

Associate Degree of Engineering (ADNG) - AssocDegEng

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

CRICOS code (International applicants): 054271G

	On-campus	External#
Semester intake:	Semester 1 (February) Semester 2 (July)	Semester 1 (February) Semester 2 (July) Semester 3 (November)
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:	From: Foundation Diploma of University Studies (Engineering or Spatial Science specialisation) To: Bachelor of Engineering Science ; Bachelor of Engineering (Honours)	

Notes:

The Civil, Electrical and Electronic and Mechanical Engineering majors are the only majors available on-campus at Springfield.
The Instrumentation Control and Automation Engineering major is only available part-time.

Footnotes

The semester 3 offer is only available for part-time study in Semester 3.

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

Professional accreditation

All majors (except Agricultural, Instrumentation Control and Automation Engineering, and Mining Engineering) in this program have received full accreditation from Engineers Australia. Provisional accreditation has been granted for the Agricultural, Instrumentation Control and Automation Engineering, and Mining Engineering majors. Graduates of this program are eligible to apply for membership of Engineers Australia as an Engineering Associate (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 AMIEAust CEngO.

Graduates of this program in the Mining Engineering major are eligible to apply for Associate Grade membership of AusIMM (Australasian Institute of Mining and Metallurgy).

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. It is also designed so that students are eligible for membership of Engineers Australia (as an Engineering Associate) and other appropriate professional bodies. To this end, the program is designed to provide a general understanding of a broad field of knowledge, with specified electives (approved courses) available in most majors in the final stages of the program to allow a measure of specialisation.

Program objectives

Graduates of the program will have:

- (1) cognitive skills to identify, analyse and evaluate information and concepts from a range of sources
- (2) in-depth practical knowledge and skills of a branch of engineering practice, appropriate to those functioning at engineering associate level in the following fields: Agricultural Engineering; Civil Engineering; Computer Systems Engineering; Electrical and Electronic Engineering; Environmental Engineering; Instrumentation Control and Automation Engineering; Mechanical Engineering; Mining Engineering; or Power Engineering;
- (3) cognitive, communication and analytical skills to interpret and transmit responses to sometimes complex problems, which are founded upon descriptive, formula-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the practice area
- (4) oral, written and electronic communication skills to make a clear and coherent presentation of knowledge and ideas with some intellectual independence in professional and lay domains

Graduates of the program will demonstrate the application of knowledge and skills:

- (5) with initiative and judgement in planning, problem solving and decision making at an engineering associate level, working in collaboration with others within broad parameters as an effective team member or leader
- (6) to the solution of well-defined engineering problems using established technical and practical methods

Australian Qualifications Framework

The Australian Qualifications Framework (AQF) is a single national, comprehensive system of qualifications offered by higher education institutions (including universities), vocational education and training institutions and secondary schools. Each AQF qualification has a set of descriptors which define the type and complexity of knowledge, skills and application of knowledge and skills that a graduate who has been awarded that qualification has attained, and the typical volume of learning associated with that qualification type.

This program is at AQF Qualification Level 06. Graduates at this level will have broad knowledge and skills for paraprofessional/highly skilled work and/or further learning.

The full set of levels criteria and qualification type descriptors can be found by visiting www.aqf.edu.au.

Program Information Set

View USQ's admission criteria, student profiles and a summary of all offers made under [Course Admission Information Set](#) via the QTAC website.

Admission requirements

To be eligible for admission, applicants must satisfy the following requirements:

- Have achieved a minimum Overall Position (OP) **16**, tertiary entrance rank **64** or equivalent qualification.[^]
- Subject Pre-requisite: English (4,SA) and Mathematics A (4, SA) or equivalent.
- English Language Proficiency requirements for Category 2.

Applicants are advised to also note the following:

- Recommended Prior Study: Mathematics B (4,SA) or equivalent.

All students are required to satisfy the applicable [English language requirements](#).

If students do not meet the English language requirements they may apply to study a University-approved [English language program](#). On successful completion of the English language program, students may be admitted to an award program.

^ These are determined by the University for specific programs each Semester. The 2018 OP and tertiary entrance ranks are based on agreed QTAC schedules which assess formal study at Year 12 or [equivalent level](#), tertiary, preparatory, professional or vocational qualifications or work experience, as detailed in the QTAC Assessment of Qualifications Manual and QTAC Assessor Guidelines.

Bonus ranks may help you get into the program of your choice by increasing your OP/Rank. The bonus ranks don't apply to all applicants or all programs. Please read the information on USQ's [Admissions bonus scheme](#) carefully to find out what you may be eligible for.

Program fees

Commonwealth supported place

A Commonwealth supported place is where the Australian Government makes a contribution towards the cost of a students' higher education and students pay a [student contribution amount](#), which varies depending on the courses undertaken. Students 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. Students 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](#) provided they meet the residency and citizenship requirements.

Australian citizens, Permanent Humanitarian Visa holders, Permanent Resident visa holders and New Zealand citizens who will be resident outside Australia for the duration of their program pay full tuition fees and are not eligible for [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. Students 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 specified approved course components. Students enrolled in the Associate Degree of Engineering program may undertake a specialisation in one of nine major discipline areas:

- Agricultural Engineering
- Civil Engineering
- Computer Systems Engineering
- Electrical and Electronic Engineering
- Environmental Engineering
- Instrumentation Control and Automation Engineering
- Mechanical Engineering
- Mining Engineering
- Power Engineering

The Associate Degree of Engineering program consists of 16 academic courses and four or five practice courses, (depending on major) which 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.

Full-time, on-campus students may, with the permission of the Faculty of Health, Engineering and Sciences, undertake courses by online study. This may be desirable if students wish to extend the range of courses open to them in the approved courses area.

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 six 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.

Practical experience

To be eligible to graduate from the Associate Degree of Engineering, students must obtain an aggregate of at least 30 days of suitable work experience during their program. This experience may be in an engineering office or laboratory where the student would be working principally with professional engineers and engineering associates. It may, however, be preferable for students to spend some time in field or factory activities to gain insight into industrial practice and to see what is involved in converting designs into finished products. Students are required to enrol in [ENG2909 Work Experience - Associate](#) in the latter part of their program and keep a record of appropriate experience as specified in the Course Specification. The work experience is to be endorsed by an appropriate person in the organisation providing the experience and submitted to the examiner. The student must meet all costs associated with the acquisition of work experience to satisfy this requirement. The record of work experience must be made available for perusal by the Faculty of Health, Engineering and Sciences upon request. The acceptability or otherwise of employment experience, and the period of that type of experience that may be credited towards the 30 days, will be determined by the Examiner of [ENG2909 Work Experience - Associate](#).

