic courses. Students should select these courses from the Electives table.

Civil Engineering Pathway

It is recommended that students wishing to continue into either the [Bachelor of Engineering Technology](#) (Civil Engineering) or [Bachelor of Engineering](#) (Civil Engineering) programs using a Pathway should have completed at least eight courses, including [MAT1500 Engineering Mathematics 1](#), with a GPA > 5. Pathway students should enrol in [CIV3703 Transport Engineering](#) instead of [CIV2702 Municipal Services](#) and enrol in [ENG2002 Technology, Sustainability and Society](#) as an elective.

Civil Engineering Major recommended enrolment pattern (Toowoomba Campus)

Major study: Civil Engineering (Major Study Code: 15433)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses								
ENG1002 Introduction to Engineering and Spatial Science Applications<	1	1	1	1,2				
ENG1500 Engineering Fundamentals*	1	1	1	1				OE
ENG1100 Introduction to Engineering Design>	1	2	1	1,2				
CIV1501 Engineering Statics	1	2	1	2,3				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
ENG1101 Introduction to Engineering Problem Solving	1	1	2	1,2				
MEC1201 Engineering Materials<	1	1	2	1,2				
ENG2102 Engineering Problem Solving and Analysis	1	2	2	2				Pre-requisite: ENG1101
SVY1500 Spatial Science for Engineers	1	2	2	2				
Elective	2	1	3	1				
ENV2103 Hydraulics I	2	1	3	1				Pre-requisite: CIV1501
CIV2701 Road Design and Location	2	1	4	1				Pre-requisite: MAT1500 or ENG1500 or Students must be enrolled in one of the following Programs: GCST or GDGS
CIV2605 Construction Engineering	2	1	4	1				
CIV2403 Geology and Geomechanics	2	2	3	2				
CIV2502 Structural and Building Technology	2	2	3	2				
CIV2702 Municipal Services	2	2	4	2				Pre-requisite: ENV2103 or ENV1101
CIV2601 Job Organisation	2	2	4	2				
Practice Courses								
ENG1901 Engineering Practice 1>^	1	1	2	2,3			C	
CIV2901 Geology and Geomechanics Practice	2	2	2	2,3			C	
ENV2902 Hydraulics Practice^	2	2	3	3			C	Pre-requisite: ENV2103 or ENV1101
CIV3906 Civil Materials Practice	2	1	4	3			C	

Footnotes

- < The on-campus offering of this course has been timetabled for Semester 1. Students may consider the alternative semester however they may experience timetable clashes.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENG1500 Engineering Fundamentals](#) with [MAT1500 Engineering Mathematics 1](#). Please refer to the notes in the General Information — Undergraduate Program Section of the Faculty's entry in this Handbook.
- > The on-campus offering of this course has been timetabled for Semester 2. Students may consider the alternative semester however they may experience timetable clashes.
- ^^ [ENG1901 Engineering Practice 1](#) is the first in a series of Practice courses designed to enable students to acquire engineering and professional practice skills, including practical and teamwork skills, problem solving and engineering judgement. It is designed principally to cater for the needs of recent school leavers and those lacking any significant experience of the engineering work force. Students who have a trade certificate and have been employed in the engineering industry for some time may be able to claim exemption from the course.
- ^ Students who have completed [SVY2905](#) but not [ENV2901 Soil and Water Engineering Practice 1](#) prior to 2010 should enrol in [ENV2901 Soil and Water Engineering Practice 1](#) in 2010 rather than [ENV2902](#). [ENV2901 Soil and Water Engineering Practice 1](#) will not be offered after 2010.
- OE** Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

For students transferring from one program to another a complete list of enrolment requirements are available in the [synopses of courses](#) .

