

Bachelor of Engineering and Bachelor of Information Technology (BEBT) - BEng BIT

CRICOS code (International applicants): 030304B

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

Notes:

See note on part-time study below within Admission requirements.

Contact us

Future Australian and New Zealand students	Future International students	Current students
Ask a question Freecall (within Australia): 1800 640 678 Phone (from outside Australia): +61 7 4631 5315 Email: studyeng@usq.edu.au	Ask a question Phone: +61 7 4631 5543 Email: international@usq.edu.au	Ask a question Freecall (within Australia): 1800 007 252 Phone (from outside Australia): +61 7 4631 2285 Email usqassist@usq.edu.au

Program focus

This combined degree program will provide students with the knowledge and skills required to design, develop and implement both the hardware and software components of computer systems. The program combines computer systems engineering with applied computer science. The award may be conferred with Honours to high-achieving students.

Career opportunities

Computer programmer, software/hardware engineer, computer scientist, systems designer, computer systems officer.

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 may apply for chartered status as a Professional Engineer and, when granted, may use the post-nominal MIEAust CPEng.

The Bachelor of Engineering 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.

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 [Faculty of Engineering and Surveying](#) and the [Faculty of Sciences](#) sections of this Handbook.

Program objectives

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

Admission requirements

Applicants shall normally:

- have studied four semester units and achieved an exit assessment of 'Sound Achievement' or better in each of the following Queensland Senior Secondary School subjects: English and Mathematics B. It is recommended that applicants should also have satisfactorily completed the subject: Physics, or
- be able to demonstrate that they have achieved an equivalent standard in these subjects at another institution, and
- **Australian applicants:** have achieved a Queensland Overall Position (OP) band, or an equivalent Rank based on qualifications and previous work experience, at or above the specified cut-off level.
- **International applicants:** have met the University's English language requirements or have completed the University's ELICOS/UNIPREP program. Further information is available at <http://www.usq.edu.au/international>.

To be admitted to the program, students who intend studying part-time (i.e. less than six units per year) must be eligible to receive at least 16 units of exemptions. This is necessary to ensure that these students are able to complete the program within the maximum duration of eight years.

How to apply

Domestic students

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

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

International students

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

Program fees

Commonwealth supported place

A Commonwealth supported place is where the Australian Government makes a contribution towards the cost of your higher education and you as a student pay a [student contribution amount](#), which varies depending on the courses undertaken. You are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Commonwealth Supported students may be eligible to defer their fees through a Government loan called [HECS-HELP](#).

International full fee paying place

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

Program structure

The program involves five years of full-time study and to be eligible for the combined award, full-time students must complete the requirements of the program within seven years of their initial enrolment in the program.

Students may apply for admission to study part-time or by distance education once they have completed 16 units of the Bachelor of Engineering program or if they are eligible for advanced standing of 16 or more units. This ensures that they are able to complete the program in the maximum duration of eight years.

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 and Bachelor of Information Technology is a 40-unit program consisting of Academic courses and Practice courses.

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

Practice courses are zero unit courses offered by the Faculty of Engineering and Surveying. Each involves approximately 50 hours of student work. The only grades available for a Practice Course are Pass (P) and Fail (F). A Practice Course is designed to enable students to acquire specific competencies associated with their Engineering major study. These competencies range from specific practical and communication skills through to generic competencies relating to ethical and social responsibility, awareness of the environment, teamwork, etc. For an external student a Practice Course generally involves attendance on-campus for a one-week [residential school](#).

Required time limits

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

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

IT requirements

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

Exit points

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

Course transfers

Students who are enrolled in either the [Bachelor of Engineering](#) program or the [Bachelor of Information Technology \(Faculty of Sciences\)](#) 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 Bachelor of Engineering and Bachelor of Information Technology may be awarded with Honours in the engineering component of the award. The class of honours to be awarded to a student is dependant upon:

- the Grade Point Average calculated from the grades achieved in the courses studied in, or transferred to, the program
- the grade achieved by the student in the courses [ENG4111 Research Project Part 1](#) and [ENG4112 Research Project Part 2](#) (unless the student is exempted from these courses).

The minimum levels of achievement normally required for each class of honours are shown in the following table. To be assured of achieving a particular class of honours students must have achieved the specified grade in the research project courses and the minimum GPA requirements for all of the courses studied, for the last 16 courses studied, or for the last eight courses studied.

