Bachelor of Engineering (Electrical) (EN40)

Year offered: 2010
Admissions: Yes
CRICOS code: 056529D
Course duration (full-time): 4 years
Domestic fees (indicative): 2010: CSP $3,800 (indicative) per semester
International Fees (indicative): 2010: $12,000 (indicative) per semester
Domestic Entry: February and July
International Entry: February and July
QTAC code: 412502
Past rank cut-off: 79
Past OP cut-off: 11
OP Guarantee: Yes
Assumed knowledge: English (4, SA) and Maths B (4, SA)
Preparatory studies: For information on acquiring assumed knowledge visit http://www.studentservices.qut.edu.au/apply/ug/info/knowledge.jsp
Total credit points: 384
Standard credit points per full-time semester: 48
Course coordinator: Dr R.Mahalinga-Iyer
Discipline coordinator: Dr Bouchra Senadji
Campus: Gardens Point

Why choose this course?
Electrical Engineering at QUT is widely reputed and its strong industry links ensure you will be work ready upon graduation.

Career outcomes
The range of employment opportunities is diverse and extensive. The average starting salary for graduates is approx $47,000.

Practical teaching
You will be exposed to challenging hands-on practical experience through laboratories and design projects, enabling you to making an immediate contribution to the industry. You will have the opportunity to work on projects such as electrical vehicles, remotely controlled telescopes, home automation.

Industry links
You will be exposed to the ideas and experiences of industry professionals. The School's 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 laboratories and on projects which will enhance your knowledge and develop your problem solving skills.

Facilities / technology
You will have first-hand experience of the latest technologies used in the industry. Experiental and practical learning opportunities are provided through specially designed learning environments that integrate virtual and web based material with physical equipment to ensure that you have 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 Electrical Engineering:
- Working with your hands
- Making things work
- Working with technical equipment.

Recommended Study
Chemistry, Maths C and Physics.

Career outcomes
Electrical engineers design, install and maintain electrical, electronic, telecommunications and computing systems. They may specialise as electrical power engineers, electrical design engineers, communications or computer engineers. Graduates find employment with electricity boards, government and semi-government departments, large manufacturing and engineering companies.

Overview
This degree offers a balanced mix of theory and practice with the objective of preparing graduates for the work environment. Students will receive a thorough grounding in the engineering sciences and hands-on, practical experience in real world problem solving and application of theory to suit industry needs.

Professional recognition
Full professional accreditation from Engineers Australia has been given for this course.

Second Major 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.

Please refer to the rules at the following location before making your selection:

**ELECTRICAL ENGINEERING Second Major and Minor Options**

<table>
<thead>
<tr>
<th>Second Major:</th>
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<tbody>
<tr>
<td>Control and Manufacturing Engineering</td>
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<tr>
<td>Power Engineering</td>
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<td>Signal Processing</td>
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<tr>
<th>Minors:</th>
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<tr>
<td>BEE Applications Minor</td>
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<td>plus</td>
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A minor from anywhere in QUT that is outside of the course.

**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).

**Special Course Requirements**

To graduate, students must complete at least 60 days industrial experience in an engineering environment as part of the Work Integrated Learning unit.

**Further Information**

School of Engineering Systems - Phone +61 7 3138 1993, Fax +61 7 3138 1516, email: bee.enquiries@qut.com

**Deferment**

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

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

<table>
<thead>
<tr>
<th>Year 2 - Semester 1 (to be introduced in 2011)</th>
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<tbody>
<tr>
<td>ENB240</td>
<td>Introduction To Electronics</td>
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<tr>
<td>ENB246</td>
<td>Engineering Problem Solving</td>
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<tr>
<td>ENB250</td>
<td>Electrical Circuits</td>
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<tr>
<td>MAB127</td>
<td>Mathematics for Engineering 2</td>
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<td>OR</td>
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<tr>
<td>MAB233</td>
<td>Engineering Mathematics 3</td>
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<tr>
<th>Year 2 - Semester 2 (to be introduced in 2011)</th>
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<tbody>
<tr>
<td>ENB242</td>
<td>Introduction To Telecommunications</td>
</tr>
<tr>
<td>ENB243</td>
<td>Linear Circuits and Systems</td>
</tr>
<tr>
<td>ENB244</td>
<td>Microprocessors and Digital Systems</td>
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<tr>
<td>ENB245</td>
<td>Introduction To Design and Professional Practice</td>
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<tr>
<th>Year 3 - Semester 1 (to be introduced in 2012)</th>
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<tbody>
<tr>
<td>ENB241</td>
<td>Software Systems Design</td>
</tr>
<tr>
<td>ENB301</td>
<td>Instrumentation and Control</td>
</tr>
<tr>
<td>ENB340</td>
<td>Power Systems and Machines</td>
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<tr>
<td>ENB342</td>
<td>Signals, Systems and Transforms</td>
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<tr>
<th>Year 3 - Semester 2 (to be introduced in 2012)</th>
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<tbody>
<tr>
<td>ENB343</td>
<td>Fields, Transmission and Propagation</td>
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<tr>
<td>ENB344</td>
<td>Industrial Electronics</td>
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<tr>
<td>ENB345</td>
<td>Advanced Design and Professional Practice</td>
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<tr>
<td>MAB233</td>
<td>Engineering Mathematics 3</td>
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<td>OR</td>
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<tr>
<td>Selective</td>
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**Please note:**