Civil Engineering Major Elective courses (Toowoomba campus)

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	
ENG2002 Technology, Sustainability and Society		1,2		2,3			
CIV3603 Construction Methods				2			
CIV3703 Transport Engineering		2		2			
ENG4004 Engineering Management Science**		2		2,3			
ENV2201 Land Studies		1		1			
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
GIS1402 Geographic Information Systems		2		2			
MAT1500 Engineering Mathematics 1		1		1			OE
MAT1502 Engineering Mathematics 2		1,2		1,2			OE
REN1201 Environmental Studies		1		1			OE
SVY3201 Sustainable Urban Design and Development		2		2			

Footnotes

** The semester three offering of [ENG3003](#) and [ENG4004](#) are available in alternate years.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Other courses may be admissible as an Elective. However students must obtain approval from the relevant Head or Program Coordinator prior to enrolling in the course.

Civil Engineering Major recommended enrolment pattern (Springfield Campus)

Major study: Civil Engineering (Major Study Code: 15433)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses								
ENG1002 Introduction to Engineering and Spatial Science Applications	1	1						
ENG1500 Engineering Fundamentals*	1	1					OE	
ENG1100 Introduction to Engineering Design	1	2						
CIV1501 Engineering Statics	1	2					Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR	
ENG1101 Introduction to Engineering Problem Solving	1	1						
MEC1201 Engineering Materials	1	1						
ENG2102 Engineering Problem Solving and Analysis	1	2					Pre-requisite: ENG1101	
SVY1500 Spatial Science for Engineers	1	2						
Elective	2	1						
ENV2103 Hydraulics I	2	1					Pre-requisite: CIV1501	
CIV2403 Geology and Geomechanics	2	2						
CIV2502 Structural and Building Technology	2	2						
CIV2701 Road Design and Location	2	1					Pre-requisite: MAT1500 or ENG1500 or Students must be enrolled in one of the fol	

Major study: Civil Engineering (Major Study Code: 15433)									
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements	
	On-campus (ONC)		External (EXT)		Online (WEB)				
	Year	Sem	Year	Sem	Year	Sem			
								Following Programs: GCST or GDGS	
CIV2605 Construction Engineering	2	1							
CIV2702 Municipal Services	2	2						Pre-requisite: ENV2103 or ENV1101	
CIV2601 Job Organisation	2	2							
Practice Courses									
ENG1901 Engineering Practice 1^{^^}	1	1					C		
CIV2901 Geology and Geomechanics Practice	2	2					C		
ENV2902 Hydraulics Practice[^]	2	2					C	Pre-requisite: ENV2103 or ENV1101	
CIV3906 Civil Materials Practice	2	1					C		

Footnotes

- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENG1500 Engineering Fundamentals](#) with [MAT1500 Engineering Mathematics 1](#). Please refer to the notes in the General Information — Undergraduate Program Section of the Faculty's entry in this Handbook.
- ^{^^} [ENG1901 Engineering Practice 1](#) is the first in a series of Practice courses designed to enable students to acquire engineering and professional practice skills, including practical and teamwork skills, problem solving and engineering judgement. It is designed principally to cater for the needs of recent school leavers and those lacking any significant experience of the engineering work force. Students who have a trade certificate and have been employed in the engineering industry for some time may be able to claim exemption from the course.
- [^] Students who have completed SVY2905 but not [ENV2901 Soil and Water Engineering Practice 1](#) prior to 2010 should enrol in [ENV2901 Soil and Water Engineering Practice 1](#) in 2010 rather than [ENV2902](#). [ENV2901 Soil and Water Engineering Practice 1](#) will not be offered after 2010.
- OE** Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Springfield on-campus students may be required to attend practical sessions at off-campus locations or on-campus in Toowoomba. Transportation is available from Springfield to the location of the practice course.

For students transferring from one program to another a complete list of enrolment requirements are available in the [synopses of courses](#).

Students wishing to continue into either the [Bachelor of Engineering Technology](#) (Civil Engineering) or [Bachelor of Engineering](#) (Civil Engineering) programs should have completed at least eight courses, including [MAT1500 Engineering Mathematics 1](#), with a GPA > 5. Pathway students should enrol in [CIV3703 Transport Engineering](#) instead of [CIV2702 Municipal Services](#) and enrol in [ENG2002 Technology, Sustainability and Society](#) as an elective.

