Engineering

**Year offered:** 2011  
**Admissions:** Yes

null

If your course rules allow, you may be able to choose to study a minor from another area of the University. Minors are sets of related units in a particular study area.

The introductory units in each minor have no prerequisites. Later units may have earlier units as prerequisites. Depending on class timetabling it may not be possible to complete all units in a University Wide Minor. Consult with your course coordinator and relevant discipline coordinators prior to undertaking interfaculty studies.

The units you complete in a University Wide Minor will appear on your academic transcript but the successful completion of a minor will only be shown if it exists as an option in your course.

Introduction to Civil Engineering Studies

- **MAB126** Mathematics for Engineering 1
- **ENB110** Engineering Statics and Materials
- **ENB270** Engineering Mechanics of Materials
  
  OR
  
  **ENB212** Strength of Materials
  
  Choose one of:
  
  - **ENB272** Geotechnical Engineering 1
  - **ENB276** Structural Engineering 1
  - **ENB280** Hydraulic Engineering

Introduction to Electrical Engineering Studies

- **MAB126** Mathematics for Engineering 1
- **ENB120** Electrical Energy and Measurements
- **ENB250** Electrical Circuits
  
  Choose one of:
  
  - **ENB240** Introduction To Electronics
  - **ENB246** Engineering Problem Solving

Introduction to Mechanical Engineering Studies

- **MAB126** Mathematics for Engineering 1
- **ENB110** Engineering Statics and Materials
- **ENB270** Engineering Mechanics of Materials

OR

- **ENB212** Strength of Materials
  
  Choose one of:
  
  - **ENB221** Fluid Mechanics
  - **ENB222** Thermodynamics 1
  - **ENB231** Materials and Manufacturing 1

Civil Engineering Studies unit set (for continuing students only)

**[Minor discontinued July 2010]**

- 4 from the following including a minimum of 3 ENB units.
  
  - **MAB180** Engineering Mathematics 1B
  - **ENB101** Engineering Mechanics 1
  - **ENB102** Engineering Mechanics 2
  - **ENB271** Design of Structural Timber and Earthworks
  - **ENB272** Geotechnical Engineering 1
  - **ENB276** Structural Engineering 1
  - **ENB371** Geotechnical Engineering 2
  - **ENB273** Civil Materials

Control Engineering Studies unit set (for continuing students only)

**[Minor discontinued December 2009]**

- 4 from the following including a minimum of 3 ENB units.
  
  - **MAB180** Engineering Mathematics 1B
  - **MAB182** Engineering Mathematics 2B
  - **ENB103** Electrical Engineering
  - **ENB301** Instrumentation and Control
  - **ENB240** Introduction To Electronics
  - **ENB243** Linear Circuits and Systems

Construction Engineering Studies unit set (for continuing students only)

**[Minor discontinued July 2010]**

- 4 from the following including a minimum of 2 ENB units.
  
  - **MAB180** Engineering Mathematics 1B
  - **UDB110** Residential Construction and Engineering
  - **ENB101** Engineering Mechanics 1
ENB102 Engineering Mechanics 2
ENB273 Civil Materials
UDB214 Professional Studies 2
UDB312 Contract Administration
UDB313 Programming and Scheduling
ENB275 Project Engineering 1
ENB277 Construction Engineering Law
ENB381 Civil Engineering Construction

Electronic Circuit Engineering Studies unit set (for continuing students only)

[Minor discontinued December 2009]
4 from the following including a minimum of 3 ENB units.

MAB180 Engineering Mathematics 1B
MAB182 Engineering Mathematics 2B
ENB103 Electrical Engineering
ENB240 Introduction To Electronics
ENB242 Introduction To Telecommunications
ENB243 Linear Circuits and Systems

Digital Electronics Engineering Studies unit set (for continuing students only)

[Minor discontinued December 2009]
4 from the following including a minimum of 3 ENB units.

MAB180 Engineering Mathematics 1B
MAB182 Engineering Mathematics 2B
ENB103 Electrical Engineering
ENB240 Introduction To Electronics
ENB244 Microprocessors and Digital Systems
ENB245 Introduction To Design and Professional Practice

Environmental Engineering Studies unit set (for continuing students only)

[Minor discontinued December 2009]
4 from the following including a minimum of 3 ENB units or BEB units.

MAB180 Engineering Mathematics 1B
BEB200 Introducing Sustainability

Introduction to Engineering Studies unit set (for continuing students only)

[Minor discontinued December 2009]
4 from the following including a minimum of 3 ENB units.