Students wishing to undertake CEED based Industry Project should consult the Subject Area Coordinator to provide a program for the final year. CEED program requires that you undertake units BEB701, BEB801 and BEB802 together in either Semester 1 or 2.

<table>
<thead>
<tr>
<th>Year 4 - Semester 1 (to be introduced in 2013)</th>
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<tbody>
<tr>
<td>BEB801</td>
<td>Project 1</td>
</tr>
<tr>
<td>ENB346</td>
<td>Digital Communications</td>
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<tr>
<td>Second Major/Minor unit</td>
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<td>Second Major/Minor unit</td>
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<tr>
<th>Year 4 - Semester 2 (to be introduced in 2013)</th>
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<tbody>
<tr>
<td>BEB701</td>
<td>Work Integrated Learning 1</td>
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<tr>
<td>BEB802</td>
<td>Project 2</td>
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**For 1st year enrolment program please refer to EN40 Bachelor of Engineering course entry.**
Second Major/Minor unit
Second Major/Minor unit

Electrical Engineering Selectives
- ENB448 Signal Processing and Filtering
- ENB452 Advanced Power Systems Analysis
- ENB453 Power Equipment and Utilisation
- ENB456 Energy
- ENB457 Controls, Systems and Applications
- ENB458 Modern Control Systems

Full-time Course structure – Students commencing Mid-Year 2010 onwards (Years 2 – 5)

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

Students who enter the course with Sound Achievement in Maths B and C, must complete MAB126, MAB127, MAB233 and a Selective. Students who enter the course with Sound Achievement in Maths B only, must complete MAB125, MAB126, MAB127 and MAB233.

Students must undertake MAB127, MAB233 or their selective in sequence, but can change the semester of enrolment to suit their load. MAB233 must be completed by Year 4.

Year 2 - Semester 1 (to be introduced in 2011)
- ENB240 Introduction To Electronics
- ENB246 Engineering Problem Solving
- ENB250 Electrical Circuits
- MAB127 Mathematics for Engineering 2
  OR
- MAB233 Engineering Mathematics 3

Year 2 - Semester 2 (to be introduced in 2011)
- ENB150 Introducing Engineering Design
- ENB200 Introducing Sustainability
- ENB242 Introduction To Telecommunications
- ENB243 Linear Circuits and Systems

Year 3 - Semester 1 (to be introduced in 2012)
- ENB340 Power Systems and Machines
- ENB342 Signals, Systems and Transforms
- MAB233 Engineering Mathematics 3

Year 3 - Semester 2 (to be introduced in 2012)
- ENB244 Microprocessors and Digital Systems
- ENB245 Introduction To Design and Professional Practice
- ENB343 Fields, Transmission and Propagation
  Second Major/Minor unit

Please note:
Students wishing to undertake CEED based Industry Project should consult the Subject Area Coordinator to provide a program for the final year. CEED program requires that you undertake units BEB701, BEB801 and BEB802 together in either Semester 1 or 2.

Year 4 - Semester 1 (to be introduced in 2013)
- ENB241 Software Systems Design
- ENB301 Instrumentation and Control
- ENB346 Digital Communications

Year 4 - Semester 2 (to be introduced in 2013)
- BEB801 Project 1
- ENB344 Industrial Electronics
- ENB345 Advanced Design and Professional Practice
  Second Major/Minor unit

Year 5 - Semester 1 (to be introduced in 2014)
- BEB701 Work Integrated Learning 1
- BEB802 Project 2
  Second Major/Minor unit
  Second Major/Minor unit

Electrical Engineering Selectives
- ENB448 Signal Processing and Filtering
- ENB452 Advanced Power Systems Analysis
- ENB453 Power Equipment and Utilisation
- ENB456 Energy
- ENB457 Controls, Systems and Applications
- ENB458 Modern Control Systems

Potential Careers:
Electrical and Computer Engineer, Electrical Engineer, Engineer.
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).
Prerequisites: 192cp of completed studies Credit points: 12 Campus: Gardens Point Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 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: 2010 SEM-1 and 2010 SEM-2

