

Bachelor of Engineering (Honours) Bachelor of Information Technology (BEHI) - BEng(Hons) BIT

QTAC code (Australian and New Zealand applicants): Toowoomba campus: 907352; External: 907355

CRICOS code (International applicants): 079517G

Programs at USQ are regularly reviewed to ensure they remain professionally-relevant, in order to enhance the graduate outcomes of our students. This program is currently being re-accredited and is as a consequence likely to undergo some changes. Full details will be available when it is approved. If you have any questions, please [contact us](#) directly.

	On-campus	External
Semester intake:	Semester 1 (February) Semester 2 (July)	Semester 1 (February) Semester 2 (July)
Campus:	Toowoomba	-
Fees:	Commonwealth supported place Domestic full fee paying place International full fee paying place	Commonwealth supported place Domestic full fee paying place International full fee paying place
Standard duration:	5 years full-time, 8 years part-time or external	
Program articulation:	From: Associate Degree of Engineering ; Bachelor of Engineering Science ; Bachelor of Engineering (Honours)	

Notes:

See note on part-time study below within the Program Structure section.

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: study@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

A graduate of this program is eligible to apply for membership of Engineers Australia as a graduate Engineer. After further professional development, a graduate member with a Bachelor of Engineering (Honours) may apply for chartered status as a Professional Engineer and, when granted, may use the post-nominal MIEAust CPEng.

The Bachelor of Engineering (Honours) program is accredited by Engineers Australia and, through an agreement reached between the professional engineering bodies of other countries (the Washington Accord), is also recognised in the United Kingdom, the United States of America, Canada, Ireland, Hong Kong, New Zealand and South Africa.

The Bachelor of Information Technology program is provisionally accredited at professional level by the Australian Computer Society and through the Seoul Accord, is recognised in other countries.

Program aims

This combination of an Engineering program with a program in Information Technology provides students with the opportunity to become qualified Engineers with a very strong background in Computer Systems and Applied Computer Science.

Graduates of this combined program will have a high level of knowledge of both hardware and software components of computer systems and the interrelationships between the two. They will have well-developed skills in both hardware and software design and development.

For more details of the two programs that comprise this award, applicants are asked to refer to the [Engineering and Built Environment](#) and the [Information Technology](#) sections of this Handbook.

Program objectives

Graduates of the Bachelor of Engineering (Honours) Bachelor of Information Technology program will have met the separate objectives of the [Bachelor of Engineering \(Honours\)](#) and the [Bachelor of Information Technology](#) programs.

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 08. Graduates at this level will have advanced knowledge and skills for professional or 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) **12**, tertiary entrance rank **75** or equivalent qualification.[^]
- Subject Pre-requisites: English (4,SA) and Mathematics B (4,SA) or equivalent.
- English Language Proficiency requirements for Category 2.

[^] These are determined by the University for specific programs each Semester. The 2020 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. Special admissions may help you get into the program of your choice by increasing your Selection Rank. The additional points don't apply to all applicants or all programs. Please read the information about USQ's [Special Admissions](#) carefully to find out what you may be eligible for.

Applicants are advised to also note the following:

- Recommended Prior Study: Physics (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.

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 program involves five years of full-time study.

Students may apply for admission to study part-time or externally, however applicants should ensure they are able to complete this program within the maximum duration of ten years. To achieve this, students will need to complete a minimum of four units of study per year. To complete the program part-time within the standard duration of eight years, students will need to complete a minimum of five units of study per year.

Where students intend to complete the program using a combination of full-time and part-time study, the maximum time for completion will be calculated on a pro-rata basis.

The Bachelor of Engineering (Honours) Bachelor of Information Technology is a 40 unit program consisting of Academic courses and Practice courses.

Academic courses are one-unit courses and involve approximately 155 hours of student work per unit.

Practice courses are zero unit courses and each involves approximately 50 hours of student work.

Required time limits

Students have a maximum of 10 years to complete this program.

Electives/Approved courses

Approved courses are included in the list of Academic courses. Students should select these courses from the approved courses list.

Practical experience

To be eligible to graduate from the Bachelor of Engineering (Honours) Bachelor of Information Technology, students must obtain an aggregate of at least 60 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 [ENG4909 Work Experience - Professional](#) 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 60 days, will be determined by the Examiner of [ENG4909 Work Experience - Professional](#).

Credit or exemptions for [ENG4909 Work Experience - Professional](#) 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. To find out more about [residential schools](#), visit the [Residential School Schedule](#) to view specific dates for your degree, or visit 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 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.

[ENG3902 Professional Practice 1](#) and [ENG4110 Engineering Research Methodology](#) is to be studied in the student's penultimate year. Upon completion of [ENG3902 Professional Practice 1](#), students must study [ENG4111 Research Project Part 1](#) and [ENG4112 Research Project Part 2](#) and [ENG4903 Professional Practice 2](#) in the same academic year.

