Bachelor of Urban Development (Construction Management) (UD40)

Year offered: 2011
Admissions: Yes
CRICOS code: 056387B
Course duration (full-time): 4 years
Domestic Fees (indicative): 2011: CSP $3,878 (indicative) per semester
International Fees (indicative): 2011: $12,000 (indicative) per semester
Domestic Entry: February and July
International Entry: February and July
QTAC code: 412312
Past rank cut-off: 81
Past OP cut-off: 10
OP Guarantee: Yes
Assumed knowledge: English (4, SA) and Maths A, B or C (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 John Hayes
Discipline coordinator: Dr Vaughan Coffey (sem 1); Debra Smit (sem 2)
Campus: Gardens Point

Why choose this course?
The Construction Management course at QUT is considered one of the best in Australia and is highly ranked internationally

Career outcomes
This course can offer you training for a challenging and interesting career with the prospect of high job satisfaction and financial reward.

Practical teaching
You will graduate with real industry experience as you will participate in professional practice, case studies and site visits. In your final year you are required to undertake 100 days approved industrial experience in the construction or allied field.

Industry links
Staff have excellent academic and industry track records and maintain strong links and cooperation with industry.

Course structure
The course provides integrated learning opportunities with allied disciplines of Spatial Science, Property Economics, Quantity Surveying and Urban and Regional Planning.

Facilities / technology
You will have first-hand experience of the latest technologies used in the industry.

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 Construction Management:
- Building and Construction Industry
- Working with a variety of people from a range of professions.
- Leading a team.

Overview
The course is concerned with the management of the overall process of construction projects and provides detailed understanding of project development from conception, through planning and construction to commissioning and maintenance. It develops skills in how to manage people, materials, equipment and plant while focusing on issues such as cost, time, quality, safety and environment. It educates students to become effective construction managers with comprehensive technological knowledge, management principles and communication skills.

Minors
For accreditation purposes you are required to undertake specified minors which will include employment practice. Please refer to your study rules before making your selection.

CONSTRUCTION MANAGEMENT Minor Options
- All students must take the Construction Management Applications Minor, which is an AIB accreditation requirement.
- Your second minor may be taken from anywhere in QUT but must be from outside UD40. The BEE Project Collaboration Minor is highly recommended for students in Construction Management.
Special Course Requirements
All students are required to obtain a minimum of 80 days of approved industrial experience.

Professional Recognition
Recognition is being sought from the Australian Institute of Building and the Australian Institute of Building Surveyors.

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).

Limits on grades of 3
A new policy concerning grades of 3 comes into effect from 1 January 2009 (QUT MOPP C/5.2). With effect from this date grades of 3 will no longer be considered a conceded or low pass but will be classified as a fail grade. Any grades of 3 awarded prior to 1 January 2009 will 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

Full-time Course Structure - Commencing February 2010 onwards

Year 1 - Semester 1
- UDB100 Urban Development and Sustainability
- UDB101 Stewardship of Land
- UDB110 Residential Construction and Engineering
- UDB111 Engineering Construction Materials

Year 1 - Semester 2
- UDB200 Project Planning in Urban Development
- UDB104 Urban Development Economics
- UDB112 Professional Studies 1
- UDB113 Measurement 1

Year 2 - Semester 1
- UDB210 Commercial Construction and Engineering

Year 2 - Semester 2
- UDB211 Introductory Structural Engineering
- UDB212 Measurement 2
- UDB213 Construction Estimating

Year 2 - Semester 3
- UDB102 Applied Law
- UDB214 Professional Studies 2
- UDB215 Building Services Engineering

Minor unit

Year 3 - Semester 1
- UDB310 Highrise Construction and Engineering
- UDB311 Structural Engineering Design
- UDB312 Contract Administration

Minor unit

Year 3 - Semester 2
- UDB202 Business Skills
- UDB314 Statutory Construction Law
- UDB420 Project Administration

Minor unit

Year 4 - Semester 1
- BEB701 Work Integrated Learning 1
- UDB301 Research Methods
- UDB313 Programming and Scheduling

Minor unit

Year 4 - Semester 2
- BEB801 Project 1
- UDB302 Development Process
- UDB316 Cost Planning and Control
- UDB410 Construction Management

Minor Options
Please refer to the Minor information under Course Summary.