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 Credit points: 12 Contact hours: 2 Campus: Gardens Point Teaching period: 2010 SEM-1 and 2010 SEM-2

ENB200 INTRODUCING SUSTAINABILITY
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

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.
Equivalents: EEB312 Credit points: 12 Contact hours: 5 per week Campus: Gardens Point Teaching period: 2010 SEM-2

ENB241 SOFTWARE SYSTEMS DESIGN
This unit introduces students to Software Engineering by considering a whole Software Lifecycle. Each step of the lifecycle is treated in detail, such as concept phase, requirement definition, software design, human-computer interaction, implementation, audits, and maintenance. Software design principles and techniques are presented as well as real-time system design. CASE development tools are briefly introduced as well as object oriented programming for which a structured Object Oriented Analysis and Design are considered.
Prerequisites: ENB246 or INB104 Equivalents: EEB612 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-2

ENB242 INTRODUCTION TO TELECOMMUNICATIONS
Telecommunications systems and the principles underlying their operations are introduced starting from mathematical preliminaries such as the Fourier series and the Fourier transform. Analogue modulation techniques (AM and FM), systems and circuits for generation and demodulation, analogue to digital conversion, pulse modulation and baseband digital data communication techniques are studied using time and frequency domain analyses.
Prerequisites: (ENB120 or ENB103) and (MAB126 or MAB110 or MAB111) Equivalents: EEB340 Credit points: 12 Contact hours: 3 per week Campus:
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: 2010 SEM-1

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.
Prerequisites: ENB240 Assumed knowledge: ENB246 or INB104 is assumed knowledge. Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 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.
Assumed knowledge: ENB240 and ENB246 or INB104 is assumed knowledge. Equivalents: EEB584 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 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: 2010 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

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: 2010 SEM-1

ENB340 POWER SYSTEMS AND MACHINES
This is a core unit that develops the basic topics essential for an electrical engineer working in areas that include the resources sector, the process industries, electrical power utilisation, electric power generators as well the electricity supply industry. Topics covered in machines include magnetic circuits, single phase and three phase transformers; electric machines including electromechanical energy conversion, reluctance motors, induction motors, synchronous machines, D.C. machines, stepper motors, P.C. motors; motor control; heating, cooling and rating. Power system topics include power generation and energy sources, electricity market operation, fault calculations, basic protection and power system operation, in particular real and reactive power control.
Prerequisites: ENB103 or ENB250 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

ENB342 SIGNALS, SYSTEMS AND TRANSFORMS
The unit covers the area of Signals in Linear Systems for which a detailed study of Fourier theory applied to both analogue and discrete-time signals and to the analysis of linear systems will be given. Systems will be represented in time as well as in frequency and various characteristics and relationships in the two domains will be discussed. The students will be introduced to the fundamentals of analogue and discrete-time signal processing; analogue and discrete Fourier transform; linear and discrete convolution. Finally, the students will learn the fundamentals of digital filter design and implementation, with examples and applications
An overview of the different energy sources will be covered to increase pollution levels in the atmosphere and the increasing energy demand, dwindling oil and gas supplies, energies are becoming more important than ever due to revolutionary developments in the field of digital communication systems and technology. 

**ENB343 FIELDS, TRANSMISSION AND PROPAGATION**
Fundamental concepts of static and time varying electromagnetic fields; Maxwell's equations and the characteristics of their solution, such as wave equations, losses in various media and energy flow; numerical methods; transmission line theory, terminated line, Smith Circle Chart usage and lattice diagram; propagation modes in waveguides and optical fibre; free-space propagation, reflection, refraction, diffraction; basic antenna theories and antenna parameters, Frii's transmission equation, half-wave dipole, two-element array.

**Prerequisites:** ENB103 or ENB250  
**Assumed knowledge:** MAB127 or MAB182 or MAB132 is assumed knowledge.  
**Equivalents:** EEB641  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

**ENB344 INDUSTRIAL ELECTRONICS**
The unit gives a basic understanding of linear and switching applications in industrial electronics. Practical knowledge associated with interfacing and design is developed. Students will also study the theory and design of advanced digital embedded systems as well as the practicalities associated with implementation. It also covers power rectification, controlled rectification, inverters, AC and DC drives, uninterruptible power supplies and power switching components.

**Prerequisites:** ENB240  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**ENB345 ADVANCED DESIGN AND PROFESSIONAL PRACTICE**
Detailed design and realisation of typical electronic subsystems used in all areas of electrical and electronic systems engineering. The unit enhances the student's ability in solving complex engineering problems. The design builds on the theoretical knowledge gained in other units. The student is required to write a detailed technical report and also give an oral presentation on her/his design.