Credit or exemptions for [ENG2909 Work Experience - Associate](#) will not normally be considered.

IT requirements

Access to an up-to-date computer is necessary. On-campus students can access appropriately equipped laboratories, but should consider acquisition of their own computer. External students should be able to access a computer with the following [minimum standards](#) as advised by the University. All students should have access to email and the Internet via a computer running the latest versions of Internet web browsers such as Internet Explorer or Firefox. The University has a wireless network for on-campus students' computers. In order to take advantage of this facility and further enhance their on-campus learning environment, students should consider purchasing a notebook/laptop computer with wireless connectivity. Specialist software is required for some courses.

Residential schools

The attendance requirement of residential schools within this degree is indicated by the following letters: V = Voluntary; O = Optional; C = Compulsory; R = Recommended; HR = Highly Recommended; M = Mandatory. Further information is available [here](#) and in the [Policy and Procedure Library](#)

Students are required to undertake practical and professional activities relevant to their program through enrolment in a series of Practice courses in the program. Practice courses are zero unit courses that may be undertaken in either on-campus or external mode and the final grades available are Pass (P)/Fail (F) only. They are a compulsory part of the program and do not attract a student contribution charge for Australian residents or a tuition fee for international students. The recommended enrolment schedule for Practice courses is shown in the Recommended Enrolment Pattern for the program in this Handbook.

External students must attend a number of residential schools during their program to obtain experience in practical and professional activities appropriate to the program. The residential schools are included in Practice courses which are conducted in Semester 3 or during the mid-semester recess periods. The dates for each residential school Practice course are shown in the [Residential School schedule](#) in this Handbook and external students should ensure they are able to attend the residential school prior to enrolling in a Practice course. Personal protective equipment is compulsory in many engineering, construction and spatial science laboratories. Students should confirm the requirements before attending residential schools for Practice courses.

Students who enrol in on-campus mode for Practice courses normally undertake a series of weekly activities and/or attend a compulsory residential school.

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](#) may be permitted to exit with that award.

Credit

Applications for exemptions/credit will be assessed and based upon the [USQ Credit and Exemption Procedure](#).

Other information

The Faculty of Health, Engineering and Sciences may permit a student to enrol in an approved course other than those listed for the accredited program. **Students who wish to enrol in approved courses other than those listed, must obtain written approval from the Program Coordinator 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 specification](#) 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 Science](#) or the [Bachelor of Engineering \(Honours\)](#) once they have completed the Associate Degree of Engineering program. Pathway to the [Bachelor of Engineering Science](#) or the [Bachelor of Engineering \(Honours\)](#) maximises the advanced standing (exemptions) students will receive in these programs. A Pathway to the [Bachelor of Engineering Science](#) or the [Bachelor of Engineering \(Honours\)](#) 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 Science](#) or the [Bachelor of Engineering \(Honours\)](#) 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 Science](#) or the [Bachelor of Engineering \(Honours\)](#), but it is not timetabled for on-campus students.

Students must have the approval of the Faculty of Health, Engineering and Sciences to undertake the Pathway to the [Bachelor of Engineering Science](#) or the [Bachelor of Engineering \(Honours\)](#). 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 Science](#) or the [Bachelor of Engineering \(Honours\)](#). This should be done prior to the commencement of the second year of studies if possible, and after successful

completion of at least eight (8) academic courses in the Associate Degree, including any courses specified as a major Pathway.

The Faculty will take into consideration a student's GPA before granting approval. Once approval is granted, the Faculty will advise students of the courses they should study when granting approval for them to follow the Pathway to the [Bachelor of Engineering Science](#) or the [Bachelor of Engineering \(Honours\)](#).

Agricultural Engineering Major recommended enrolment pattern

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Agricultural Engineering Pathway

It is recommended that students wishing to continue into the [Bachelor of Engineering Science](#) (Agricultural Engineering) or [Bachelor of Engineering \(Honours\)](#) (Agricultural Engineering) programs using a Pathway should have completed at least eight academic courses, including [ENM1600 Engineering Mathematics](#) in lieu of [ENM1500 Introductory Engineering Mathematics](#). Pathway students should enrol in two Pathway courses as approved courses.

Major study: Agricultural Engineering (Major Study Code: 16245)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses Year 1								
ENG1002 Introduction to Engineering and Spatial Science Applications	1	1			1	1,2		
ENM1500 Introductory Engineering Mathematics ^{#*}	1	1			1	1,2,3		
ENG1003 Problem Solving in Engineering and the Built Environment	1	1			1	1,2		
CIV1500 Applied Mechanics	1	1			2	1,3		Pre-requisite or Co-requisite: ENM1500 or ENG1500 or MAT1500 or ENM1600
ENG1100 Introduction to Engineering Design	1	2			1	1,2		
CIV1501 Engineering Statics	1	2			2	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1600 or (ENM1500 and CIV1500) or Students must be enrolled in one of the following Program s: MEPR or GCEN
MEC1201 Engineering Materials	1	2			2	1,2,3		
SVY1500 Spatial Science for Engineers	1	2			2	2		
Practice Courses Year 1								
ENG1901 Engineering Practice 1 ^{^^}	1	1	2	2,3			M	
Academic Courses Year 2								
AGR2302 Agricultural Machinery	2	1			3	1		
ENV2103 Hydraulics I	2	1			3	1		Pre-requisite: CIV1500 or CIV1501 or Students must be enrolled in the following Program: GCEN
Approved course (Select from the approved course list) [#]	2	1			4	1		
Approved course (select from the approved course list) [#]	2	1			4	1		
AGR2301 Agricultural Science	2	2			3	2		
CIV2403 Geology and Geomechanics	2	2	3	2				Pre-requisite: CIV1501 or CIV1500 or Students must be

Major study: Agricultural Engineering (Major Study Code: 16245)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
								enrolled in one of the following Programs: MENS or GCEN
ENV3105 Hydrology	2	2			4	2		
ENG2111 Engineering Associate Degree Design Project	2	2			4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)
Practice Courses Year 2								
CIV2901 Geology and Geomechanics Practice	2	2	3	2,3			M	Pre-requisite or Co-requisite: ENG1901 and CIV2403
ENV2902 Hydraulics Practice	2	2	3	2,3			M	Pre-requisite: ENV2103 or ENV1101
AGR2902 Field Practice [^]			3	3			M	
ENG2909 Work Experience - Associate					4	1,2		
Select 2 courses from the following approved course list or elective courses as approved by the Program Coordinator								
AGR3304 Soil Science [#]		1				1		
AGR3305 Precision and Smart Technologies in Agriculture [#]		1				1		
CLI2201 Climate Change and Variability						2		
ENG2002 Technology, Sustainability and Society [#]		1,2				1,2,3		
ENM1600 Engineering Mathematics [#]		1,2				1,2		
MEC2402 Stress Analysis		1				1		Pre-requisite: CIV1501 or Students must be enrolled in one of the following Programs: GCEN or METC or MEPR or GCNS or GDNS or MENS
ENV2201 Land Studies		1				1		
AGR3303 Agricultural Materials and Post-Harvest Technologies [#]		1				1		

Footnotes

- # This is a Pathway course. Please refer to [Engineering Pathways](#) and [Agricultural Engineering Pathways](#) sections earlier in this program entry.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENM1500 Introductory Engineering Mathematics](#) with [ENM1600 Engineering Mathematics](#). Please contact the Faculty of Health, Engineering and Sciences for further information.
- ^^ [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.
- ^ The residential school for this course may involve overnight field trips for which each student will be responsible for their own accommodation costs.