Full-time Course Structure - Commencing Mid-Year 2010 onwards

Year 1 - Semester 2
- UDB200 Project Planning in Urban Development
- UDB102 Applied Law
- UDB104 Urban Development Economics
- UDB202 Business Skills
Year 2 - Semester 1
UDB100 Urban Development and Sustainability
UDB110 Residential Construction and Engineering
UDB111 Engineering Construction Materials
UDB211 Introductory Structural Engineering

Year 2 - Semester 2
UDB112 Professional Studies 1
UDB113 Measurement 1
UDB215 Building Services Engineering
Minor Unit

Year 3 - Semester 1
UDB210 Commercial Construction and Engineering
UDB212 Measurement 2
UDB213 Construction Estimating
UDB310 Highrise Construction and Engineering

Year 3 - Semester 2
UDB214 Professional Studies 2
UDB314 Statutory Construction Law
UDB420 Project Administration
Minor Unit

Year 4 - Semester 1
BEB701 Work Integrated Learning 1
UDB101 Stewardship of Land
UDB301 Research Methods
UDB311 Structural Engineering Design

Year 4 - Semester 2
BEB801 Project 1
UDB302 Development Process
UDB316 Cost Planning and Control
UDB410 Construction Management

Year 5 - Semester 1
UDB312 Contract Administration
UDB313 Programming and Scheduling
Minor Unit
Minor Unit

Minor Options
Please refer to Minors information in Course Summary.

Potential Careers:
Construction Manager, Contract Administrator, Estimator, Project Manager, Urban and Regional Planner, Urban Designer.

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 SEM-2

UDB100 URBAN DEVELOPMENT AND SUSTAINABILITY
This unit introduces you to the essential professional skills and practises common to the fields and disciplines of urban development.

Through this unit you will have an opportunity to develop...
and demonstrate professional knowledge in your specialized area while also developing foundation academic and university skills that you will use to enhance and support your further studies. Concepts relating to professional practice, ethics, information management and sustainability will be addressed throughout the unit. Information from this unit will be consolidated in UDB200.

**Antirequisites:** DEB100 and ENB100  **Credit points:** 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1

**UDB101 STEWARDSHIP OF LAND**
This interdisciplinary unit will introduce students to the characteristics of land and land tenure with a focus on land use and property rights. The particular issues of native title, land contamination, heritage and alternative utility will be covered. Thereafter the property development process will be described in general terms and emphasis placed on the impact of environmental and social factors on the financial evaluation. The final component will cover the management of land, both urban and regional. Case studies will demonstrate the part that each discipline plays in the stewardship of land and its development.

**Equivalents:** CNB105  **Credit points:** 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1

**UDB102 APPLIED LAW**
Introduces the fundamental principles and practices of Australian governance as they affect the built environment professions. The relevance of government policies, laws and regulations and aspects of Tort, Contract and Land and Environmental laws applicable to the Development and Construction processes are examined in context.

**Credit points:** 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

**UDB104 URBAN DEVELOPMENT ECONOMICS**
This unit will introduce microeconomic and macroeconomics concepts applied to urban and regional development. The unit will initially focus on demand, supply and determination of prices, and other important microeconomic concepts, at the level of an individual development. Here, the value of microeconomics in explaining aspects of development is demonstrated using local and national examples. In doing so, this unit will also help to deepen the appreciation of the key steps in development and the role of the main actors. Since anyone development project does not occur in a vacuum, the unit will then broaden to consider the impact of changes in the national and local economy on land use and development, including business cycle, monetary and fiscal policy.

**Antirequisites:** BSB113, BSD113  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

**UDB110 RESIDENTIAL CONSTRUCTION AND ENGINEERING**
You learn to read plans and build a house by studying construction theory and legislation, visiting building sites, and sketching construction details. Focus on the four traditional methods of construction, brick veneer, cavity brick, block and timber, evolution of building, Building Code of Australia and Australian Standards; methods of construction; foundation and footings; linings; claddings; windows; doors; joinery; staircases; roof coverings; balanced cut and fill; services; retaining walls; acoustic and fire safety requirements; specifications for residential construction; protection to the public during construction; temporary support and demolition of structures; energy efficiency design; building defects and failures.

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

**UDB111 ENGINEERING CONSTRUCTION MATERIALS**
Structural and non structural materials used in the construction process are examined focusing on the basic properties, construction applications, behaviour, strength, durability, suitability, and limitations. Material manufacture; acoustic and thermal properties; fire tests and fire hazard properties, issues such as cleaning, maintenance, corrosion protection, deterioration and ageing; Sustainable development; Material recycling; Storage on site; Installation processes; identification and causes of building defects and recommendations for potential remedies.

**Equivalents:** CNB102  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1

**UDB112 PROFESSIONAL STUDIES 1**
Assignment-based project orientated group work where you design and document a new dwelling preparing a full design of a single level brick-veneer type dwelling to a standard appropriate for building approval including architectural and structural design; construction materials; building services; statutory obligations and the building approval process; measuring and cost planning; contract administration; construction planning and site layout.