Civil Engineering Major Elective courses (Springfield)

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	
ENG2002 Technology, Sustainability and Society		2		2,3			
CIV3603 Construction Methods				2			
CIV3703 Transport Engineering				2			
ENG4004 Engineering Management Science[§]				2,3			
ENV2201 Land Studies				1			
ENV4204 Environmental Technology				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
GIS1402 Geographic Information Systems				2			
MAT1500 Engineering Mathematics 1				1			OE
MAT1502 Engineering Mathematics 2				1,2			OE
REN1201 Environmental Studies				1			OE
SVY3201 Sustainable Urban Design and Development				2			

Footnotes

§ [ENG4004](#) will be offered externally in semester three in even years.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Other courses may be admissible as an Elective. However students must obtain approval from the relevant Head or Program Coordinator prior to enrolling in the course.

Computer Systems Engineering Major

Academic and Practice Courses

To satisfy the requirements of the program students must complete all of the Academic and Practice courses in the following table that shows the recommended enrolment patterns for on-campus and external students for our Toowoomba campus. Students following a non-standard enrolment pattern should consult the [course synopses](#) section of this Handbook to ascertain if a course is offered in another term.

Students enrolled in the external offer of a Practice course **must attend** the Residential School <http://www.usq.edu.au/handbook/current/resschoolsched.html> for that course. In some cases students enrolled in the on-campus mode may also be required to attend the residential school. Students should only enrol in a Practice course when they are able to attend the residential school for that course.

Elective courses

Elective courses are included in the list of Academic courses. Students should select these courses from the Electives table.

Computer Systems Engineering Major recommended enrolment pattern

Major study: Computer Systems Engineering (Major Study Code: 15434)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses								
CSC1401 Foundation Programming <	1	1	1	1,2				
ENG1101 Introduction to Engineering Problem Solving	1	1	2	1,2				
ENG1500 Engineering Fundamentals *	1	1	1	1				OE
ELE1301 Computer Engineering	1	1	2	1				
ENG2102 Engineering Problem Solving and Analysis	1	2	2	2				Pre-requisite: ENG1101
ELE1502 Electronic Circuits	1	2	2	2				OE
ELE1801 Electrical Technology	1	2	1	2				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
ENG1002 Introduction to Engineering and Spatial Science Applications >	1	2	1	1,2				
Elective	2	1	4	1				
CSC2401 Algorithms and Data Structures <	2	2	3	1,2				Pre-requisite: (CSC1401 and CSC2402) or USQIT16 or S students must be enrolled in one of the following Program: MPIT or MSBN or MSMS
MAT1101 Discrete Mathematics for Computing	2	1	4	1				
ELE2303 Embedded Systems Design	2	1	3	1				OE
ELE2501 Electronic Workshop and Production	2	2	3	2				Pre-requisite: ELE1801 and ELE1502
ELE2101 Control and Instrumentation			3	2				Pre-requisite: ENG1500 or MAT1500 or Students must

Major study: Computer Systems Engineering (Major Study Code: 15434)									
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements	
	On-campus (ONC)		External (EXT)		Online (WEB)				
	Year	Sem	Year	Sem	Year	Sem			
								be enrolled in the following Program: MEPR	
Elective	2	2	4	2					
ENG1100 Introduction to Engineering Design >	2	1	4	1,2					
Practice Courses									
ENG1901 Engineering Practice 1 >	1	1	2	2,3			C		
ELE1911 Electrical and Electronic Practice A #	1	1	2	3			C	OE	
ELE2912 Electrical and Electronic Practice B	2	1	3	3			C	OE	

Footnotes

- < The on-campus offering of this course has been timetabled for Semester 1. Students may consider enrolling in semester 2 however they may experience timetable clashes.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENG1500 Engineering Fundamentals](#) with [MAT1500 Engineering Mathematics 1](#). Please refer to the notes in the General Information — Undergraduate Program Section of the Faculty's entry in this Handbook.
- > The on-campus offering of this course has been timetabled for Semester 2. Students may consider enrolling in semester 1 however they may experience timetable clashes.
- # If desired, attendance at the Practice course [ELE1911 Electrical and Electronic Practice A](#) may be delayed by one year.
- OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

For students transferring from one program to another a complete list of enrolment requirements are available in the [synopses of courses](#) at the end of this Handbook.

