Bachelor of Engineering (EN40)

Year offered: 2011
Admissions: Yes
CRICOS code: 056529D
Course duration (full-time): 4 years
Domestic Fees (indicative): 2011: CSP $3,878 (indicative) per semester
International Fees (indicative): Refer to majors
Domestic Entry: February and July
International Entry: February and July
QTAC code: 412502
Past rank cut-off: 81
Past OP cut-off: 10
OP Guarantee: Refer to majors
Assumed knowledge: English (4, SA) and Maths B (4, SA)
Preparatory studies: For information on acquiring assumed knowledge visit http://www.qut.edu.au/assumed-knowledge
Total credit points: 384
Standard credit points per full-time semester: 48
Course coordinator: Dr R. Mahalinga-Iyer
Campus: Gardens Point

Majors
- Bachelor of Engineering (Aerospace Avionics)
- Bachelor of Engineering (Telecommunications)
- Bachelor of Engineering (Mechatronics)
- Bachelor of Engineering (Medical)
- Bachelor of Engineering (Civil)
- Bachelor of Engineering (Civil and Construction)
- Bachelor of Engineering (Computer Systems)
- Bachelor of Engineering (Mechanical)
- Bachelor of Engineering (Software Engineering)
- Bachelor of Engineering (Civil and Environmental)
- Bachelor of Engineering (Electrical)

Recommended Study
Chemistry, Maths C and Physics.

Professional Recognition
Full professional accreditation from Engineers Australia has been given for all primary majors in this course. In addition, Software Engineering also has full professional accreditation with the Australian Computer Society.

Second Majors
Depending on your choice of primary major, you may have the opportunity to undertake a second major or two minors. A second major is an established set of eight units (96 credit points) in the same discipline. A minor is an established set of four units (48 credit points) in the same discipline or from anywhere in the University. You will select your primary major, second major and/or minors after the completion of your first year.

Special Course Requirements
A candidate for the degree of Bachelor of Engineering must obtain at least 60 days of industrial experience/practice in an engineering environment as approved by the course coordinator.

International Student Entry
International students must maintain an enrolment program that will allow them to complete their course within the specified timeframe of their eCoE (electronic Confirmation of Enrolment).

Further Information
Faculty of Built Environment and Engineering - Phone +61 7 3138 1433, Fax +61 7 3138 5280, email: bee.enquiries@qut.com

Deferment
Domestic students can defer their offer in this course for one year. In exceptional circumstances up to 12 months of additional deferment may be granted.

Find out more on deferment.

Year 1 - February entry 2011 onwards (common for all Engineering majors)

Year 1 - Semester 1
ENB100 Engineering and Sustainability
ENB110 Engineering Statics and Materials
ENB130 Mechanical and Thermal Energy
MAB125 Foundations of Engineering Mathematics
MAB126 Mathematics for Engineering 1

Year 1 - Semester 2
ENB120 Electrical Energy and Measurements
ENB150 Introducing Engineering Design
ENB200 Introducing Engineering Systems
MAB126 Mathematics for Engineering 1
MAB127 Mathematics for Engineering 2
Year 1 - Mid-year entry 2011 onwards (common for all Engineering majors)

Year 1 - Semester 2
ENB100 Engineering and Sustainability
ENB110 Engineering Statics and Materials
MAB125 Foundations of Engineering Mathematics
MAB126 Mathematics for Engineering 1

Year 1 - Summer
ENB120 Electrical Energy and Measurements
MAB126 Mathematics for Engineering 1
MAB127 Mathematics for Engineering 2

Year 1 - February entry 2010 (common for all Engineering majors)

Year 1 - Semester 1
ENB100 Engineering and Sustainability
ENB110 Engineering Statics and Materials
ENB120 Electrical Energy and Measurements
MAB125 Foundations of Engineering Mathematics
MAB126 Mathematics for Engineering 1

Year 1 - Semester 2
ENB130 Mechanical and Thermal Energy
ENB150 Introducing Engineering Design
ENB200 Introducing Engineering Systems
MAB126 Mathematics for Engineering 1
MAB127 Mathematics for Engineering 2

Year 1 - Mid-year entry 2010 (common for all Engineering majors)

Year 1 - Semester 2
ENB100 Engineering and Sustainability
ENB110 Engineering Statics and Materials
ENB130 Mechanical and Thermal Energy
MAB125 Foundations of Engineering Mathematics
MAB126 Mathematics for Engineering 1

Potential Careers:
Biomechanical Engineer, Biomedical Engineer, Civil Engineer, Computer Systems Engineer, Electrical and Computer Engineer, Electrical Engineer, Engineer, Mechanical Engineer, Medical Engineer.

