

Module Specification

Module Summary Information

1	Module Title	Engineering Science 1
2	Module Credits	20
3	Module Level	3
4	Module Code	ENG3010

5	Module Overview
<p>The module aims to provide you with the knowledge and problem solving skills in physical science to enable you to progress to the next module in the science theme, Foundation Science II, and then on to the first year of an engineering degree.</p> <p>As the practical aspects of physical science are delivered in another theme of the foundation year, the Foundation Science modules concentrate on the theoretical aspects. The subject material will be delivered in two coherent streams, one of which contains predominantly mechanical science and the other predominantly electrical science.</p> <p>Each stream will be delivered as a 1 hour lecture followed by a 1 hour small group tutorial giving you 4 hours contact per week.</p> <p>This module will interact with modules in the other two themes in the Foundation Year in that it will rely on knowledge of mathematical techniques developed in the maths theme and will provide you with the theoretical underpinning essential for the experimental activities you will be undertaking in the practical theme.</p>	

6	Indicative Content
<p>Introduction to Electrics: Electrical SI Units, Bohr Atom, Electrons, Charge, Voltage, Current, Resistance, Ohm's Law, Inductors and Capacitors Sensing Devices, Electric Fields, Magnetic Fields Magnetic Induction Devices, Motors and Solenoids</p> <p>Introduction to Electric Circuitry: DC Circuits, Resistor Networks (Series and Parallel), Potential Difference and Electric Power, Kirchhoff's Laws and Potential Divider Circuits Introduction to Periodic AC Signals, AC Circuits, Phase and Magnitude Response for Simple Electronic Circuits</p> <p>Introduction to Mechanics: Mechanical SI Units, Velocity and Acceleration, Newton's Laws, Definition of Force, Equations of Linear Acceleration, Friction Normal Stress and Normal Strain, Shear Stress and Shear Strain</p> <p>Introduction to Materials: Materials Structure, Metals, Polymers, etc, Deformation of Materials, Tensile Testing, Ductile and Brittle Behaviour, Failure Mechanisms and Forming</p>	

7	Module Learning Outcomes	
	On successful completion of the module, students will be able to:	
	1	Describe and apply the principles of mechanical science to solve engineering problems.
	2	Describe and apply the principles of electrical science to solve engineering problems.

8	Module Assessment		
Learning Outcome			
	Coursework	Exam	In-Person
1-2	X	X	

9	Breakdown Learning and Teaching Activities	
Learning Activities	Hours	
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	72	
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE	0	
Private Study (PS) includes preparation for exams	128	
Total Study Hours:	200	