**Prerequisites:** UDB110  **Equivalents:** CNB109  **Credit points:** 12  **Contact hours:** 5 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

**UDB113 MEASUREMENT 1**
This unit introduces the scope of the role of the quantity surveyor working independently and for contractors. It examines the tendering process and the bill of quantities; the Australian standard method of measurement (rules, taking-off methodology, mensuration and formulae); measurement of various work sections (finishes, roofing, partitions, woodworking, metalwork, painting, doors, windows,
glazing, hardware, suspended ceilings and masonry).

**Prerequisites:** UDB110    **Equivalents:** CNB110    **Credit points:** 12    **Contact hours:** 4 per week    **Campus:** Gardens Point    **Teaching period:** 2011 SEM-2

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**UDB200 PROJECT PLANNING IN URBAN DEVELOPMENT**

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    **Contact hours:** 3 per week    **Campus:** Gardens Point    **Teaching period:** 2011 SEM-2

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**UDB202 BUSINESS SKILLS**

This unit focuses on career preparation with a business orientation. Current popular business tools are assembled and critiqued. A sequential approach is used starting with characteristics of the Resume, business protocol and ethics, the business plan, assessing business risk and Professional Liability.

**Equivalents:** CNB228    **Credit points:** 12    **Contact hours:** 3 per week    **Campus:** Gardens Point    **Teaching period:** 2011 SEM-2

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**UDB210 COMMERCIAL CONSTRUCTION AND ENGINEERING**

The aim of this unit is to provide you with extensive theoretical knowledge to manage and supervise the construction of (1) low rise residential apartment buildings (2) commercial buildings i.e. shops, offices; and (3) industrial buildings. Focus on legislative requirements; on-site inspections; site management techniques; temporary works & construction plant requirements, labour; In-ground construction; External treatments (cladding); formwork; bracing and stability; services co-ordination; Landscaping; . Environmental, building defects,. disabled access; universal design; load-bearing masonry; services co-ordination; internal fit-out; tilt panel construction; portal/steel frames.

**Prerequisites:** UDB110    **Equivalents:** CNB107    **Credit points:** 12    **Contact hours:** 5 per week    **Campus:** Gardens Point    **Teaching period:** 2011 SEM-1

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**UDB211 INTRODUCTORY STRUCTURAL ENGINEERING**

Structural engineering analysis examining structural principles, structural action, load paths and equilibrium. Structural characteristics are examined through first principles including tension, compression, bending and shear forces. Quantitative, qualitative techniques and approximate methods are used as well as the use of computer software in structural analysis.

**Prerequisites:** UDB111 (can be enrolled in the same teaching period)    **Equivalents:** CNB108    **Credit points:** 12    **Contact hours:** 4 per week    **Campus:** Gardens Point    **Teaching period:** 2011 SEM-1

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**UDB212 MEASUREMENT 2**

Measurement is a core skill among building professionals. This skill is particularly important in relation to the production of quantified documents for the purposes of tendering and estimating. This unit covers the following: measurement of various work sections (concrete, formwork, reinforcement, groundworks, underpinning, tanking, structural steelwork, exterior elements, and bored piers); and the development and application of builders' quantities.

**Prerequisites:** UDB113    **Equivalents:** CNB204    **Credit points:** 12    **Contact hours:** 5 per week    **Campus:** Gardens Point    **Teaching period:** 2011 SEM-1

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**UDB213 CONSTRUCTION ESTIMATING**

Estimating techniques to quantify cost; Fundamental elements of cost and methods of evaluating labour, materials and equipment to realistic levels of accuracy; Unit rate approach to assessing the base estimate for major trades; Assessment of offers from sub-contractors and implications for tendering with respect to risk, quality and ethical responsibilities; Functional estimating and the significance of method, time and assembly of information to estimating; Review of an estimate, determination of profit; letters of offer; Subsequent negotiations prior to award of a contract; application of estimating to variations and profit monitoring; Linking best value procurement assessment to outcome performance indicators (including tender evaluation criteria).

**Prerequisites:** UDB110,UDB113    **Equivalents:** CNB305    **Credit points:** 12    **Campus:** Gardens Point    **Teaching period:** 2011 SEM-1

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**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

UDB215 BUILDING SERVICES ENGINEERING
Fire Services: Fire detection, suppression and extinguishment; statutory requirements for maintenance of essential active fire services; Hydraulics Services: Building hydraulic services including water supply, fire protection and sanitary waste disposal systems. Mechanical Services: Air movement; Types of ventilation; Air-conditioning systems and heating; Installation procedures and the issue of confined spaces; Basis of design and effect of architectural style; Electrical Services: Transformers, sub-stations, switchboards, protection devices, lighting systems, stand-by generators, security systems; systems monitoring and energy management; vertical transportation systems. Energy Efficient Services: Examination of energy efficient design on services.

