

Module Specification

Module Summary Information

1	Module Title	Engineering Principles 2
2	Module Credits	20
3	Module Level	4
4	Module Code	ENG4094

5	Module Overview
<p>The module aims to provide the underpinning knowledge and problem solving skills in engineering science to enable you to progress to the second year of a wide range of engineering degrees. As the practical aspects of engineering science are delivered in another theme of the common first year, the Engineering Principles 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 contains predominantly electrical science.</p> <p>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 common first year in that it will rely on knowledge of mathematical techniques developed in the maths/professional skills theme and will provide theoretical underpinning for the experimental activities in the practical theme.</p>	

6	Indicative Content
<p>Introduction to Mechanics Pin Jointed Frames, Simple Torsion of Circular Sections, Shear Force and Bending Moment Diagrams, Bending Stresses.</p> <p>Introduction to Geometric Properties Geometric Properties of Sections, Second Moment of Inertia.</p> <p>Introduction to Digital Electronics Numbering Systems, Decimal, Binary, Octal, Hexadecimal, Digital Logic Gates, Boolean Expressions, Combinational Logic, Karnaugh Maps, Flip Flops, Latches, Adders, Subtractors, Sequential Logic Registers, Counters, Shift Registers, Operational Amplifiers, Semi-conductor Materials, Diodes, Rectification, Magnetic Fields, Transformers, Simple Power Supplies, Bipolar Junction Transistors, Classification of Amplifiers, Biasing of Transistor Amplifier Circuits.</p>	

7	Module Learning Outcomes	
	On successful completion of the module, students will be able to:	
	1	Demonstrate the principles of bending and torsion in components.
	2	Analyse pin jointed frames and geometric properties of sections.
	3	Analyse the behaviour of combinational and sequential logic gate circuits.
	4	Compute and describe the characteristics of semiconductor devices and systems.

8	Module Assessment		
Learning Outcome			
	Coursework	Exam	In-Person
1-4	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	48	
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	152	
Total Study Hours:	200	