Exit points

Students who, for whatever reason, are unable to complete the Bachelor of Engineering (Honours) Bachelor of Information Technology and who satisfy all of the requirements of any of the [Bachelor of Engineering \(Honours\)](#), the [Bachelor of Engineering Science](#), the [Associate Degree of Engineering](#) or the [Diploma of Engineering Studies](#) may be permitted to exit with that award.

Credit

Exemptions/credit will be assessed based on the [USQ Credit and Exemption Procedure](#).

Work Experience

Work and industrial experience that has not been formally assessed, does not normally qualify for course credit in the Bachelor of Engineering (Honours) Bachelor of Information Technology program. Existing work experience may be used to satisfy the practical/work experience requirements when completing the [ENG4909 Work Experience - Professional](#) practice course.

Course transfers

Students who are enrolled in either the [Bachelor of Engineering \(Honours\)](#) program or the [Bachelor of Information Technology](#) program may transfer to the program with advanced standing. If they have completed up to one year of one of those programs they would normally be able to complete the program in the minimum time, after four more years of full-time study. Other students may require longer than the minimum time.

Honours

The level of honours awarded will be determined based on the USQ procedure. Please refer to the [Class of Honours Standard Schedule](#).

Computer Systems Engineering and Applied Computer Science 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.

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 specification](#) to ascertain if a course is offered in another term.

Major study: Computer Systems Engineering; Applied Computer Science (Major Study Code: 11985)								
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								
ENG1004 Engineering Problem Solving Principles	1	1					1,2	
ENM1600 Engineering Mathematics	1	1					1,2	
ELE1301 Computer Engineering	1	1					1	
ELE1502 Electronic Circuits	1	1					1	
CSC1401 Foundation Programming	1	2					1,2,3	
ENG1100 Introduction to Engineering Design	1	2					1,2	
ELE1801 Electrical Technology	1	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 or GEPR

Major study: Computer Systems Engineering; Applied Computer Science (Major Study Code: 11985)								
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		
ENG1002 Introduction to Engineering and Built Environment Applications	1	2				1,2		
Practice Courses Year 1								
ENG1901 Engineering Practice 1	1	1		2,3			M	
ELE1911 Electrical and Electronic Practice A	1	2		3			M	
Academic Courses Year 2								
ENM2600 Advanced Engineering Mathematics	2	1				1		Pre-requisite: ENM1600 or Students must be enrolled in one of the following Program s: GCEN or METC or MENS or GDNS or MEPR or MSCN
MAT1101 Discrete Mathematics for Computing	2	1				1		
ELE2303 Embedded Systems Design	2	1				1		
CSC2402 Object-Oriented Programming in C++	2	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
ENG2002 Technology, Sustainability and Society	2	2				1,2,3		
ENG3104 Engineering Simulations and Computations	2	2				2		Pre-requisite: (ENM2600 or MAT2100 or MAT2500) or S tudents must be enrolled in one of the following Program s: GDET or METC or GDNS or MENS
ELE2103 Linear Systems and Control	2	2				2		
ELE2504 Electronic Design and Analysis	2	2				2		Pre-requisite: ELE1502 or S tudents must be enrolled in one of the following Program s: MEPR or GDNS or MENS or GCNS or GCEN or GEPR
Practice Courses Year 2								
ELE2912 Electrical and Electronic Practice B	2	1		3			M	Pre-requisite: (ELE1301 and ELE1502 and ELE1801) or Students must be enrolled in one of the following Program s: GDNS or MENS
Academic Courses Year 3								
ELE3105 Computer Controlled Systems	3	1				1		Pre-requisite: ELE2103 or S tudents must be enrolled in one of the following Program s: GCNS or GCEN or GDNS or MEPR or MENS or METC or GEPR
ELE3305 Computer Systems and Communications Protocols	3	1				1		
Approved course (Select from the approved course list)	3	1				1		
ELE2601 Telecommunications Principles	3	1				1		Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the fol

Major study: Computer Systems Engineering; Applied Computer Science (Major Study Code: 11985)								
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		
								Following Programs: GCEN or METC or GEPR
ELE3107 Signal Processing	3	2				2		
ELE3307 Real Time Systems	3	2				2		Pre-requisite: ELE1301 or Students must be enrolled in one of the following Programs: GCEN or GCNS or METC or MENS or MEPR
CSC2406 Web Technology 1	3	2				2		Pre-requisite: CSC1401 or Students must be enrolled in one of the following Programs: GDTI or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN or BSED
CSC2407 Introduction to Software Engineering	3	2				2		Pre-requisite: CSC1401 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
Practice Courses Year 3								
ELE2913 Electrical and Electronic Practice C	3	2		2			M	Pre-requisite: (ELE1301 and ELE1502 and ELE1801) or Students must be enrolled in one of the following Programs: GDNS or MENS
ELE3914 Electrical and Electronic Practice D	3	1		2			M	Pre-requisite: (ELE1801 and ELE1301 and ELE1502) or Students must be enrolled in one of the following Programs: MENS or MEPR
ELE3915 Electrical and Electronic Practice E	3	2		2			M	Pre-requisite: ELE1801 and ELE1301 and ELE1502 or Students must be enrolled in one of the following Programs: MENS or MEPR
Academic Courses Year 4								
CIS3002 Agile Methods	4	1				1		
CSC3400 Database Systems	4	1				1		
CSC3412 System and Security Administration	4	1				1		
CSC2408 Software Development Tools	4	1,2				1,2		
Approved course (Select from the approved course list)	4	1,2				1,2		
CSC3600 ICT Professional Project^{^^}	4	2				2		Pre-requisite: Students must have satisfactorily completed CIS3002 Business Analysis and at least 16 courses including seven BITC core courses other than this course.
CSC2401 Algorithms and Data Structures	4	2				2		Pre-requisite: CSC2402 or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT

Major study: Computer Systems Engineering; Applied Computer Science (Major Study Code: 11985)								
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		
ENG4110 Engineering Research Methodology	4	2				2		
Practice Courses Year 4								
ENG3902 Professional Practice 1				2			M	Pre-requisite: Students must be enrolled in one of the following Programs: BCNH or BCON or BEBB or BEBC or BEHB or BEHI or BEHS or BENG or BENH or MENS
Academic Courses Year 5								
ENG4111 Research Project Part 1	5	1				1		Pre-requisite: ENG3902 and ENG4110 and Students must be enrolled in one of the following Programs: BCNH or BCON or BEBB or BEBC or BEHB or BEHI or BEHS or BENG or BENH
CSC3403 Comparative Programming Languages	5	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 GCEN or METC or MCOT or MCTE or MCOP or MPIT
ENG3003 Engineering Management [†]	5	1				1,3		
Approved course (Select from the approved course list)	5	1				1		
ENG4112 Research Project Part 2 [^]	5	2				2		Pre-requisite: ENG4111 and Students must be enrolled in one of the following Program s: BCNH or BCON or BEBB or BEBC or BEHB or BEHI or BEHS or BENG or BENH
Approved Course (Select from the approved course list)	5	2				2		
Approved Course (Select from the approved course list)	5	2				2		
CSC2404 Operating Systems	5	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 GCEN or METC or MCOT or MCTE or MCOP or MPIT
Practice Courses Year 5								
ENG4903 Professional Practice 2	5	1		2			M	Pre-requisite: ENG3902 and Students must be enrolled in one of the following Program s: BCNH or BCON or BEBB or BEBC or BEHB or BEHI or BEHS or BENG or BENH or MENS. Students cannot enrol in ENG3902 and ENG4903 in the same semester.
ENG4909 Work Experience - Professional						1,2,3		

Major study: Computer Systems Engineering; Applied Computer Science (Major Study Code: 11985)								
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		
Select approved courses from the following or other elective courses as approved by the Program Coordinator:								
CSC3407 Network Fundamentals and Routing		1				1		
CSC3413 Network Design and Analysis		2				2		
CSC3420 Mobile Internet Technology		1				1		Pre-requisite: CSC3407 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
CSC3426 Web Technology 2		2				2		Pre-requisite: CSC2406
CSC3427 Switching, Wireless and WAN Technologies		2				2		Pre-requisite: CSC3407 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
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
ELE3804 Power Systems Protection						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
ELE4606 Communication Systems		2				2		Pre-requisite: (ELE2504 and ELE2601) or Students must be enrolled in one of the fol lowing Programs: GCEN or METC or MEPR or MENS or GCNS or GDNS
ELE4607 Advanced Digital Communications		1				1		Pre-requisite: ELE1301 or S tudents must be enrolled in one of the following Program s: GCEN or METC or GCNS or GDNS or MENS or MEPR
ELE5001 Industrial Communications Protocols		1				1		Pre-requisite: ELE2601 or S tudents must be enrolled in the following Program: GCN S, GDNS, MENS or MEPR
ENG4004 Engineering Project and Operations Management[†]		2				2,3		
MEC2501 Process Control Systems						2		Pre-requisite: ELE2103 or (MEC1501 and ELE2101 as Co-requisite or Pre-requisite) or Students must be enrolled in the following Program: GEPR
MEC4406 Robotics and Machine Vision		2				2		Pre-requisite: MEC2401 or ELE2103 or Students must be enrolled in one of the fol

Major study: Computer Systems Engineering; Applied Computer Science (Major Study Code: 11985)								
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		
							Following Programs: MENS or GCEN	
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 or GEPR	

Footnotes

- ^^ Students who have completed at least 24-units in the program (prior to S1 2021) are encouraged to complete CSC3600 as one of their approved courses. Students who have completed less than 24-units in the program (prior to S1 2021) must complete CSC3600 instead of one approved course.
- † The semester 3 offering of this course is offered in odd numbered years only.
- ^ It is recommended that students should also be enrolled in [ENG4903 Professional Practice 2](#) while undertaking this course.
- ‡ The semester 3 offering of this course is offered in even numbered years only.