

Module Specification

Module Summary Information

1	Module Title	Engineering Science 2
2	Module Credits	20
3	Module Level	3
4	Module Code	ENG3013

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 first year of an engineering degree. The science theme contains the material normally encountered in an A level physics course which is relevant to entry to an engineering degree. 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.</p> <p>The subject material will be delivered in two coherent streams one of which contains predominantly mechanical science and the other contains predominantly electrical science. Each stream will be delivered as a 1 hour lecture followed by a 1 hour small group tutorial giving 4 hours contact.</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 theoretical underpinning for the experimental activities in the practical theme.</p>	

6	Indicative Content
<p>Introduction to Electrics and Electronics The Electromagnetic Spectrum, Diodes and Transistors, Simple Transistor Circuits, Operational Amplifiers, Numbering Systems, Digital Logic gates, 555 Timer, Combinational Logic, Digital to Analogue converters, Analogue to Digital converters, Analogue Modulation, AM and FM, Audio Filters, Digital Modulation, Error Control</p> <p>Introduction to Mechanics Equilibrium of Forces, Resolution of Forces, Moments, Work Energy Power, Energy Conservation</p> <p>Introduction to Geometric Properties Moments of Inertia, Centroid</p> <p>Introduction to Thermodynamics and Energy Thermal Energy, Heat Transfer, Specific Heat Capacity, Latent Heat</p> <p>Introduction to Dynamics Newton's Laws for circular motion, Simple Harmonic Motion</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	