On entering the [Associate Degree of Engineering](#) (Computer Systems Engineering) external students are required to purchase a kit of tools comprising an electronic soldering iron, wire strippers, long nose pliers, diagonal cutter, safety glasses and an electronic prototyping 'breadboard'. These will first be required for [ELE2501 Electronic Workshop and Production](#) and [ELE1502 Electronic Circuits](#), and further details will be provided on commencement of these courses. Additionally, all students enrolled in course [ELE2501 Electronic Workshop and Production](#) will be required to purchase an electronic kit.

Students who are enrolled in the Computer Systems Engineering major and the Electrical and Electronic Engineering major and who have been granted an exemption in the course [ELE1801 Electrical Technology](#) are strongly advised to purchase the [ELE1801 Electrical Technology](#) study materials from the USQ Bookshop and work through these to refresh their knowledge.

Computer Systems Engineering Major Elective courses

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	
CSC2402 Object-Oriented Programming in C++		1		1,3			Pre-requisite: CSC2401 or USQIT16 or Students must be enrolled in one of the following Programs: MPIT or GDGS or GCEN or GDET or METC
ELE3305 Computer Systems and Communications Protocols		1		1			OE
CSC2408 Software Development Tools		1,2		2,3			OE
ELE2601 Telecommunications Principles		1		1			Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC
ENG2002 Technology, Sustainability and Society		1,2		2,3			
ENG3003 Engineering Management †		1		1,3			OE
CSC2404 Operating Systems		2		2			Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in the following Program: MPIT
ELE2503 Electronic Systems				2			Pre-requisite: ELE1502

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	
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 OE

Footnotes

† [ENG3003 Engineering Management](#) will be offered externally in semester three in odd years.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Other courses may be admissible as an Elective. However, students must obtain approval from the relevant Program Coordinator prior to enrolling in the course.

Electrical and Electronic Engineering Major

Academic and Practice Courses

To satisfy the requirements of the program students must complete all of the Academic and Practice courses in the following table that shows the recommended enrolment patterns for on-campus and external students for our Toowoomba campus. Students following a non-standard enrolment pattern should consult the [course synopses](#) section of this Handbook to ascertain if a course is offered in another term.

Students enrolled in the external offer of a Practice course **must attend** the Residential School <http://www.usq.edu.au/handbook/current/resschoolsched.html> for that course. In some cases students enrolled in the on-campus mode may also be required to attend the residential school. Students should only enrol in a Practice course when they are able to attend the residential school for that course.

Elective courses

Elective courses are included in the list of Academic courses. Students should select these courses from the Electives table

Electrical and Electronic Engineering Major recommended enrolment pattern

Major study: Electrical and Electronic Engineering (Major Study Code: 15435)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses								
MEC1201 Engineering Materials <	1	1	1	1,2				
ENG1101 Introduction to Engineering Problem Solving	1	1	2	1,2				
ENG1500 Engineering Fundamentals *	1	1	1	1			OE	
ELE1301 Computer Engineering	1	1	2	1				
ENG1002 Introduction to Engineering and Spatial Science Applications >	1	2	1	1,2				
ENG2102 Engineering Problem Solving and Analysis	1	2	2	2			Pre-requisite: ENG1101	
ELE1502 Electronic Circuits	1	2	2	2			OE	
ELE1801 Electrical Technology	1	2	1	2			Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR	
ENG1100 Introduction to Engineering Design <	2	1	3	1,2				
ELE2702 Electrical Measurement and Analysis	2		4	1			Pre-requisite: (ENG1500 or MAT1500) and ELE1801	
ELE2601 Telecommunications Principles	2	1	4	1			Pre-requisite: (ELE1502 and ELE1801) or Students must	