Civil Engineering Major recommended enrolment pattern (Toowoomba and Springfield Campus)

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Civil Engineering Pathway

It is recommended that students wishing to continue into the [Bachelor of Engineering Science](#) (Civil Engineering) program should have completed at least eight courses, including [ENM1600 Engineering Mathematics](#) in lieu of [ENM1500 Introductory Engineering Mathematics](#).

It is recommended that students wishing to continue **directly** into the **Bachelor of Engineering (Honours)** (Civil Engineering) program using a Pathway should have completed at least eight courses, including **ENM1600 Engineering Mathematics** in lieu of **ENM1500 Introductory Engineering Mathematics**. Pathway students should enrol in **CIV3703 Transport Engineering** instead of **CIV2702 Municipal Services** and **must choose ENV4203 Public Health Engineering** as their approved course. Students on the pathway will only be eligible to graduate out of the Associate Degree of Engineering (Civil Engineering) program if they have completed the courses according to the above instructions.

Major study: Civil Engineering (Major Study Code: 15433)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses Year 1								
ENG1002 Introduction to Engineering and Spatial Science Applications	1	1,2			1	1,2		
ENM1500 Introductory Engineering Mathematics ^{#*}	1	1			1	1,2		
CIV1500 Applied Mechanics	1	1			1	1,3		Pre-requisite or Co-requisite: ENM1500 or ENG1500 or MAT1500 or ENM1600
ENG1003 Problem Solving in Engineering and the Built Environment	1	1			1	1,2		
ENG1100 Introduction to Engineering Design	1	2			2	1,2		
MEC1201 Engineering Materials	1	2			2	1,2,3		
CIV1501 Engineering Statics	1	2			2	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1600 or (ENM1500 and CIV1500) or Students must be enrolled in one of the following Program s: MEPR or GCEN
SVY1500 Spatial Science for Engineers	1	2			2	2		
Practice Courses Year 1								
ENG1901 Engineering Practice 1 ^{^^}	1	1	2	2,3			M	
Academic Courses Year 2								
Approved course (select from the approved course list) [#]	2	1			3	1		
ENV2103 Hydraulics I	2	1			3	1		Pre-requisite: CIV1500 or CIV1501 or Students must be enrolled in the following Program: GCEN
CIV2701 Road Design and Location	2	1			4	1		Pre-requisite: MAT1500 or ENG1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: GCST or GDST or GCEN
CIV2605 Construction Engineering	2	1			4	1		
CIV2403 Geology and Geomechanics	2	2	3	2				Pre-requisite: CIV1501 or CIV1500 or Students must be enrolled in one of the following Programs: MENS or GCEN
CIV2502 Structural and Building Technology	2	2	3	2				
CIV2702 Municipal Services [#]	2	2			4	2		Pre-requisite: ENV2103 or ENV1101
ENG2111 Engineering Associate Degree Design Project	2	2			4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)

Major study: Civil Engineering (Major Study Code: 15433)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Practice Courses Year 2								
CIV2901 Geology and Geomechanics Practice	2	2	3	2,3			M	Pre-requisite or Co-requisite: ENG1901 and CIV2403
ENV2902 Hydraulics Practice	2	2	3	2,3			M	Pre-requisite: ENV2103 or ENV1101
CIV3906 Civil Materials Practice	2	1	4	3			M	Pre-requisite: MEC1201 and ENG1901 or Students must be enrolled in one of the following programs: ADCN or BCON or BCNH
ENG2909 Work Experience - Associate					4	1,2		
Select 1 course from the following approved course list or 1 other elective course as approved by the Program Coordinator								
ENG2002 Technology, Sustainability and Society		1,2				1,2,3		
CIV3603 Construction Methods						2		
CIV3703 Transport Engineering[#]		2				2		
CMG2001 Job Organisation		2				2		
ENG4004 Engineering Project and Operations Management[†]		2,3				2,3		
ENV2201 Land Studies		1				1		
GIS1402 Geographic Information Systems		1				1,3		
ENM1600 Engineering Mathematics[#]		1,2				1,2		
REN1201 Environmental Studies		1				1		
URP3201 Sustainable Urban Design and Development		2				2		
ENV3105 Hydrology		2				2		
ENV4203 Public Health Engineering[#]		2				2		Pre-requisite: ENV1101 or ENV2103 or Students must be enrolled in one of the following Programs: GCEN or METC or MEPR or GCNS or GDNS or MENS

Footnotes

- # This is a Pathway course. Please refer to [Engineering Pathways](#) and [Civil Engineering Pathway](#) sections earlier in this program entry.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENM1500 Introductory Engineering Mathematics](#) with [ENM1600 Engineering Mathematics](#). Please contact the Faculty of Health, Engineering and Sciences for further information.
- ^^ [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.
- † The semester 3 offering of this course is offered in even numbered years only.

Computer Systems Engineering Major recommended enrolment pattern

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

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.

Computer Systems Engineering Pathway

It is recommended that students wishing to continue into either the [Bachelor of Engineering Science](#) (Computer Systems Engineering) or [Bachelor of Engineering \(Honours\)](#) (Computer Systems Engineering) programs using a Pathway should have completed at least eight courses, including [ENM1600 Engineering Mathematics](#), in lieu of [ENM1500 Introductory Engineering Mathematics](#). Pathway students should seek advice from the Faculty of Health, Engineering and Sciences before selecting their approved courses.