Equivalents: CNB203  Credit points: 12  Contact hours: 5 per week  Campus: Gardens Point  Teaching period: 2011 SEM-2

UDB301 RESEARCH METHODS
Research Methods will introduce students to the range of methods and techniques that may be utilised in examining questions related to professional practice. A comprehensive overview of research methods will be provided in order that students are able to contribute to research as a part of their professional practice, and to enable them to critically analyse research findings and publications.

Equivalents: CNB395  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

UDB302 DEVELOPMENT PROCESS
This unit brings together concepts gained on strategic evaluation, risk, time management, organisational behaviour, planning, construction and development feasibility analysis. It places this knowledge in a total project context and provides you with an understanding of the processes involved in property development from conception to completion and beyond.

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

UDB310 HIGHRISE CONSTRUCTION AND ENGINEERING
Students learn how to construct a high rise structure from the basement to the roof. Focus on protection to the public during construction, temporary support; demolition; temporary services; deep excavation and foundations; retention and shoring systems; structural components; multilevel formwork; interaction of building components, systems and services; common building faults and failures and rectification; alternative forms of external cladding; waterproofing problems.

Prerequisites: UDB210  Equivalents: CNB201  Credit points: 12  Contact hours: 5 per week  Campus: Gardens Point  Teaching period: 2011 SEM-2

UDB311 STRUCTURAL ENGINEERING DESIGN
Study and analysis of engineering components and systems, to develop a sound understanding of how a building achieves structural stability and equilibrium through its load paths. Content includes: Basic structural member design for tension, compression, bending and shear loads through detailed examination through the use of relevant Australian Standards as the basis for examination. Emphasis is on approximate or “first order of magnitude” techniques suitable for estimating or checking purposes. Structural systems analysis; including trusses and retaining walls with a mix of qualitative and quantitative techniques. Construction stability is examined in detail including cranes, shoring, scaffolding, and slings.

Prerequisites: UDB111 and UDB211  Equivalents: CNB202  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

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

UDB313 PROGRAMMING AND SCHEDULING
This unit covers the following: Project time and resource planning techniques such as bar charts, critical path networks (precedence, time scales, and activity on arrows); Line of balance; Resource allocation and levelling; Schedule updates and progress control; Delays and claims analysis. Applications of computer-based project planning software will form an important part of the study in this unit.

Equivalents: CNB335  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

UDB314 STATUTORY CONSTRUCTION LAW
Commercial Law. Sale of goods; Hire purchase; Trade practices; Negotiable instruments; Insurance law; Partnership law and company law; Bankruptcy and liquidation; Arbitration (the agreement, appointment of an arbitrator; Conduct of an arbitrator; Powers and duties; Enforcement of an award, costs; Alternative dispute resolution. Building Law: Study of the Building Code of Australia and Building Regulations, which control the design, construction of building works; emphasis on all
building law; a study of the Acts Interpretation Act, Town Planning Acts; etc.

**Prerequisites:** UDB110, UDB210, UDB310, and UDB215

**Equivalents:** CNB309  
**Credit points:** 12  
**Contact hours:** 5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**UDB316 COST PLANNING AND CONTROL**

Interrelationship between construction industry and economy; Fundamental principles of cost management (design and construction cost planning and cost control); Nature and purpose of cost planning and cost control systems; Contract costing (historical accounting) and anticipatory (forecast final cost / value); Design economics, cost and value concepts, cost information systems, cost modelling, cost analyses, cost indices, cost data, cost implications of design variables; Life cycle costing and modelling including design knowledge in virtual environments; Value management, including energy efficiency in buildings, and value alignment process for project delivery; Asset management and building maintenance; Risk management in cost planning and cost control.

**Equivalents:** CNB307  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**UDB410 CONSTRUCTION MANAGEMENT**

UDB410 is a capstone construction management unit bringing together all the skills you have learnt so far in your UD40 construction management course. Construction Managers require a strategic focus on site management, business and corporate responsibilities to manage time, cost, quality and safety on a construction project. UDB410 Construction Management is the last of a series of construction units UDB110, UDB210, UDB310 and consolidates skills students have learned throughout their degree to advance to a work-ready construction manager.

**Equivalents:** CNB336  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**UDB420 PROJECT ADMINISTRATION**

This unit provides an introduction into project administration in the building construction industry. It will prepare you for the administrative and contractual interactions that occur between the Contractors and Sub-contractors during a project.

**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2