Major study: Electrical and Electronic Engineering (Major Study Code: 15435)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
								be enrolled in one of the following Programs: GCEN or GDET or METC
Elective	2	1	3	1				
ELE2501 Electronic Workshop and Production			3	2				Pre-requisite: ELE1801 and ELE1502
Elective	2	2	4	2				
ELE2503 Electronic Systems			4	2				Pre-requisite: ELE1502
ELE2101 Control and Instrumentation			3	2				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
Practice Courses								
ENG1901 Engineering Practice 1 <	1	1	2	2,3			C	
ELE1911 Electrical and Electronic Practice A #	1	1	2	3			C	OE
ELE2912 Electrical and Electronic Practice B	2	1	3	3			C	OE
ELE2913 Electrical and Electronic Practice C	2	1	4	2			C	OE

Footnotes

- < The on-campus offering of this course has been timetabled for Semester 1. Students may consider enrolling in semester 2 however they may experience timetable clashes.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENG1500 Engineering Fundamentals](#) with [MAT1500 Engineering Mathematics 1](#). Please refer to the notes in the General Information — Undergraduate Program Section of the Faculty's entry in this Handbook.
- > The on-campus offering of this course has been timetabled for Semester 2. Students may consider enrolling in semester 1 however they may experience timetable clashes.
- # If desired, attendance at the Practice course [ELE1911 Electrical and Electronic Practice A](#) may be delayed by one year.
- OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

For students transferring from one program to another a complete list of enrolment requirements are available in the [synopses of courses](#) .

Electrical and Electronic Engineering Major Elective courses

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	
ELE3803 Electrical Plant		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 OE
ELE3506 Electronic Measurement		2		2			Pre-requisite: (ELE1502 and (ELE2101 or ELE2103) and (ELE2503 or ELE2504)) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR or MENS
ELE3805 Power Electronics Principles and Applications		2		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
ELE2303 Embedded Systems Design		1		1			OE
ENG3003 Engineering Management †		1		1,3			OE
ELE2704 Electricity Supply Systems				2			OE
ENG2002 Technology, Sustainability and Society		1,2		2,3			

Footnotes

† [ENG3003 Engineering Management](#) will be offered externally in semester three in odd years.

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Other courses may be admissible as an Elective. However students must obtain approval from the relevant Program Coordinator prior to enrolling in the course.

On entering the [Associate Degree of Engineering](#) (Electrical and Electronic Engineering) external students are required to purchase a kit of tools comprising an electronic soldering iron, wire strippers, long nose pliers, diagonal cutter, safety glasses and an electronic prototyping 'breadboard'. These will first be required for [ELE2501 Electronic Workshop and Production](#) and [ELE1502 Electronic Circuits](#), and further details will be provided on commencement of these courses. Additionally, all students enrolled in course [ELE2501 Electronic Workshop and Production](#) will be required to purchase an electronic kit. For external students in the course [ELE2702 Electrical Measurement and Analysis](#), access to an analogue multimeter and hook-up wire is required, together with the purchase of some electronic components.

Students who have been granted an exemption in the course [ELE1801 Electrical Technology](#) are strongly advised to purchase the [ELE1801 Electrical Technology](#) study materials from the USQ Bookshop and work through these prior to attempting [ELE2702](#) or [ELE3803 Electrical Plant](#).

Environmental Engineering Major

Academic and Practice Courses

To satisfy the requirements of the program students must complete all of the Academic and Practice courses in the following table that shows the recommended enrolment patterns for on-campus and external students for our Toowoomba campus. Students following a non-standard enrolment pattern should consult the [course synopses](#) section of this Handbook to ascertain if a course is offered in another term.

Students enrolled in the external offer of a Practice course **must attend** the Residential School <http://www.usq.edu.au/handbook/current/resschoolsched.html> for that course. In some cases students enrolled in the on-campus mode may also be required to attend the residential school. Students should only enrol in a Practice course when they are able to attend the residential school for that course.

Elective courses

Elective courses are included in the list of Academic courses. Students should select these courses from the Electives table.