Major study: Computer Systems Engineering (Major Study Code: 15434)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses Year 1								
ENG1003 Problem Solving in Engineering and the Built Environment	1	1			1	1,2		
ENM1500 Introductory Engineering Mathematics ^{#*}	1	1			1	1,2		
ELE1301 Computer Engineering	1	1			2	1		
ELE1502 Electronic Circuits	1	1			2	1		
ENG1002 Introduction to Engineering and Spatial Science Applications	1	2			1	1,2		
CSC1401 Foundation Programming	1	2			1	1,2,3		
ENG1100 Introduction to Engineering Design	1	2			2	1,2		
ELE1801 Electrical Technology	1	2			2	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: MEPR or GCEN
Practice Courses Year 1								
ENG1901 Engineering Practice 1 ^{^^}	1	1	2	2,3			M	
ELE1911 Electrical and Electronic Practice A	1	2	2	3			M	
Academic Courses Year 2								
MAT1101 Discrete Mathematics for Computing	2	1			4	1		
ELE2303 Embedded Systems Design	2	1			3	1		
CSC2402 Object-Oriented Programming in C++	2	1			4	1		Pre-requisite: CSC1401 or Students must be enrolled in one of the following Program s: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
Approved course (select from the approved course list) [#]	2	1			4	1		
ELE2501 Electronic Workshop and Production	2	2			3	2		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in the following Program: GCEN
ELE2101 Control and Instrumentation [#]	2	2			3	2		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: MEPR or GCEN
Approved course (select from the approved course list) [#]	2	2			4	2		
ENG2111 Engineering Associate Degree Design Project	2	2			4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)

Major study: Computer Systems Engineering (Major Study Code: 15434)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Practice Courses Year 2								
ELE2912 Electrical and Electronic Practice B	2	1	3	3			M	Pre-requisite: (ELE1301 and ELE1502 and ELE1801) or Students must be enrolled in one of the following Program s: GDNS or MENS
ELE2913 Electrical and Electronic Practice C	2	2	4	2			M	Pre-requisite: (ELE1301 and ELE1502 and ELE1801) or Students must be enrolled in one of the following Program s: GDNS or MENS
ENG2909 Work Experience - Associate					4	1,2		
Select 2 courses from the following approved course list or other elective courses as approved by the Program Coordinator								
CSC2401 Algorithms and Data Structures		2				2		Pre-requisite: CSC2402 or Students must be enrolled in one of the following Program s: GDTI or GCSC or GDGS or GCEN or GDET or METC or MCOT or MCTE or MCOP or MPIT or MSBN or MSMS
CSC2404 Operating Systems		2				2		Pre-requisite: CSC1401 or CSC2408 or have experience using Linux systems or students must be enrolled in one of the following Programs: GDTI or GCSC or GDGS or GCEN or GDET or METC or MCOT or MCTE or MCOP or MPIT or MSBN or MSMS
CSC2408 Software Development Tools		1,2				1,2		
CSC3403 Comparative Programming Languages		1				1		Pre-requisite: CSC2402 or enrolled in CSC2402 at the same time as CSC3403 or Students must be enrolled in one of the following Program s: GDTI or GCSC or GDGS or GCEN or GDET or METC or MCOT or MCTE or MCOP or MPIT or MSBN or MSMS
ELE2503 Electronic Systems		2				2		Pre-requisite: ELE1502 or Students must be enrolled in the following Program: GCEN
ELE2504 Electronic Design and Analysis		2				2		Pre-requisite: ELE1502 or Students must be enrolled in one of the following Program s: MEPR or GDNS or MENS or GCNS or GCEN
ELE2601 Telecommunications Principles		1				1		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the following Programs: GCEN or METC
ELE3305 Computer Systems and Communications Protocols		1				1		

Major study: Computer Systems Engineering (Major Study Code: 15434)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
ELE3307 Real Time Systems [#]		2				2		Pre-requisite: ELE1301 or S tudents must be enrolled in one of the following Program s: GCEN or METC or MENS or MEPR
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 Program s: GCEN or METC or MEPR or MENS
ENG2002 Technology, Sustainability and Society [#]		1,2				1,2,3		
ENG3003 Engineering Management [†]		1,3				1,3		

Footnotes

- # This is a Pathway course. Please refer to [Engineering Pathways](#) and [Computer Systems Engineering Pathway](#) sections earlier in this program entry.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENM1500 Introductory Engineering Mathematics](#) with [ENM1600 Engineering Mathematics](#). Please contact the Faculty of Health, Engineering and Sciences for further information.
- ^^ [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.
- † The semester 3 offering of this course is offered in odd numbered years only.

Electrical and Electronic Engineering Major recommended enrolment pattern

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

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 a multimeter and hook-up wire is required, together with the purchase of some electronic components.

Electrical and Electronic Engineering Pathway

It is recommended that students wishing to continue into either the [Bachelor of Engineering Science](#) (Electrical & Electronic Engineering) or [Bachelor of Engineering \(Honours\)](#) (Electrical & Electronic Engineering) programs using a Pathway should have completed at least eight courses, including [ENM1600 Engineering](#)

Mathematics, in lieu of **ENM1500 Introductory Engineering Mathematics**. Pathway students should seek advice from the Faculty of Health, Engineering and Sciences before selecting their approved courses.

Major study: Electrical and Electronic Engineering (Major Study Code: 15435)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses Year 1								
ENG1003 Problem Solving in Engineering and the Built Environment	1	1,2			2	1,2		
ENM1500 Introductory Engineering Mathematics ^{#*}	1	1			1	1,2,3		
ELE1301 Computer Engineering	1	1			2	1		
ELE1502 Electronic Circuits	1	1			2	1		
ENG1002 Introduction to Engineering and Spatial Science Applications	1	2			1	1,2		
MEC1201 Engineering Materials	1	1,2			1	1,2,3		
Approved course (select from the approved course list) [#]	1	2			2	2		
ELE1801 Electrical Technology	1	2			2	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: MEPR or GCEN
Practice Courses Year 1								
ENG1901 Engineering Practice 1 ^{^^}	1	1	2	2,3			M	
ELE1911 Electrical and Electronic Practice A	1	2	2	3			M	
Academic Courses Year 2								
ENG1100 Introduction to Engineering Design	2	1			3	1,2		
ELE2702 Electrical Measurement and Analysis	2	1			4	1		Pre-requisite: (ENG1500 or MAT1500 or ENM1500 or ENM1600) and ELE1801 or Students must be enrolled in the following Program: GCEN
ELE2601 Telecommunications Principles	2	1			4	1		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the following Programs: GCEN or METC
Approved course (Select from the approved course list) [#]	2	1			4	1		
ELE2501 Electronic Workshop and Production	2	2			3	2		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in the following Program: GCEN
ELE2101 Control and Instrumentation [#]	2	2			3	2		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: MEPR or GCEN
ELE2503 Electronic Systems [#]	2	2			4	2		Pre-requisite: ELE1502 or Students must be enrolled in the following Program: GCEN
ENG2111 Engineering Associate Degree Design Project	2	2			4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)

