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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

UNIT SYNOPSES

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

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

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
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

### 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

### 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
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