Environmental Engineering Pathway

It is recommended that students wishing to continue into either the [Bachelor of Engineering Technology](#) (Environmental Engineering) or [Bachelor of Engineering](#) (Environmental Engineering) programs using a Pathway should have completed at least eight courses, including [MAT1500 Engineering Mathematics 1](#), with a GPA > 5. Pathway students should enrol in [ENG2002 Technology, Sustainability and Society](#) as an elective.

Environmental Engineering Major recommended enrolment pattern

Major study: Environmental Engineering (Major Study Code: 15436)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses								
ENG1002 Introduction to Engineering and Spatial Science Applications <	1	1	1	1,2				
ENG1500 Engineering Fundamentals *	1	1	1	1				OE
ENG1100 Introduction to Engineering Design >	1	2	1	1,2				
ENG1101 Introduction to Engineering Problem Solving	1	1	2	1,2				
CIV1501 Engineering Statics	1	2	1	2,3				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
MEC1201 Engineering Materials <	1	1	2	1,2				
ENG2102 Engineering Problem Solving and Analysis	1	2	2	2				Pre-requisite: ENG1101
SVY1500 Spatial Science for Engineers	1	2	2	2				

Major study: Environmental Engineering (Major Study Code: 15436)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Elective	2	1	3	1				
REN1201 Environmental Studies	2	1	3	1				OE
ENV2103 Hydraulics I	2	1	4	1				Pre-requisite: CIV1501
ENV2201 Land Studies	2	1	4	1				
CIV2403 Geology and Geomechanics	2	2	3	2				
AGR2301 Agricultural Science	2	2	3	2				
ENV3105 Hydrology	2	2	4	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
Elective	2	2	4	2				
Practice Courses								
ENG1901 Engineering Practice 1 <	1	1	2	2,3			C	
CIV2901 Geology and Geomechanics Practice	2	2	2	2,3			C	
ENV2902 Hydraulics Practice ^	2	2	4	3			C	Pre-requisite: ENV2103 or ENV1101
AGR2902 Field Practice ###	2		3	3			C	

Footnotes

- < Students may consider enrolment in an alternative semester however they may experience a timetable clash. Refer to the Course Offerings for details of alternative offer.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENG1500 Engineering Fundamentals](#) with [MAT1500 Engineering Mathematics 1](#). Please refer to the notes in the General Information — Undergraduate Program Section of the Faculty's entry in this Handbook.
- > The on-campus offering of this course has been timetabled for Semester 2. Students may consider enrolling in semester 1 however they may experience timetable clashes.
- ^ Students who have completed SVY2905 but not [ENV2901 Soil and Water Engineering Practice 1](#) prior to 2010 should enrol in [ENV2901 Soil and Water Engineering Practice 1](#) in 2010 rather than [ENV2902 Hydraulics Practice](#). [ENV2901 Soil and Water Engineering Practice 1](#) will not be offered after 2010.
- ### [AGR2902 Field Practice](#) may involve overnight field trips for which each student will be responsible for their own accommodation costs. On-campus students should enrol in the external mode of this course.
- OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

For students transferring from one program to another a complete list of enrolment requirements are available in the [synopses of courses](#).

Environmental Engineering Major Elective courses

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	
Any approved BEngTech (Env) course							
or							
CIV2702 Municipal Services		2		2			Pre-requisite: ENV2103 or ENV1101
ENG2002 Technology, Sustainability and Society		1,2		2,3			
MAT1500 Engineering Mathematics 1		1		1			OE
MAT1502 Engineering Mathematics 2		1,2		1,2			OE
SVY3201 Sustainable Urban Design and Development		2		2			
SVY3202 Photogrammetry and Remote Sensing		1		1			

Footnotes

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Other courses may be admissible as an Elective. However students must obtain approval from the relevant Head or Program Coordinator prior to enrolling in the course.

Mechanical Engineering Major

To satisfy the requirements of the program students must complete all of the Academic and Practice courses in the following table that shows the recommended enrolment patterns for on-campus and external students for our Toowoomba campus. Students following a non-standard enrolment pattern should consult the [course synopses](#) section of this Handbook to ascertain if a course is offered in another term.