Major study: Electrical and Electronic Engineering (Major Study Code: 15435)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Practice Courses Year 2								
ELE2912 Electrical and Electronic Practice B	2	1	3	3			M	Pre-requisite: (ELE1301 and ELE1502 and ELE1801) or Students must be enrolled in one of the following Program s: GDNS or MENS
ELE2913 Electrical and Electronic Practice C	2	2	4	2			M	Pre-requisite: (ELE1301 and ELE1502 and ELE1801) or Students must be enrolled in one of the following Program s: GDNS or MENS
ENG2909 Work Experience - Associate					4	1,2		
Select 2 courses from the following approved course list or other elective courses as approved by the Program Coordinator								
ELE2303 Embedded Systems Design [#]		1				1		
ELE2704 Electricity Supply Systems		2				2		Pre-requisite: ELE1801 or S tudents must be enrolled in one of the following Program s: MEPR or GCEN or METC
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 Program s: GCEN or METC or MEPR or MENS
ELE3803 Electrical Plant [#]		1				1		Pre-requisite: ELE1801 or S tudents must be enrolled in one of the following Program s: GCEN or METC or MEPR or GCNS or GDNS or MENS
ELE3805 Power Electronics Principles and Applications		2				2		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the fol lowing Programs: GCEN or METC or MEPR or GCNS or GDNS or MENS
CSC1401 Foundation Programming		1,2				1,2,3		
CSC2402 Object-Oriented Programming in C++		1				1,2,3		Pre-requisite: CSC1401 or Students must be enrolled in one of the following Program s: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
CIV1501 Engineering Statics		2				2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1600 or (ENM1500 and CIV1500) or Students must be enrolled in one of the following Program s: MEPR or GCEN
MEC1501 Introduction to Industrial Processes						2		Pre-requisite: CIV1500 or S tudents must be enrolled in one of the following Program

Major study: Electrical and Electronic Engineering (Major Study Code: 15435)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
								s: GCEN or METC or GCNS or GDNS or MEPR or MENS
MEC2106 Introduction to Thermo-Fluids		2				2		Pre-requisite: ((MAT1500 or ENM1600) and CIV1501) or Students must be enrolled in one of the following Program s: MENS or GCEN
MEC2402 Stress Analysis		1				1		Pre-requisite: CIV1501 or S tudents must be enrolled in one of the following Program s: GCEN or METC or MEPR or GCNS or GDNS or MENS
MEC2405 Machine Dynamics		1				1		Pre-requisite: CIV1501 or S tudents must be enrolled in the following Program: GCEN
MEC2501 Process Control Systems						2		Pre-requisite: ELE2103 or (MEC1501 and ELE2101 as Co-requisite or Pre-requisite)
MEC3204 Production Engineering		2				2		
ENG2002 Technology, Sustainability and Society		1,2				1,2,3		
ENG3003 Engineering Management [†]		1,3				1,3		
CHE1110 Chemistry 1 [^]		1		1			M	

Footnotes

- # This is a Pathway course. Please refer to [Engineering Pathways](#) and [Electrical and Electronic Engineering Pathway](#) sections earlier in this program entry.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENM1500 Introductory Engineering Mathematics](#) with [ENM1600 Engineering Mathematics](#). Please contact the Faculty of Health, Engineering and Sciences for further information.
- ^^ [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.
- † The semester 3 offering of this course is offered in odd numbered years only.
- ^ [CHE1110 Chemistry 1](#) has a compulsory residential school component in external mode.

Environmental Engineering Major recommended enrolment pattern

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Environmental Engineering Pathway

It is recommended that students wishing to continue into either the [Bachelor of Engineering Science](#) (Environmental Engineering) or [Bachelor of Engineering \(Honours\)](#) (Environmental Engineering) programs using a Pathway should have completed at least eight courses, including [ENM1600 Engineering Mathematics](#) in lieu of [ENM1500 Introductory Engineering Mathematics](#). Pathway students should choose any [Bachelor](#)

of Engineering Science (Environmental Engineering) Core course and [ENG2002 Technology, Sustainability and Society](#) as their approved courses.

Major study: Environmental Engineering (Major Study Code: 15436)									
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements	
	On-campus (ONC)		External (EXT)		Online (ONL)				
	Year	Sem	Year	Sem	Year	Sem			
Academic Courses Year 1									
ENG1002 Introduction to Engineering and Spatial Science Applications	1	1			1	1,2			
ENM1500 Introductory Engineering Mathematics ^{#*}	1	1			1	1,2,3			
ENG1003 Problem Solving in Engineering and the Built Environment	1	1			2	1,2			
CIV1500 Applied Mechanics	1	1			2	1,3		Pre-requisite or Co-requisite: ENM1500 or ENG1500 or MAT1500 or ENM1600	
ENG1100 Introduction to Engineering Design	1	2			1	1,2			
BIO1100 Biology Concepts					1	2			
MEC1201 Engineering Materials	1	2			2	1,2,3			
SVY1500 Spatial Science for Engineers	1	2			2	2			
Practice Courses Year 1									
ENG1901 Engineering Practice 1 ^{^^}	1	1	2	2,3			M		
Academic Courses Year 2									
ENV2105 Applied Chemistry and Microbiology	2	1			3	1			
Approved course (Select from the approved course list) [#]	2	1			3	1			
ENV2103 Hydraulics I	2	1			4	1		Pre-requisite: CIV1500 or CIV1501 or Students must be enrolled in the following Program: GCEN	
ENV2201 Land Studies	2	1			4	1			
CIV2403 Geology and Geomechanics	2	2	3	2				Pre-requisite: CIV1501 or CIV1500 or Students must be enrolled in one of the following Programs: MENS or GCEN	
Approved course (Select from the approved course list) [#]	2	2			3	2			
ENV3105 Hydrology	2	2			4	2			
ENG2111 Engineering Associate Degree Design Project	2	2			4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)	
Practice Courses Year 2									
CIV2901 Geology and Geomechanics Practice	2	2	3	2,3			M	Pre-requisite or Co-requisite: ENG1901 and CIV2403	
ENV2902 Hydraulics Practice	2	2	4	2,3			M	Pre-requisite: ENV2103 or ENV1101	
AGR2902 Field Practice [^]			3	3			M		
ENG2909 Work Experience - Associate					4	1,2			
Select 2 courses from the following approved course list or other elective courses as approved by the Program Coordinator									
CIV2702 Municipal Services		2				2		Pre-requisite: ENV2103 or ENV1101	
AGR2301 Agricultural Science		2				2			

Major study: Environmental Engineering (Major Study Code: 15436)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
ENG2002 Technology, Sustainability and Society [#]		1,2				1,2,3		
ENM1600 Engineering Mathematics [#]		1,2				1,2		
REN1201 Environmental Studies		1				1		
URP3201 Sustainable Urban Design and Development		2				2		
SVY3202 Photogrammetry and Remote Sensing		1				1		

Footnotes

- # This is a Pathway course. Please refer to [Engineering Pathways](#) and [Environmental Engineering Pathway](#) sections earlier in this program entry.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENM1500 Introductory Engineering Mathematics](#) with [ENM1600 Engineering Mathematics](#). Please contact the Faculty of Health, Engineering and Sciences for further information.
- ^^ [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.
- ^ The residential school for this course may involve overnight field trips for which each student will be responsible for their own accommodation costs.