**Prerequisites:** ENB245  
**Equivalents:** EEB684  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**ENB346 DIGITAL COMMUNICATIONS**
Revolutionary developments in the field of Digital Communication Technology have enabled improvement in the characteristics of communication systems in order to meet the performance requirements for transmission of information for private, business and industrial applications. This unit which covers Elements of a Digital Communication System aims at providing the students with an in-depth understanding of the theory and applications of digital communication systems and technology.

**Prerequisites:** ENB342  
**Assumed knowledge:** MAB233 is assumed knowledge.  
**Equivalents:** EEB560  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**ENB448 SIGNAL PROCESSING AND FILTERING**
This unit gives a comprehensive introduction to the representation and processing of signals distorted or corrupted by noise, and the systems needed to process them. Techniques for estimating signal parameters for the detection of signals in the presence of noise will be discussed. The methods presented will be tested on real data drawn from different engineering applications, such as wireless communications, biomedical EEG signals and brain models, speech and music synthesis, and radars.

**Prerequisites:** ENB342  
**Assumed knowledge:** MAB233 is assumed knowledge.  
**Equivalents:** EEB941  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**ENB452 ADVANCED POWER SYSTEMS ANALYSIS**
The aim of this unit is to introduce you to the basic topics of power system analysis relevant to engineers involved in both operations and planning. Specific tasks will be evaluation of faults on lines, load flow and stability analyses using commercial packages.

**Prerequisites:** ENB340  
**Assumed knowledge:** ENB301 is assumed knowledge.  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**ENB453 POWER EQUIPMENT AND UTILISATION**
The unit emphasises the use of relevant standards to the specification and design of electrical equipment for the use of electrical energy supply for buildings and lighting. Design approaches emphasise current engineering practise.

**Prerequisites:** ENB340  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**ENB456 ENERGY**
Renewable energy sources including solar and wind energies are becoming more important than ever due to increasing energy demand, dwindling oil and gas supplies, increasing pollution levels in the atmosphere and the associated global warming effects. Renewables may also help improve competitiveness and have a positive impact on regional development and employment.

An overview of the different energy sources will be covered.
followed by an understanding of the characteristics of solar energy, radiation calculation, measurements and applications in remote, hybrid and grid interactive configurations. Students will be equipped with fundamentals of alternative energy sources including solar thermal, photovoltaics and wind conversion technologies. **Assumed knowledge:** MAB126 or MAB180 or MAB131 are assumed knowledge. **Equivalents:** EEB911 **Credit points:** 12 **Contact hours:** 3 per week **Campus:** Gardens Point **Teaching period:** 2010 SEM-2

**ENB457 CONTROLS, SYSTEMS AND APPLICATIONS**

Control systems are playing an increasingly important role in process control, energy management and utility management. This unit is concerned with the application of advanced control systems with an emphasis on physical architectures and implementations. Topics covered include control system actuators, sensors and controllers, control system architectures, human machine interfacing, adaptive control strategies and intelligent control. **Prerequisites:** ENB301 **Credit points:** 12 **Contact hours:** 4 per week **Campus:** Gardens Point **Teaching period:** 2010 SEM-2

**ENB458 MODERN CONTROL SYSTEMS**

This unit introduces the student to the following concepts: Discrete time control systems and their design, state space modelling and control system design using state space techniques, linear optimal control, non-linear systems, and adaptive control with applications of neuro-computing and fuzzy logic. **Prerequisites:** ENB301 **Credit points:** 12 **Contact hours:** 4 per week **Campus:** Gardens Point **Teaching period:** 2010 SEM-2

**MAB127 MATHEMATICS FOR ENGINEERING 2**

This unit extends the areas of function, calculus, matrices and vectors introduced in MAB125 by introducing functions of more than one variable, partial derivatives and multiple integrals, vector valued functions, and matrix methods for the solution of systems of ordinary differential equations. Each of these topics is realised by contextualised engineering related 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:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

**MAB233 ENGINEERING MATHEMATICS 3**

This unit is mostly introductory statistics for engineering but also includes a small component on foundations of computational mathematics. Statistics includes: the planning, execution, analysis and reporting of data investigations; use of a statistical package; modelling data; relationships between variables; estimation; confidence intervals; tolerance limits; hypothesis testing; fitting and investigating relationships; regression; design and analysis of experiments; risk; random variables; special distributions; linear combinations of correlated variables; reliability. The introduction to computational mathematics includes: function approximation; polynomial interpolation; numerical solution of ordinary differential equations. **Prerequisites:** MAB131 or MAB182 or MAB121 or MAB126 or MAB127 **Antirequisites:** BSB123 **Credit points:** 12 **Contact hours:** 4 per week **Campus:** Gardens Point **Teaching period:** 2010 SEM-1