Students enrolled in the external offer of a Practice course **must attend** the Residential School <http://www.usq.edu.au/handbook/current/resschoolsched.html> for that course. In some cases students enrolled in the on-campus mode may also be required to attend the residential school. Students should only enrol in a Practice course when they are able to attend the residential school for that course.

Mechanical Engineering Major recommended enrolment pattern

Major study: Mechanical Engineering (Major Study Code: 15437)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses								
ENG1002 Introduction to Engineering and Spatial Science Applications<	1	1	1	1,2				
ENG1101 Introduction to Engineering Problem Solving	1	1	1	1,2				
MEC1201 Engineering Materials>	1	2	1	1,2				
ENG1500 Engineering Fundamentals*	1	1	2	1				OE
ENG2102 Engineering Problem Solving and Analysis	1	2	1	2				Pre-requisite: ENG1101
ENG1100 Introduction to Engineering Design<	1	1	2	1,2				
CIV1501 Engineering Statics	1	2	2	2,3				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
MEC2304 Solid Modelling	1	2	2	2				OE
MAT1500 Engineering Mathematics 1	2	1	3	1				OE
MEC2202 Manufacturing Processes	2	1	3	1				Pre-requisite: MEC1201 or Students must be enrolled in one of the following Program s: MEPR
MEC2106 Introduction to Fluid Mechanics and Heat Transfer	2	2	3	2				Pre-requisite: (MAT1500 and CIV1501) or Students must be enrolled in the following Program: MENS
ELE1801 Electrical Technology	2	2	3	2				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
MEC2402 Stress Analysis	2	1	4	1				Pre-requisite: CIV1501 or S tudents must be enrolled in one of the following Program s: GCEN or GDET or METC or MEPR or GCNS or GDNS or MENS
MEC2405 Machine Dynamics			4	1				Pre-requisite: CIV1501

Major study: Mechanical Engineering (Major Study Code: 15437)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
MEC2301 Design of Machine Elements	2	2	4	2				Pre-requisite: MEC2402 or Students must be enrolled in the following Program: MEPR OE
MEC3204 Production Engineering	2	2	4	2				OE
Practice Courses								
ENG1901 Engineering Practice 1 <	1	1	2	2,3			C	
MEC2901 Mechanical Practice 1	1	1	3	3			C	
MEC2902 Mechanical Practice 2	2	1	4	2			C	
MEC3903 Mechanical Practice 3	2	2	4	2			C	

Footnotes

- < The on-campus offering of this course has been timetabled for Semester 1. Students may consider enrolling in semester 2 however they may experience timetable clashes.
 - > The on-campus offering of this course has been timetabled for Semester 2. Students may consider enrolling in semester 2 however they may experience timetable clashes.
 - * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENG1500 Engineering Fundamentals](#) with [MAT1500 Engineering Mathematics 1](#). Please refer to the notes in the General Information — Undergraduate Program Section of the Faculty's entry in this Handbook.
- OE** Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

For students transferring from one program to another a complete list of enrolment requirements are available in the [synopses of courses](#).

Power Engineering Major

Academic and Practice Courses

To satisfy the requirements of the program students must complete all of the Academic and Practice courses in the following table that shows the recommended enrolment patterns for on-campus and external students for our Toowoomba campus. Students following a non-standard enrolment pattern should consult the [course synopses](#) section of this Handbook to ascertain if a course is offered in another term.

Students enrolled in the external offer of a Practice course **must attend** the Residential School <http://www.usq.edu.au/handbook/current/resschoolsched.html> for that course. In some cases students enrolled in the on-campus mode may also be required to attend the residential school. Students should only enrol in a Practice course when they are able to attend the residential school for that course.

Elective courses

Elective courses are included in the list of Academic courses. Students should select these courses from the Electives table.