Instrumentation Control and Automation Engineering Major recommended enrolment pattern (this major is only available part-time)

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Major study: Instrumentation Control and Automation Engineering (Major Study Code:)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses Year 1								
ENG1002 Introduction to Engineering and Spatial Science Applications					1	1,2		
ENG1003 Problem Solving in Engineering and the Built Environment					1	1,2		
ENM1500 Introductory Engineering Mathematics *					1	1,2		
MEC1201 Engineering Materials					1	1,2,3		
Academic Courses Year 2								
CIV1500 Applied Mechanics					2	1,3		Pre-requisite or Co-requisite: ENM1500 or ENG1500 or MAT1500 or ENM1600
ENG1100 Introduction to Engineering Design					2	1,2		
MEC1501 Introduction to Industrial Processes					2	2		Pre-requisite: CIV1500 or S tudents must be enrolled in one of the following Program s: GCEN or METC or GCNS or GDNS or MEPR or MENS
CIV1501 Engineering Statics					2	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1600 or (ENM1500 and CIV1500) or Students must be enrolled in one of the following Program s: MEPR or GCEN

Major study: Instrumentation Control and Automation Engineering (Major Study Code:)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Practice Courses Year 2								
ENG1901 Engineering Practice 1 ^{^^}			2	2,3			M	
Academic Courses Year 3								
ELE1301 Computer Engineering					3	1		
Approved course (Select from the approved course list)					3	1		
ELE2101 Control and Instrumentation					3	2		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: MEPR or GCEN
Approved course (Select from the approved course list)					3	2		
Practice Courses Year 3								
MEC2901 Mechanical Practice 1			3	3			M	
ELE1911 Electrical and Electronic Practice A			3	3			M	
Academic Courses Year 4								
MEC2101 Thermodynamics					4	1		
Approved course (Select from the approved course list)					4	1		
MEC2501 Process Control Systems					4	2		Pre-requisite: ELE2103 or (MEC1501 and ELE2101 as Co-requisite or Pre-requisite)
ENG2111 Engineering Associate Degree Design Project					4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)
Practice Courses Year 4								
ENG2909 Work Experience - Associate					4	1,2		
Select 3 courses from the following approved course list or other elective courses as approved by the Program Coordinator								
ELE1502 Electronic Circuits		1				1		
ELE1801 Electrical Technology		2				2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: MEPR or GCEN
ELE2303 Embedded Systems Design		1				1		
ELE2501 Electronic Workshop and Production		2				2		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in the following Program: GCEN
ELE2504 Electronic Design and Analysis		2				2		Pre-requisite: ELE1502 or Students must be enrolled in one of the following Programs: MEPR or GDNS or MENS or GCNS or GCEN
ELE2601 Telecommunications Principles		1				1		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the following Programs: GCEN or METC

Major study: Instrumentation Control and Automation Engineering (Major Study Code:)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
ELE3107 Signal Processing		2				2		
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 Program s: GCEN 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 METC or MEPR or GCNS or GDNS or MENS
MEC2106 Introduction to Thermo-Fluids		2				2		Pre-requisite: ((MAT1500 or ENM1600) and CIV1501) or Students must be enrolled in one of the following Program s: MENS or GCEN
MEC2202 Manufacturing Processes		1				1		Pre-requisite: MEC1201 or Students must be enrolled in one of the following Program s: MEPR or GCEN
MEC2301 Design of Machine Elements		2				2		Pre-requisite: MEC2402 or Students must be enrolled in one of the following Program s: MEPR or GCEN
MEC2402 Stress Analysis		1				1		Pre-requisite: CIV1501 or S tudents must be enrolled in one of the following Program s: GCEN or METC or MEPR or GCNS or GDNS or MENS
MEC2405 Machine Dynamics		1				1		Pre-requisite: CIV1501 or S tudents must be enrolled in the following Program: GCEN
MEC3204 Production Engineering		2				2		
CSC1401 Foundation Programming		1,2				1,2,3		
CSC2402 Object-Oriented Programming in C++		1				1		Pre-requisite: CSC1401 or Students must be enrolled in one of the following Program s: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
CHE1110 Chemistry 1		1		1			M	
CHE2120 Chemistry 2		2		2			M	Pre-requisite: CHE1110
ENM1600 Engineering Mathematics		1,2				1,2		

Footnotes

- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENM1500 Introductory Engineering Mathematics](#) with [ENM1600 Engineering Mathematics](#). Please contact the Faculty of Health, Engineering and Sciences for further information.
- ^^ [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.

Mechanical Engineering Major recommended enrolment pattern

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Mechanical Engineering Pathway

It is recommended that students wishing to continue into either the [Bachelor of Engineering Science](#) (Mechanical Engineering) or [Bachelor of Engineering \(Honours\)](#) (Mechanical Engineering) programs using a Pathway should have completed at least eight courses, including [ENM1600 Engineering Mathematics](#) in lieu of [ENM1500 Introductory Engineering Mathematics](#). Pathway students should enrol in [MEC2304 Solid Modelling](#) as the approved course.