ENB101 Engineering Mechanics 1
ENB103 Electrical Engineering
ENB104 Engineering Materials
ENB246 Engineering Problem Solving
MAB180 Engineering Mathematics 1B

Manufacturing and Materials Engineering Studies unit set (for continuing students only)

[Minor discontinued July 2010]
4 from the following including a minimum of 3 ENB units.

MAB180 Engineering Mathematics 1B
MAB182 Engineering Mathematics 2B
ENB101 Engineering Mechanics 1
ENB102 Engineering Mechanics 2
ENB104 Engineering Materials
ENB231 Materials and Manufacturing 1
ENB331 Materials and Manufacturing 2

Mechanical Engineering Studies unit set (for continuing students only)

[Minor discontinued December 2009]
4 from the following including a minimum of 3 ENB units.

MAB180 Engineering Mathematics 1B
MAB182 Engineering Mathematics 2B
ENB101 Engineering Mechanics 1
ENB102 Engineering Mechanics 2
ENB211 DYNAMICS

Prerequisite(s): MAB180 or MAB131
Credit points: 12
Contact hours: 4 per week
Campus: Gardens Point
Teaching period: 2009 SEM-2 and 2009 SUM

ENB103 ELECTRICAL ENGINEERING

Fundamental quantities in circuits and network laws, response to sinusoidal sources, and circuit measurements, real and reactive power calculation, power factor improvement, electric and magnetic fields, three-phase system and applications, transformer theory.

Prerequisites: MAB126 or MAB131 or MAB180
Equivalents: EEB213
Credit points: 12
Contact hours: 4 per week
Campus: Gardens Point
Teaching period: 2010 SEM-2

ENB104 ENGINEERING MATERIALS

Atomic Bonding; Crystal Structure; Elastic Deformation; Elasticity Case Study; Plastic Deformation; Defects; Alloying and Strengthening in Metals; Diffusion; Fracture. Fatigue and Creep; Phase and Phase Diagrams; Iron-Carbon Phase Diagram; Transformation of Phases; Introductory to Corrosion; Ceramics, Polymers and Composite Materials, Electronic Materials.

Equivalents: MMB131
Credit points: 12
Contact hours: 5 per week
Campus: Gardens Point
Teaching period: 2010 SEM-1

ENB110 ENGINEERING STATIC 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

ENB201 FLUID MECHANICS

Fluid properties, behaviour of stationary and moving fluids, hydrostatics and buoyancy; theory and application of the energy and momentum equations; pipe and open channel flow; dimensional analysis and pump performance characteristics.

Assumed knowledge: MAB126 or MAB180 or MAB131, and ENB101 or ENB110 are assumed knowledge.

Equivalents: CEB217
Credit points: 12
Contact hours: 4
Campus: Gardens Point
Teaching period: 2010 SEM-2

ENB211 DYNAMICS
Fundamental equations of particle kinetics; energy, power, impulse and momentum; kinematics of rigid bodies in plane motion, relative motion and motion relative to rotating axes; kinetics of rigid bodies, Basic machine components, (Gears, clutches, brakes etc.), Single degree of freedom system.

**Prerequisites:** (MAB126 or MAB180 or MAB131) and (ENB130 or PCB136 or PCB150) Assumed knowledge: ENB110 or ENB101 are assumed knowledge.

**Equivalents:** MMB112  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

**ENB212 STRENGTH OF MATERIALS**

This unit introduces the analysis of stress and strain in simple engineering components and systems such as uniaxial and bending stresses, deflection of beams, torsion, thin walled structures, combined loading, yield criteria, and introduces the finite element method (FEA).

**Prerequisites:** ENB110 or ENB101 and ENB104  Credit points: 12  Contact hours: 5 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

**ENB221 FLUID MECHANICS**

This unit introduces the basic concepts of fluid mechanics and applies them to some simple engineering problems.

**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

**ENB222 THERMODYNAMICS 1**

Thermodynamic behaviour of substances; theory and application of the 1st and 2nd laws of thermodynamics; thermodynamic cycles, including gas cycles, vapour power cycles and refrigeration cycles; gas-vapour mixtures and the principles of air-conditioning; fuels and combustion.

**Assumed knowledge:** MAB127 or MAB182 or MAB132, and ENB130 or PCB136 are assumed knowledge.  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2011 SEM-2

**ENB231 MATERIALS AND MANUFACTURING 1**

Materials and their engineering applications, Manufacturing systems and technology, material properties and manufacturing, material selection, failure, graphical communication.

**Assumed knowledge:** ENB104 or ENB110 is assumed knowledge.  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

**ENB240 INTRODUCTION TO ELECTRONICS**

Module Electronics A provides a basic understanding of the characteristics and operation of discrete semiconductor components. Electronic circuit design is introduced with emphasis on the small signal low and high frequency response of those circuits. Module Digital Electronics gives students a good grounding in the basic principles of digital design, with particular regard to the fundamentals of digital number systems, Boolean algebra, combinational and sequential logic design.