Power Engineering Major recommended enrolment pattern

Major study: Power Engineering (Major Study Code: 15936)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses								
MEC1201 Engineering Materials <	1	1	1	1,2				
ENG1101 Introduction to Engineering Problem Solving	1	1	2	1,2				
ENG1500 Engineering Fundamentals *	1	1	1	1				OE
ELE1301 Computer Engineering	1	1	2	1				

Major study: Power Engineering (Major Study Code: 15936)								
Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
ENG1002 Introduction to Engineering and Spatial Science Applications >	1	2	1	1,2				
ENG2102 Engineering Problem Solving and Analysis	1	2	2	2				Pre-requisite: ENG1101
ELE1502 Electronic Circuits	1	2	2	2				OE
ELE1801 Electrical Technology	1	2	1	2				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
ENG1100 Introduction to Engineering Design <	2	1	3	1,2				
ELE2702 Electrical Measurement and Analysis	2		3	1				Pre-requisite: (ENG1500 or MAT1500) and ELE1801
Elective	2	1	4	1				
Elective	2	1	4	1				
ELE2501 Electronic Workshop and Production			3	2				Pre-requisite: ELE1801 and ELE1502
Elective	2	2	4	2				
ELE2503 Electronic Systems			4	2				Pre-requisite: ELE1502
ELE2101 Control and Instrumentation			3	2				Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
Practice Courses								
ENG1901 Engineering Practice 1 <	1	1	2	2,3			C	
ELE1911 Electrical and Electronic Practice A ^{^^}	1	1	2	3			C	OE
ELE2912 Electrical and Electronic Practice B	2	1	3	3			C	OE
ELE2913 Electrical and Electronic Practice C	2	1	4	2			C	OE

Footnotes

- < The on-campus offering of this course has been timetabled for Semester 1. Students may consider enrolling in semester 2 however they may experience timetable clashes.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENG1500 Engineering Fundamentals](#) with [MAT1500 Engineering Mathematics 1](#). Please refer to the notes in the General Information — Undergraduate Program Section of the Faculty's entry in this Handbook.
- > The on-campus offering of this course has been timetabled for Semester 2. Students may consider enrolling in semester 1 however they may experience timetable clashes.
- ^{^^} If desired, attendance at the Practice course [ELE1911 Electrical and Electronic Practice A](#) may be delayed by one year.
- OE** Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

For students transferring from one program to another a complete list of enrolment requirements are available in the [synopses of courses](#).

On entering the [Associate Degree of Engineering](#) (Power Engineering) external students are required to purchase a kit of tools comprising an electronic soldering iron, wire strippers, long nose pliers, diagonal cutter, safety glasses and an electronic prototyping 'breadboard'. These will first be required for [ELE2501 Electronic Workshop and Production](#) and [ELE1502 Electronic Circuits](#), and further details will be provided on commencement of these courses.

Additionally, all students enrolled in course [ELE2501 Electronic Workshop and Production](#) will be required to purchase an electronic kit. For external students in the course [ELE2702 Electrical Measurement and Analysis](#), access to an analogue multimeter and hook-up wire is required, together with the purchase of some electronic components.

Students who have been granted an exemption in the course [ELE1801 Electrical Technology](#) are strongly advised to purchase the [ELE1801 Electrical Technology](#) study materials from the USQ Bookshop and work through these prior to attempting [ELE2702 Electrical Measurement and Analysis](#) or [ELE3803 Electrical Plant](#).

Power Engineering Major Elective courses

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	
CIV1501 Engineering Statics		2		2,3			Pre-requisite: ENG1500 or MAT1500 or Students must be enrolled in the following Program: MEPR
CIV2605 Construction Engineering		1		1			
CIV2403 Geology and Geomechanics		2		2			
GIS1401 Geographic Data Presentation		1		1			
GIS1402 Geographic Information Systems		2		2			
GIS2403 Land Management Systems		2		2			
SVY1110 Introduction to Global Positioning System		2		2			
ELE2303 Embedded Systems Design		1		1			OE
ELE2704 Electricity Supply Systems				2			OE
ELE3803 Electrical Plant		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 OE

Footnotes

OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Other courses may be admissible as an Elective. However students must obtain approval from the relevant Program Coordinator prior to enrolling in the course.