Major study: Mechanical Engineering (Major Study Code: 15437)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
Year 1								
Academic Courses								
ENG1002 Introduction to Engineering and Spatial Science Applications	1	1			1	1,2		
ENG1003 Problem Solving in Engineering and the Built Environment	1	1			1	1,2		
ENM1500 Introductory Engineering Mathematics ^{#*}	1	1			2	1,2		
CIV1500 Applied Mechanics	1	1			2	1,3		Pre-requisite or Co-requisite: ENM1500 or ENG1500 or MAT1500 or ENM1600
Practice Courses								
ENG1901 Engineering Practice 1 ^{^^}	1	1	2	2,3			M	
MEC2901 Mechanical Practice 1	1	1	3	3			M	
Academic Courses								
ENG1100 Introduction to Engineering Design	1	2			1	1,2		
MEC1201 Engineering Materials	1	2			1	1,2,3		
CIV1501 Engineering Statics	1	2			2	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1600 or (ENM1500 and CIV1500) or Students must be enrolled in one of the following Program s: MEPR or GCEN
Approved course (select from the approved course list) [#]	1	2			2	2		
Year 2								
Academic Courses								
ENM1600 Engineering Mathematics [#]	2	1			3	1,2		
MEC2202 Manufacturing Processes	2	1			3	1		Pre-requisite: MEC1201 or Students must be enrolled in one of the following Program s: MEPR or GCEN
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 METC or MEPR or GCNS or GDNS or MENS

Major study: Mechanical Engineering (Major Study Code: 15437)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
MEC2405 Machine Dynamics	2	1			4	1		Pre-requisite: CIV1501 or S tudents must be enrolled in the following Program: GCEN
Practice Courses								
MEC2902 Mechanical Practice 2	2	1	4	1			M	
ENG2909 Work Experience - Associate					4	1,2		
Academic Courses								
MEC2106 Introduction to Thermo-Fluids	2	2			3	2		Pre-requisite: ((MAT1500 or ENM1600) and CIV1501) or Students must be enrolled in one of the following Program s: MENS or GCEN
ELE1801 Electrical Technology	2	2			3	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the fol lowing Programs: MEPR or GCEN
MEC2301 Design of Machine Elements	2	2			4	2		Pre-requisite: MEC2402 or Students must be enrolled in one of the following Program s: MEPR or GCEN
ENG2111 Engineering Associate Degree Design Project	2	2			4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)
Practice Courses								
MEC3903 Mechanical Practice 3	2	2	4	2			M	
Select 1 course from the following approved course list or 1 other elective course as approved by the Program Coordinator								
MEC2304 Solid Modelling[#]		2				2		
MEC3204 Production Engineering		2				2		
MEC2101 Thermodynamics		1				1		
CIV2503 Structural Design I		2				2		Pre-requisite: (ENG1100 and MEC2402) or (ENG1100 and CIV1501 for students enrolled in Program: BETC) or Stu dents must be enrolled in the following Program: GCEN
CIV2502 Structural and Building Technology		2		2				
AGR2302 Agricultural Machinery		2				2		

Footnotes

- # This is a Pathway course. Please refer to [Engineering Pathways](#) and [Mechanical Engineering Pathways](#) sections earlier in this program entry.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENM1500 Introductory Engineering Mathematics](#) with [ENM1600 Engineering Mathematics](#) and consequently the study of [ENM1600 Engineering Mathematics](#) with [MEC2101 Thermodynamics](#) to align with the Recommended Enrolment Pattern for the [BENS Bachelor of Engineering Science](#) (Mechanical) program. Please contact the Faculty of Health, Engineering and Sciences for further information.
- ^^ [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.

Mining Engineering Major recommended enrolment pattern

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Mining Engineering Pathway

It is recommended that students wishing to continue into either the [Bachelor of Engineering Science](#) (Civil Engineering) or [Bachelor of Engineering \(Honours\)](#) (Civil Engineering) programs using a Pathway should have completed at least eight courses, including [ENM1600 Engineering Mathematics](#) in lieu of [ENM1500 Introductory Engineering Mathematics](#). Pathway students should enrol in two Pathway courses as approved courses.

Major study: Mining Engineering (Major study code: 17046)									
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements	
	On-campus (ONC)		External (EXT)		Online (ONL)				
	Year	Sem	Year	Sem	Year	Sem			
Academic Courses Year 1									
ENM1500 Introductory Engineering Mathematics ^{#*}	1	1			1	1,2			
CIV1500 Applied Mechanics	1	1			2	1,3		Pre-requisite or Co-requisite: ENM1500 or ENG1500 or MAT1500 or ENM1600	
ENG1002 Introduction to Engineering and Spatial Science Applications	1	1			1	1,2			
ENG1003 Problem Solving in Engineering and the Built Environment	1	1			1	1,2			
SVY1500 Spatial Science for Engineers	1	2			1	2			
MEC1201 Engineering Materials	1	2			2	1,2,3			
CIV1501 Engineering Statics	1	2			2	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1600 or (ENM1500 and CIV1500) or Students must be enrolled in one of the following Program s: MEPR or GCEN	
Approved course (Select from the approved course list) [#]	1	2			2	2,3			
Practice Courses Year 1									
ENG1901 Engineering Practice 1 ^{^^}	1	1	2	2,3			M		
Academic Courses Year 2									
CIV2605 Construction Engineering	2	1			3	1			
MIN2001 Mining Technology and Mineral Processing	2	1			3	1			
ENG1100 Introduction to Engineering Design	2	1			4	1			
Approved course (select from the approved course list) [#]	2	1			4	1			
CIV2403 Geology and Geomechanics	2	2	3	2				Pre-requisite: CIV1501 or CIV1500 or Students must be enrolled in one of the follow ing Programs: MENS or G CEN	
MIN2003 Mine Operations and Management	2	2			4	2		Pre-requisite or Co-requisite: SVY1500	
MIN2002 Mine Planning and Design	2	2			4	2			
ENG2111 Engineering Associate Degree Design Project	2	2			4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)	

Major study: Mining Engineering (Major study code: 17046)									
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements	
	On-campus (ONC)		External (EXT)		Online (ONL)				
	Year	Sem	Year	Sem	Year	Sem			
Practice Courses Year 2									
CIV2901 Geology and Geomechanics Practice	2	2	3	2,3			M	Pre-requisite or Co-requisite: ENG1901 and CIV2403	
MIN2901 Mining Practice	2	3	4	3			M	Pre-requisite or Co-requisite: MIN2001	
ENG2909 Work Experience - Associate					4	1,2			
Select 2 courses from the following approved course list or other elective courses as approved by the Program Coordinator									
MINAD Approved Courses (taken through Central Queensland University (CQU) via cross-institutional enrolment)									
ENAR12004 Mine Management and Safety						1			
ENAR12006 Rock Engineering						1			
ENAR11001 Resource Geology						2			
USQ Approved Courses									
ENG2002 Technology, Sustainability and Society [#]		2				1,2,3			
ENV2103 Hydraulics I [#]		1				1		Pre-requisite: CIV1500 or CIV1501 or Students must be enrolled in the following Program: GCEN	
ENV2201 Land Studies		1				1			
ENV3105 Hydrology [#]		2				2			
GIS1402 Geographic Information Systems		1				1,3			
MEC1501 Introduction to Industrial Processes		2				2		Pre-requisite: CIV1500 or Students must be enrolled in one of the following Programs: GCEN or METC or GCNS or GDNS or MEPR or MENS	
MGT2001 Risk Mitigation, Work Health and Safety		1				1			
SVY1110 Introduction to Global Positioning System		2		2					
SVY3202 Photogrammetry and Remote Sensing		1				1			

Footnotes

- # This is a Pathway course. Please refer to [Engineering Pathways](#) and [Mining Engineering](#) sections earlier in this program entry.
- * Students who achieve a high level in Year 12 Mathematics, or an equivalent mathematics program, may be eligible to replace the study of [ENM1500 Introductory Engineering Mathematics](#) with [ENM1600 Engineering Mathematics](#). Please contact the Faculty of Health, Engineering and Sciences for further information.
- ^^ [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 workforce. 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.