Class of Honours	GPA Calculated from the Grades Achieved in:			Minimum Grade Achieved in Research Project Courses
	All Courses Studied in the Program	The Last 16 Courses Studied*#	The Last Eight Courses Studied*#	
First Class Honours	6.0	6.2	6.5	A
Second Class Honours - Division A	5.5	5.7	5.9	B
Second Class Honours - Division B	5.0	5.1	5.3	C
Minimum number of courses required	20	16	8	

Footnotes

* The results from courses [ENG4111](#) and [ENG4112](#) must be included (unless the student is exempted from these courses).

The best results in a semester are to be used when not all of the results from a semester are required.

Other information

To be eligible to graduate from the Bachelor of Engineering, students must obtain an aggregate of at least 12 weeks of suitable practical 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 keep a record of such experience in the Practical Experience Record Book available in the [ENG4903 Professional Practice 2 Practice Book](#) and on the [ENG4903 website](#) http://www.usq.edu.au/eng_surv/students/enrolment/project/default.htm. The Record Book is to be endorsed by an appropriate person in the organisation providing the experience and by the student's Head of Discipline. The student must meet all costs associated with the acquisition of practical experience to satisfy this requirement. The Record Book must be made available for perusal by the Head of Discipline upon request. The acceptability or otherwise of employment experience, and the period of that type of experience that may be credited towards the 12 weeks, will be determined by the Head of Discipline.

Recommended enrolment patterns

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

Practice courses

The majority of the practical and professional experience requirements for the program are contained within the major recommended enrolment pattern in the following table. These are zero unit courses, which are a **compulsory part** of the program, however they do not attract a student contribution charge for Australian Residents or a tuition fee for international students.

Residential Schools

Students enrolled in the external offer of a Practice Course **must attend** the residential school for that course. In some cases students enrolled in the on-campus mode may also be required to attend the residential school. Students should only enrol in a Practice Course when they are able to attend the residential school for that course. Practice courses **may not** be taken earlier than shown except with the permission of the Program Coordinator responsible for the program. In some cases students may enrol in two Practice courses in one term so they can complete the two residential schools in a two-week period. The actual dates for each residential school are shown in the [Residential School schedule](#) in this Handbook.

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

Elective courses

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

Recommended enrolment pattern - Computer Systems Engineering, Applied Computer Science

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 (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Academic Courses								
CSC1401 Foundation Programming	1	1		1,2			O	
ENG1101 Engineering Problem Solving 1	1	1		1,2				
MAT1500 Engineering Mathematics 1	1	1		1			O	OE
ELE1301 Computer Engineering	1	1		1				
CSC2401 Algorithms and Data Structures	2	1		1,2			O	Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in one of the following Programs: MPIT or MSBN or MSMS
ENG2102 Engineering Problem Solving 2	1	2		2				Pre-requisite: ENG1101
ELE1502 Electronic Circuits	1	2		2				OE
ELE1801 Electrical Technology*	1	2		2				Pre-requisite: ENG1500 or MAT1500
ENG1001 Principles of Professional Engineering and Surveying	1	1,2		1,2				
MAT1502 Engineering Mathematics 2()	2	2		2			O	
MAT1101 Discrete Mathematics for Computing	2	1		1			O	
ELE2303 Embedded Systems Design	2	1		1				OE