**Prerequisite(s):** ENB103  Credit points: 12  Contact hours: 5  Campus: Gardens Point  Teaching period: 2009 SEM-1

**ENB240 INTRODUCTION TO ELECTRONICS**

Electronic circuit design is introduced with synthesising analogue filters, signal conditioning.

**ENB243 LINEAR CIRCUITS AND SYSTEMS**

Network analysis; Laplace transform of signals and transfer functions of systems, time and frequency responses of linear circuits, feedback configurations and transfer functions, analyse and designing analogue systems using transistors and operational amplifiers, designing and synthesising analogue filters, signal conditioning.
Prerequisites: ENB120 and MAB126  
Assumed knowledge: ENB240 is assumed knowledge.  
Credit points: 12  
Contact hours: 4 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-2

ENB244 MICROPROCESSORS AND DIGITAL SYSTEMS
This unit covers the basis for electronic circuit design in general but also in connection with microprocessor systems, theory and design of advanced embedded digital systems and practical implementation. The practical application of these circuits including interfacing and environment factors will be considered.

Prerequisite(s): ENB240, ENB246  
Credit points: 12  
Contact hours: 4  
Campus: Gardens Point  
Teaching period: 2009 SEM-2

ENB245 INTRODUCTION TO DESIGN AND PROFESSIONAL PRACTICE
Introduction to general principles of electronic circuit and electrical equipment design and realisation; design and implementation of basic electronic circuits; experience in undertaking engineering projects, in report writing, and working in teams. The unit gives students the opportunity to apply their theoretical knowledge to real-life engineering problems.

Prerequisite(s): ENB240, ENB246 or ITB001  
Credit points: 12  
Contact hours: 4  
Campus: Gardens Point  
Teaching period: 2009 SEM-1 and 2009 SEM-2

ENB246 ENGINEERING PROBLEM SOLVING
This unit introduces students to the use of computers as tools for solving engineering problems. MATLAB is introduced as a numerical computing environment with the capacity to support complex mathematics and to be programmed to solve specific engineering problems. Stand alone application development using C++ is introduced as a means of exposing students to the high and low level computer programming concepts that are necessary to the implementation of engineering solutions in hardware specific programming environments.

Assumed knowledge: MAB126 or MAB180 or MAB131, and ENB103 or ENB120 is assumed knowledge.  
Credit points: 12  
Contact hours: 4 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1

ENB250 ELECTRICAL CIRCUITS
This unit introduces you to electrical circuit analysis. It shows how to determine the transient and steady state solution in single and three phase circuits as well as the interaction of fluxes and currents in transformers and electrical machines.

Prerequisites: ENB120  
Antirequisites: ENB103  
Credit points: 12  
Contact hours: 4 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1

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

ENB271 DESIGN OF STRUCTURAL TIMBER AND EARTHWORKS
In this unit, students develop and define a problem statement and are encouraged to develop their own creative solutions through the semester. This introduces students to aspects of project work and prepares them for their professional lives. Architectural and project issues include aesthetics, fitness for purpose, and constructability. Geotechnical issues include: site investigation, earthworks and compaction, and site investigation. Structural issues include: design, loads, load paths, load factors, strength factors, time dependent loads, structural capacity and stability, rules of thumb, structural timber, material selection, and basic surveying principles.

Prerequisites: ENB102 or ENB270 (can be enrolled in the same teaching period)  
Assumed knowledge: ENB101 or ENB110 are assumed knowledge.  
Equivalents: CEB207  
Credit points: 12  
Contact hours: 4 per week  
Campus: Gardens Point  
Teaching period: 2010 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

**ENB274 DESIGN OF ENVIRONMENTALLY SUSTAINABLE SYSTEMS**

This unit extends and applies the knowledge developed in BEB200 Introducing Sustainability to important issues such as site investigation, development of site planning criteria, site planning, environmental management and quality, pollution prevention and control, and resources and waste management. BEB200 and ENB274 form the foundations of the civil and environmental degree. This unit builds upon generic competencies acquired in BEB100 Introducing Professional Learning and ENB271 Design of Structural Timber and Earthworks. It also provides transport planning fundamentals, which will be built upon in ENB372 Design and Planning of Highways and ENB379 Transport Engineering and Planning Applications.