Power Engineering Major recommended enrolment pattern

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

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 a multimeter and hook-up wire is required, together with the purchase of some electronic components.

Power Engineering Pathway

It is recommended that students wishing to continue into either the [Bachelor of Engineering Science](#) (Power Engineering) or [Bachelor of Engineering \(Honours\)](#) (Power Engineering) programs using a Pathway should have completed at least eight courses, including [ENM1600 Engineering Mathematics](#), in lieu of [ENM1500 Introductory Engineering Mathematics](#). Pathway students should seek advice from the Faculty of Health, Engineering and Sciences before selecting their approved courses.

Major study: Power Engineering (Major Study Code: 15936)									
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements	
	On-campus (ONC)		External (EXT)		Online (ONL)				
	Year	Sem	Year	Sem	Year	Sem			
Academic Courses Year 1									
ENG1003 Problem Solving in Engineering and the Built Environment	1	1			1	1,2			
ENM1500 Introductory Engineering Mathematics ^{#*}	1	1			1	1,2			
ELE1301 Computer Engineering	1	1			2	1			
ELE1502 Electronic Circuits	1	1			2	1			
ENG1002 Introduction to Engineering and Spatial Science Applications	1	2			1	1,2			
MEC1201 Engineering Materials	1	2			1	1,2,3			
Approved Course (select from the approved course list) [#]	1	2			2	2			
ELE1801 Electrical Technology	1	2			2	2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: MEPR or GCEN	
Practice Courses Year 1									
ENG1901 Engineering Practice 1 ^{^^}	1	1	2	2,3			M		
ELE1911 Electrical and Electronic Practice A	1	2	2	3			M		
Academic Courses Year 2									
ENG1100 Introduction to Engineering Design	2	1			3	1,2			
ELE2702 Electrical Measurement and Analysis	2	1			3	1		Pre-requisite: (ENG1500 or MAT1500 or ENM1500 or ENM1600) and ELE1801 or Students must be enrolled in the following Program: GCEN	
Approved Course (Select from the approved course list) [#]	2	1			4	1			
Approved Course (select from the approved course list) [#]	2	1			4	1			
ELE2501 Electronic Workshop and Production	2	2			3	2		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in the following Program: GCEN	
ELE2101 Control and Instrumentation [#]	2	2			3	2		Pre-requisite: ENG1500 or MAT1500 or ENM1500 or ENM1600 or Students must be enrolled in one of the following Programs: MEPR or GCEN	

Major study: Power Engineering (Major Study Code: 15936)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
ELE2503 Electronic Systems [#]	2	2			4	2		Pre-requisite: ELE1502 or S tudents must be enrolled in the following Program: GCEN
ENG2111 Engineering Associate Degree Design Project	2	2			4	2		Pre-requisite: ENG1100 and (ENG1101 or ENG1003)
Practice Courses Year 2								
ELE2912 Electrical and Electronic Practice B	2	1	3	3			M	Pre-requisite: (ELE1301 and ELE1502 and ELE1801) or Students must be enrolled in one of the following Program s: GDNS or MENS
ELE2913 Electrical and Electronic Practice C	2	2	4	2			M	Pre-requisite: (ELE1301 and ELE1502 and ELE1801) or Students must be enrolled in one of the following Program s: GDNS or MENS
ENG2909 Work Experience - Associate					4	1,2		
Select 3 courses from the following approved course list or other elective courses as approved by the Program Coordinator								
ELE2303 Embedded Systems Design [#]		1				1		
ELE2601 Telecommunications Principles		1				1		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the following Programs: GCEN or METC
ELE2704 Electricity Supply Systems [#]		2				2		Pre-requisite: ELE1801 or S tudents must be enrolled in one of the following Program s: MEPR or GCEN or METC
ELE3107 Signal Processing		2				2		
ELE3307 Real Time Systems [#]		2				2		Pre-requisite: ELE1301 or S tudents must be enrolled in one of the following Program s: GCEN or METC or MENS or MEPR
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 Program s: GCEN or METC or MEPR or MENS
ELE3803 Electrical Plant [#]		1				1		Pre-requisite: ELE1801 or S tudents must be enrolled in one of the following Program s: GCEN or METC or MEPR or GCNS or GDNS or MENS
CIV1501 Engineering Statics		2				2,3		Pre-requisite: ENG1500 or MAT1500 or ENM1600 or (ENM1500 and CIV1500) or Students must be enrolled in one of the following Program s: MEPR or GCEN

Major study: Power Engineering (Major Study Code: 15936)								
Course	Year of program and semester in which course is normally studied						Residential school	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)			
	Year	Sem	Year	Sem	Year	Sem		
MEC2106 Introduction to Thermo-Fluids		2				2		Pre-requisite: ((MAT1500 or ENM1600) and CIV1501) or Students must be enrolled in one of the following Program s: MENS or GCEN
MEC2402 Stress Analysis		1				1		Pre-requisite: CIV1501 or S tudents must be enrolled in one of the following Program s: GCEN or METC or MEPR or GCNS or GDNS or MENS
MEC2405 Machine Dynamics		1				1		Pre-requisite: CIV1501 or S tudents must be enrolled in the following Program: GCEN
MEC3203 Materials Technology		1				1		Pre-requisite: MEC1201 or Students must be enrolled in one of the following Program s: GCEN or METC or GCNS or GDNS or MEPR or MENS
MEC3204 Production Engineering		2				2		
CIV2403 Geology and Geomechanics		2		2				Pre-requisite: CIV1501 or CIV1500 or Students must be enrolled in one of the follow ing Programs: MENS or G CEN
CIV2605 Construction Engineering		1				1		
GIS1401 Geographic Data Presentation		2				2		
GIS1402 Geographic Information Systems		1				1,3		
SVY1110 Introduction to Global Positioning System		2		2				
CHE1110 Chemistry 1 ^		1		1			M	

Footnotes

- # This is a Pathway course. Please refer to [Engineering Pathways](#) and [Power Engineering Pathway](#) sections earlier in this program entry.
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- ^^ [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.
- ^ [CHE1110 Chemistry 1](#) has a compulsory residential school component in external mode.