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 (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
ENG3103 Engineering Problem Solving 3	2	2		2				Pre-requisite: (ENG2102 and MAT1502) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR OE
MAT2500 Engineering Mathematics 3	2	2		2			0	Pre-requisite: MAT1102 or MAT1502 or Students must be enrolled in one of the following Programs: MSBI or GCEN or GDET or METC
ENG1100 Introduction to Engineering Design	2	1,2		1,2				
ELE2103 Linear Systems and Control	2	2		2				OE
ELE3105 Computer Controlled Systems	3	1		1				Pre-requisite: ELE2103
ELE3305 Computer Systems and Communications Protocols	3	1		1				OE
ENG2002 Technology and Society	3	1		1,3				
ELE2601 Telecommunications Principles	3	1		1				Pre-requisite: (ELE1502 and ELE1801) or Students must be enrolled in one of the following Programs: GCEN or GDET or METC
ENG4104 Engineering Problem Solving 4	3	2		2				Pre-requisite: ENG3103 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC or MEPR
ELE3107 Signal Processing	3	2		2				OE
ELE2504 Electronic Design and Analysis	3	2		2				Pre-requisite: ELE1502 or Students must be enrolled in the following Program: MEPR OE
ELE3307 Real Time Systems	3	2		2				Pre-requisite: ELE1301 or Students must be enrolled in one of the following Programs: GCEN or GDET or METC OE
CSC2402 Object-Oriented Programming in C++	4	1		1,2			0	Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in one of the following Programs: MPIT or GDGS or GCEN or GDET or METC
CIS3001 Object-Oriented Programming with Java	4	1		1				OE
Elective	4	1		1				
CIS2002 Database Design	4	1		1,3			0	OE
STA2300 Data Analysis	4	2		1,2,3			0	OE
CSC2407 Introduction to Software Engineering	4	2		2			0	Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in the following Program: MPIT or GCEN or GDET or METC
CSC2404 Operating Systems	4	2		2			0	Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in the following Program: 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 (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
CSC2408 Software Development Tools	4	2		2,3			O	OE
ENG4111 Research Project Part 1+	5	1		1				OE
CSC3403 Comparative Programming Languages	5	1		1			O	Pre-requisite: CSC2401 or USQIT16 or Students must be enrolled in one of the following Programs: MCOP or MPIT or GCEN or GDET or METC
ENG3003 Engineering Management	5	1		1,3				OE
Elective	5	1		1				
ENG4112 Research Project Part 2^	5	2		2				Pre-requisite: ENG4111 OE
ENG4004 Engineering Management Science**	5	2		2,3				
Elective	5	2		2				
Elective	5	2		2				
Practice Courses								
ENG1901 Engineering Practice 1~	1	1		2,3			C	
ELE1911 Electrical and Electronic Practice A	1	1		3			C	OE
ELE2912 Electrical and Electronic Practice B	2	1		3			C	OE
ELE3913 Computer Systems Engineering Practice	3	1		2			C	OE
ELE3915 Electrical and Electronic Practice E	3	1		2			C	OE
ENG3902	4	2		2			C	
ENG4903 Professional Practice 2	5	1		2			C	Pre-requisite: ENG3902 OE

Footnotes

- * Students who have been granted an exemption from [ELE1801](#), are advised to purchase the study materials from the [USQ Bookshop](#) and work through this prior to attempting courses for which [ELE1801](#) is an enrolment requirement.
- () [MAT1102 Algebra and Calculus I](#) may be studied in Semester 1 as an alternate course to the Semester 2 offering of [MAT1502 Engineering Mathematics 2](#), in order to provide a balanced workload between semesters.
- + It is recommended that students in the Bachelor of Engineering and Bachelor of Information Technology should have completed [ENG3902](#) prior to undertaking this course.
- ^ It is recommended that students in the Bachelor of Engineering and Bachelor of Information Technology should also be enrolled in [ENG4903](#) while undertaking this course.
- ** No offering in Semester 3 2009
- ~ Before enrolling in [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 who have been employed in the engineering industry for some time may be able to claim exemption from the course.**
- OE Before enrolling in this course students must check that they have satisfied the 'Recommended prior study' or 'Other enrolment' requirements set out in the Other requisites section of the course specification.

Notes:

Students should also refer to the 'Other Requirements for Students Studying Electrical and Electronic or Computer Systems Courses' at the beginning of the Faculty of Engineering and Surveying section of this Handbook.

Elective courses

Students must complete four of the courses in the following table. Other courses may be admissible as Electives. Interested students should contact their Program Coordinator or Head of Discipline.

Course	Year of program and semester in which course is normally studied						Residential school (compulsory /optional)	Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (WEB)			
	Year	Sem	Year	Sem	Year	Sem		
Select two courses from the following:								
CSC2406 Web Publishing		1		1,3			O	Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in one of the following Programs: MPIT or MSBN OE
CSC3419 XML and the Web		2		2			O	OE
CSC3412 System and Security Administration		2		2			O	OE
ELE3401 Software Engineering Design Principles+		1		1				OE
ELE4402 Software Engineering Project Management				2				OE
Select two courses from the following:								
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 GDET or METC or MEPR
ELE4607 Advanced Digital Communications§		1						
ENG8001 Engineering and Surveying Research Methodology		1,2				1,2		
ENG4406 Robotics and Machine Vision+		2		2				OE

Footnotes

+ The semester 1 on-campus offering of this course has been cancelled for 2009.

§ Only offered in even years. Next offered 2010.

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