**Prerequisites:** BEB200 or ENB200 or ENB100 or UDB100 or SCB110  **Assumed knowledge:** ENB271 is assumed knowledge.  **Equivalents:** CEB214  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

**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**

A study of the Workplace Health and Safety Act 1989/1990, the regulations applying and Codes of Practice. The application of this legislation to a Site Safety Management Plan. Basic understanding of negligence, duty of care, nuisance, fraud and conversion. Contract Law including elements of contract, content of a valid contract, collateral, contract misrepresentation, implied terms; formal requirements and part performance; contract documents and their interpretations; substantial performance and quantum meruit.

**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-1

**ENB301 INSTRUMENTATION AND CONTROL**

The unit introduces the student to classical control systems, analysis and synthesis, and implementation in an industrial control context. It introduces the principles of electrical measurements and instrumentation, sensors, PLC, DSC and industrial networks, and foundation of feedback control theory for engineers.

**Prerequisites:** MAB126 or MAB182 or MAB132  **Assumed knowledge:** ENB105 or ENB205 or ENB243 are assumed knowledge.  **Credit points:** 12  **Contact hours:** 5 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1

**ENB311 STRESS ANALYSIS**

Further analysis of stress and strain; torsion of prismatic sections and thin-walled sections; axisymmetric problems;
ENB312 DYNAMICS OF MACHINERY
Kinematic and dynamic analysis of planar linkages and mechanisms; multi-degree of freedom systems with steady and transient vibrations, Introduction to noise.
**Prerequisites:** ENB211  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

ENB331 MATERIALS AND MANUFACTURING 2
ENB331 is a third year unit which extends the formative body of knowledge gained in ENB231 and introduces the shear deformation mechanisms of engineering material and how these properties can be used to understand the mechanics of metal cutting. Descriptive and analytical information about different material removal processes is provided to the student through lectures, tutorials and case studies. The unit also provides the student with an excellent opportunity to apply the knowledge in the design and manufacture of a component.
**Prerequisites:** ENB231  
**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:** ENB272  
**Equivalents:** CEB322  
**Credit points:** 12  
**Contact hours:** 5 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

ENB308 ENVIRONMENTAL LAWS AND REGULATIONS
The adverse consequences of human activity have resulted in the adoption of various international treaties, enactment of stringent legislative requirements, and a growing demand for improved management practices. Engineers need to be aware of the way in which the law works, to be able to communicate with lawyers, and to recognise the legal and political implications of their projects. An understanding of the local, state, and federal governments' power to regulate development and the legal and planning requirements and assessment procedures is essential for professional engineering practice.
**Prerequisites:** ENB383  
**Assumed knowledge:** BEB200 or ENB200 are assumed knowledge.  
**Equivalents:** CEB416  
**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

ENB383 ENVIRONMENTAL RESOURCE MANAGEMENT
This unit addresses management of solids and hazardous
wastes generated from domestic, commercial, and industrial
sources. It includes the following: waste minimisation;
promotion of efficient use of resources; promotion the use of
waste through recycling and energy production; viewing
waste as a resource; reducing the mass, volume and
toxicity of the waste; disposing of waste in a socially and
environmentally acceptable manner; waste avoidance;
recycling; energy production; treatment; disposal. Waste
management is an important aspect of civil and
environmental engineering education.
Assumed knowledge: ENB274 or ENB200 or BEB200 is
assumed knowledge Equivalents: CEB418 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2011 SEM-1

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

MAB180 ENGINEERING MATHEMATICS 1B
This unit includes: sine and cosine functions; logarithmic
functions; exponential functions; complex numbers;
determinants; vector algebra in 2 and 3 dimensions;
derivatives and their applications (differentiation, chain rule,
higher derivatives); integrals and their applications. Students must have completed four semesters of Senior
Mathematics B with an exit level of Sound Achievement, or
have passed MAB105 (or equivalent). Incompatible with
MAB131. Students with an exit level of High Achievement or
better in Senior Mathematics C are advised to take
MAB131.
Prerequisite(s): At least SA in Senior Mathematics B (four
semesters) or equivalent or MAB105 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2009 SEM-1 and 2009 SEM-2 Incompatible with: MAB131, HA in Senior Mathematics C

MAB182 ENGINEERING MATHEMATICS 2B
Vector calculus: differentiation of vectors, velocity and
acceleration. Functions of several variables: domain, range
and graphs, partial derivatives. Hyperbolic functions: inverse
functions, inverse trigonometric and hyperbolic functions,
Taylor expansions. Differential equations: solving certain
first and second order ODE's, Laplace transform methods,
Fourier series. Multiple integrals: areas and volumes. Incompatible with MAB132.
Prerequisite(s): MAB180 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2009 SEM-1, 2009 SEM-2 and 2009 SUM Incompatible with: MAB112, MAB132

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

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

### 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