UNIT SYNOPSES

ENB100 ENGINEERING AND SUSTAINABILITY
This unit introduces you to the essential professional skills and practices of engineers in the context of sustainable development.
Antirequisites: DEB100 and UDB100  Credit points: 12
Contact hours: 3 per week  Campus: Gardens Point
Teaching period: 2011 SEM-1 and 2011 SEM-2

ENB110 ENGINEERING STATICS AND MATERIALS
Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

ENB120 ELECTRICAL ENERGY AND MEASUREMENTS
This unit introduces you to basic electrical circuit concepts. It requires you to perform circuit analysis, circuit synthesis, and the measurement and testing of relevant quantities within circuits.
Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-2 and 2011 SUM

ENB130 MECHANICAL AND THERMAL ENERGY
Engineers work with numerous kinds of systems where consideration must be given to the motion within, and associated energy of, the system. This unit introduces the student to the concepts of mechanical and thermal energy in the context of real engineering systems. The inter-relationships of between forces, motion and energy is described as related to the flow of energy within these engineering systems. After an introduction to engineering units, concepts and data, Newton's first and second laws are used in the description of system motion and the concepts of force and energy, conservation of momentum and conservation of energy are introduced and described. Thermodynamic processes, certain thermo-physical parameters and the first and second law of thermodynamics are introduced and used to describe simple engineering
systems. This is then expanded to include the generation and transport of energy through these systems in terms of convection, conduction and radiation heat transfer.

**Equivalents:** PCB150  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1

**ENB150 INTRODUCING ENGINEERING DESIGN**

This unit introduces you to engineering design. A multi-disciplinary approach is taken with an emphasis in engineering systems, technical design and project management.

**Assumed knowledge:** ENB110 is assumed knowledge.

**Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

**ENB200 INTRODUCING ENGINEERING SYSTEMS**

This unit will enable you as a graduating Built Environment and Engineering professional to take active and positive steps to transform professional practice in ways that promote the sustainability of our planet, our economy and our society. As future professionals in the fields of Design, Urban Development and Engineering Systems, you will need to understand and apply the concepts of sustainability in your professional practice if we are to achieve sustainable development in the 21st Century.

**Credit points:** 12  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

**MAB125 FOUNDATIONS OF ENGINEERING MATHEMATICS**

A sound understanding of the language and techniques of mathematics is essential for any quantitative discipline. This unit provides an introduction to the aspects of mathematics especially applicable to engineering and is directed at those students whose mathematics preparation does not include Maths C or an equivalent. For this purpose, it's located in first semester of the first year of your course. This unit introduces you to the fundamental mathematical ideas of function, calculus, vectors and matrices, through the use of contextualised engineering related problems. In solving these problems you will develop both an understanding of the mathematical concepts and competency in appropriate solution methods.

**Antirequisites:** MAN120  **Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics B (or equivalent) or MAB105 is assumed knowledge  **Equivalents:** MAB100, MAB120, MAB180  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM

**MAB126 MATHEMATICS FOR ENGINEERING 1**

Building upon the foundations established in MAB125 or Senior Maths C, this unit addresses the significant role of mathematical modelling using differential equations for the description and resolution of simple and complex problems relevant to the discipline of engineering. The formulation and solution of such problems is supported by appropriate advanced mathematical concepts used for function approximation, differentiation and integration. The unit is located in first year for application in core engineering units throughout the rest of the course. Undertaking this unit will allow you to develop your problem solving skills, especially in the context of mathematical techniques applied to ordinary differential equations used to model engineering relevant problems.

**Antirequisites:** MAN121  **Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics C (or equivalent) or MAB125 or MAB180 or MAB120 is assumed knowledge  **Equivalents:** MAB111, MAB121, MAB131, MAB182  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM

**MAB127 MATHEMATICS FOR ENGINEERING 2**

Building upon the foundations established in MAB125 or Senior Maths C, this unit addresses the significant role of mathematical modelling using vectors, matrices and multivariable calculus for the description and resolution of simple and complex problems relevant to the discipline of engineering. The formulation and solution of such problems is supported by appropriate advanced mathematical concepts used for function approximation, differentiation and integration. You will complete this unit in first year or first semester of second year depending on your initial maths background. Undertaking this unit will allow you to develop your problem solving skills, especially in the context of advanced mathematical techniques applied to vectors and matrices used to model engineering relevant problems.

**Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics C (or equivalent) or MAB125 or MAB120 or MAB131 or MAB182 is assumed knowledge  **Equivalents:** MAB112, MAB122, MAB132  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM