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): 2011: $12,125 (indicative) per semester  
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: Yes  
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  
Discipline coordinator: Fraser McGregor  
Campus: Gardens Point  
Why choose this course?  
The Faculty of Built Environment and Engineering at QUT is dedicated to quality teaching and learning. The Faculty's interactions with industry and high academic standard make it a unique place to study.  
Career outcomes  
If you are attracted to the intellectual rigour of engineering, but with a bias towards the challenge of converting design into physical reality then construction engineering is the career for you.  
Practical teaching  
You will graduate with generic skills in leadership, teamwork, communication, and creative thinking. You will work closely with staff in an innovative environment that involves hands-on activities such as using specialist software to solve real-world engineering problems.  
Industry links  
You will be exposed to ideas and experience of guest lecturers and industry professionals. Our academic staff are industry experienced and also members of international networks and collaborative research projects.  
Course structure  
You will have the opportunity to work with other students and staff in the student-run laboratory classes and on real world projects which will enhance your knowledge and develop your problem solving skills. While enrolled in the course you will also undertake industrial experience in an engineering environment.  
Facilities / technology  
Our programs are responsive and relevant to the changing needs of the industry and the society we live in. Experiential and practical learning opportunities are provided through specially designed learning environments and tradition laboratory areas. Facilities that integrate virtual and web based material with physical equipment ensure that students get the opportunity to learn by doing which is an important part of engineering education.  
Convenience  
You will study at QUT's Gardens Point campus in the centre of Brisbane, within easy walking distance to public transport, including buses, trains and ferries.  
Who should do this course?  
If you are interested in any of the following, you may enjoy a career in Civil and Construction Engineering:  
- Building and Construction  
- How things work  
- Technical and engineering activities.  
Recommended Study  
Chemistry, Maths C and Physics.  
Professional Recognition  
Full professional accreditation from Engineers Australia has been given for this course.  
Special Course Requirements  
A candidate for the degree of Bachelor of Engineering (Civil and Construction) must complete at least 60 days of industrial experience/ practice in an engineering construction environment as part of the Work Integrated Learning unit.  
Second Majors and Minors  
You will have the opportunity to undertaken either a 2nd major or two minors. For professional recognition you will undertake an Applications minor which consists of a Work Place Integrated Learning unit, a project unit and two specialised civil engineering units. The second minor must be taken from an approved list outside your discipline.

CIVIL AND CONSTRUCTION ENGINEERING Second Major and Minor Options
Second Major:
Civil Infrastructure

Minors:
BEE Applications Minor
plus
A minor from anywhere in QUT that is outside of the course.

International Student Entry
International students who are interested in mid-year entry should consult the Faculty of Built Environment and Engineering Student Services section regarding the course structure to be undertaken.

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).

Limits on grades of 3
A new policy concerning grades of 3 came into effect from 1 January 2009 (QUT MOPP C/5.2). With effect from this date grades of 3 are no longer considered a conceded or low pass but are classified as a fail grade. Any grades of 3 awarded prior to 1 January 2009 retain the conceded pass status and will be counted for graduation purposes up to the maximum number of grades of 3 permitted for your course. Grades of 3 incurred in units that commence after 1 January 2009 will not count towards your degree. Further information is available on the Student Services website.

Further Information
School of Urban Development - Phone +61 7 3138 2678, Fax +61 7 3138 1515, 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.

Full-time Course structure – Students commencing February 2010 onwards (Years 2 – 4)

Please Note:
For 1st year enrolment program please refer to EN40 Bachelor of Engineering course entry.

| Year 2 - Semester 1 (to be introduced in 2011) |
| ENB270 | Engineering Mechanics of Materials |
| ENB272 | Geotechnical Engineering 1 |
| ENB273 | Civil Materials |
| MAB233 | Engineering Mathematics 3 |

| Year 2 - Semester 2 (to be introduced in 2011) |
| ENB275 | Project Engineering 1 |
| ENB276 | Structural Engineering 1 |
| ENB280 | Hydraulic Engineering |
| UDB214 | Professional Studies 2 |

| Year 3 - Semester 1 (to be introduced in 2012) |
| ENB277 | Construction Engineering Law |
| ENB375 | Structural Engineering 2 |
| ENB381 | Civil Engineering Construction |
| UDB312 | Contract Administration |

| Year 3 - Semester 2 (to be introduced in 2012) |
| ENB371 | Geotechnical Engineering 2 |
| ENB373 | Design and Construction of Steel Structures |
| ENB382 | Estimating in Engineering Construction |
| Second Major/Minor unit |

| Year 4 - Semester 1 (to be introduced in 2013) |
| BEB801 | Project 1 |
| ENB471 | Design of Concrete Structures and Foundations |
| Second Major/Minor unit |
| Second Major/Minor unit |

| Year 4 - Semester 2 (to be introduced in 2013) |
| BEB701 | Work Integrated Learning 1 |
| ENB481 | Civil Engineering Project Management |
| Second Major/Minor unit |
| Selective |

Civil and Construction Engineering Selectives
BEB802 | Project 2 |
ENB376 | Transport Engineering |

Potential Careers:
Civil Engineer, Construction Manager, Engineer, Project Manager.
UNIT SYNOPSES

BEB701 WORK INTEGRATED LEARNING 1
This unit aims to provide you with the opportunity to learn in a workplace environment. It will involve attendance, participation, observation, critical reflection, and report writing on workplace activities. The emphasis of your critical reflection and report writing will be on identifying and describing aspects of professional relevance incorporating: collaboration and teamwork; work place, health and safety; professional conduct; ethical responsibility, and other aspects of your work place experience. This unit may form part of your (compulsory) course core (as required by professional accrediting bodies e.g. Engineers Australia, Australian Institute of Building, Royal Institution of Chartered Surveyors), or it may be one of several work integrated learning (WIL) units (selected as part of a Minor).

Assumed knowledge: This unit is not designed for first year students. It is recommended that you check WIL Community Blackboard site for information on enrolment pattern. If you are EN40 student you can only enrol after completing a minimum of 192 cp. Credit points: 12
Campus: Gardens Point Teaching period: 2011 SEM-1, 2011 SEM-2 and 2011 SUM

BEB801 PROJECT 1
This unit is usually taken in the final year of study. Students complete an individual project involving the application of skills and knowledge attained during the earlier years of their degree program. For some students, this unit will be taken one of two ‘project’ units related to the same student project; in such cases this unit may be a pre-requisite or co-requisite to the second unit (or a follow-on from the first unit). The final ‘deliverable’ for this unit may vary for each discipline and details will be provided in lectures/tutorials and on the Blackboard website.

Equivalents: CEB411, CEB420, CNB434, EEB781-1, EEB889-1 Credit points: 12 Contact hours: 2 per week Campus: Gardens Point Teaching period: 2011 SEM-1 and 2011 SUM

BEB802 PROJECT 2
This unit is usually taken in the final year of study, and is only taken by students completing a two unit project. Students complete an individual project involving the application of skills and knowledge attained during the earlier years of their degree program. This unit will be taken as the second of two ‘project’ units related to the same student project.

Equivalents: CEB415, EEB782-2, EEB889-2 Creditpoints: 12 Contact hours: 2 Campus: Gardens Point Teaching period: 2011 SEM-1 and 2011 SEM-2

ENB270 ENGINEERING MECHANICS OF MATERIALS
This unit introduces calculating the stress produced in various members of a structural system due to the forces applied to them, and how to determine the design specifications (size and shape) of the members to withstand the forces to prevent the structural system failing.

Prerequisites: ENB101 or ENB110 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2011 SEM-1

ENB272 GEOTECHNICAL ENGINEERING 1
Soil mechanics is a part of geotechnical engineering, soil types, their description, classification and engineering properties. The unit includes the following: granular and cohesive soil classification systems; volume and mass components; density and air voids; determination of soil geostatic vertical pressures; pore water pressures and effective stress; permeability theory and fluid seepage in soil, with erosion and piping analysis; soil shear strength assessment and application to retaining wall lateral pressures; retaining wall design; slope stability analysis and stabilisation. Computer simulation and analysis programs are used where appropriate.

Assumed knowledge: ENB102 or ENB270 are assumed knowledge Equivalents: CEB209, CEB232 Credit points: 12 Contact hours: 6 per week Campus: Gardens Point Teaching period: 2011 SEM-1

ENB273 CIVIL MATERIALS
The unit provides students with a sound and practical approach to material properties and selection so that they may adapt to scientific and technological changes in the variety of products entering the market. They understand where the engineer fits in a quality assurance program and become aware of the numerous components of quality assurance and the costs generated by quality control and assurance. Students become aware of the effect of the working environment on different engineering materials. Among other things, they study the behaviour of concrete from the time it is manufactured to the end of its life, and develop knowledge of the parameters involved in manufacturing good concrete, and the consequences of delivering poor concrete.

Prerequisites: ENB270 or ENB102. ENB270 can be studied concurrently. Credit points: 12 Contact hours: 5 per week Campus: Gardens Point Teaching period: 2011 SEM-1

ENB275 PROJECT ENGINEERING 1
The unit commences with the development of the construction techniques common to site investigation, earthworks, pile driving, deep foundations, reinforced and prestressed concrete and steel erection. This operational understanding is extended into a study of the practices used...
to estimate cost and to administer contracts, including planning and the legal implications of operating in a commercial environment. The unit concludes with the issues surrounding the uncertainty of weather and of operating in remote environs.

**Assumed knowledge:** ENB271 and ENB273 are assumed knowledge.  
**Equivalents:** CEB216  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**ENB276 STRUCTURAL ENGINEERING 1**

This unit includes the following: development of the method of moment distribution and its application in analysis of continuous beams and frames; theory of influence lines and its application to determine the effects of moving loads on beams and trusses; ‘pattern loading’ on frames and continuous beams; behaviour of reinforced concrete members; applications in the design of beams and columns.  
**Prerequisites:** ENB102 or ENB270  
**Assumed knowledge:** ENB273 and ENB271 is assumed knowledge.  
**Equivalents:** CEB215  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**ENB277 CONSTRUCTION ENGINEERING LAW**

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

**ENB280 HYDRAULIC ENGINEERING**

This unit primarily provide a basic understanding of hydraulic (fluid) principles and an understanding of the use of these principles in engineering applications. The main topics to be covered are: Units and properties of fluids, Forces in static fluids, Buoyancy, Kinematics and continuity, The energy equation and the momentum equation; Similitude and dimensional analysis, Lift and drag, Frictional flow in pipes, Application of pipe resistance formulae, Fitting.  
**Assumed knowledge:** MAB126 or MAB180 or MAB131, and ENB101 or ENB110 are assumed knowledge.  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**ENB371 GEOTECHNICAL ENGINEERING 2**

This unit includes: further study on the behaviour of soil and rocks; determination of subsurface pressures from surface loadings; soil settlement including time related clay consolidation settlement and immediate settlements on sand and clay as related to shallow foundations; assessment of bearing capacity and allowable bearing pressures under shallow foundations; pile foundation systems and analysis for capacity and settlement; rock mass behaviour, classification and joint shear strength applied to slope stability assessment and stabilisation measures.  
**Prerequisites:** ENB271  
**Equivalents:** CEB232  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**ENB375 STRUCTURAL ENGINEERING 2**

This unit includes the study of steelwork: design and construction; structural systems; load paths; rules of thumb; building layout; function and form; cladding; element and wind loading evaluation; idealisation, analysis, design action effects; space gas, columns and rafters; trusses and bracing; connections; knee ridges; base plate design; procurement and fabrication; scheduling and erection.  
**Prerequisites:** ENB375  
**Assumed knowledge:** ENB271 is assumed knowledge.  
**Equivalents:** CEB329  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**ENB376 TRANSPORT ENGINEERING**

The transport system is an essential part of our physical infrastructure. It is imperative that civil engineers are able to undertake typical road and traffic engineering investigations, analyses and designs. These require an understanding of
the intent of individual road system elements, how they operate, and how they are delivered and managed: this understanding is developed in this unit. Further, it is important that civil engineers are able to undertake multi-modal transport surveys to gain an understanding of the operation of a particular transport system. 

**Assumed knowledge:** ENB274 and ENB372 are assumed knowledge.  
**Equivalents:** CEB323  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**ENB381 CIVIL ENGINEERING CONSTRUCTION**  
Detailed studies of the methods and equipment employed in the execution of civil engineering construction. Includes earthworks, heavy foundations, steel fabrication and erection, bridge construction, marine construction, water retaining structures, road and airfield construction and mechanical erection.  

**Assumed knowledge:** ENB275 is assumed knowledge.  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1

**ENB382 ESTIMATING IN ENGINEERING CONSTRUCTION**  
The majority of the unit applies construction, planning and commercial understanding previously developed to fundamental estimating skills suited to firm bidding. The conversion of an estimate to a tender, includes the review process, the determination of risk and profit and the drafting of a tender letter conclude the critical content. A comparison with sub-contract pricing and the use of Bills of Quantity is studied and is linked to conceptual estimating, preliminary estimates for budgets and proposals.  

**Prerequisites:** ENB381  
**Assumed knowledge:** ENB271 and ENB273 are assumed knowledge.  
**Equivalents:** CEB513  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**ENB471 DESIGN OF CONCRETE STRUCTURES AND FOUNDATIONS**  
Concrete design and construction; roles of building professionals; current structures; structural systems; load paths; rules of thumb; building layout, function and form, design effects; seismic and element loads; formwork and placement constraints; reinforced and prestressed concrete slabs, beams and columns; architectural issues, connections and detailing; site investigation, spread and pile footings and foundations; retaining walls.  

**Prerequisites:** ENB276 and ENB371  
**Equivalents:** CEB424  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1

**ENB481 CIVIL ENGINEERING PROJECT MANAGEMENT**  
Engineers are invariably required to manage projects. This unit reinforces the student’s understanding of current management principles in the context of construction projects. Other topics include administration, cost control, claims, legal and insurance issues together with outsourcing, problem solving, communication and dispute resolution. The focus of the unit is to ensure students develop an appreciation of the commercial and non-technical issues associated with successful projects. The aim of this unit is to help the student understand the nature of the decisions required of an Engineer managing a project and practising making these decisions within the fast-moving commercial and economic environment for such projects.  

**Prerequisites:** ENB275  
**Assumed knowledge:** ENB372 is assumed knowledge.  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**MAB233 ENGINEERING MATHEMATICS 3**  
This unit will provide you with the foundation knowledge and skills to carry out a statistical data investigation including defining the problem, planning the investigation, collecting and analysing data, and reporting conclusions in context. It will also provide you with foundation knowledge and concepts of probability, random variables and distributions for further learning in engineering.  

**Prerequisites:** MAB131 or MAB182 or MAB121 or MAB126 or MAB127  
**Antirequisites:** BSB123, MAB101, MAN101  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1 and 2011 SEM-2

**UDB214 PROFESSIONAL STUDIES 2**  
Assignment-based project orientated group work where you design and document a commercial development from a project management perspective considering constructability drawing on your skills in estimating, planning, scheduling, site organisation; environmental planning & sustainable urban development. Focus on special construction techniques; reuse of buildings and building materials; durability of materials, minimisation and disposal of construction waste; construction practice; planning and use of appropriate forms of construction for various building sizes and types; community negotiations; statutory responsibilities including access for people with a disability.  

**Prerequisites:** UDB112 or BEB200 or ENB200  
**Assumed knowledge:** UDB210 is assumed knowledge.  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**UDB312 CONTRACT ADMINISTRATION**  
The administration of construction contracts represents one of the core applications for both construction managers and quantity surveyors. In order to appreciate some of the commercial implications of contract administration you will...
study administrative implications for both parties to the contract.

**Equivalents:** CNB302  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1