MODULE DESCRIPTOR

Module Title

Statics and Dynamics

Reference	EN1700	Version	4
Created	January 2017	SCQF Level	SCQF 7
Approved	March 2004	SCQF Points	15
Amended	June 2017	ECTS Points	7.5

Aims of Module

To enable the student to understand the basic concepts and theories of applied mechanics.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Understand the concept of equilibrium and determine the actions of forces and moments; identify and explain tensile and compressive loading and the associated linear stress-strain relationship.
2	Analyse forces and moments on beams and pin-jointed structures.
3	Evaluate the kinematics of simple translation and rotational systems, kinetics of rigid bodies and apply the concepts of work, power and energy.
4	Define and calculate friction force, mass moment of inertia and the dynamics of simple systems.
5	Investigate the mechanical properties of materials using a tensile test.
6	Investigate the method of determining mass moment of inertia of complex material shapes.

Indicative Module Content

Statics: Forces, moments and equlibrium. Load analysis of plane, pinned frames (trusses). Shear forces and bending moments in beams. Simple tensile, compressive and linear-elastic material behaviour. Dynamics: Rectilinear and curved path motion of particles including non-constant acceleration case. Newton's Laws applied to rigid body kinetics of linear and circular motion systems including the effect of friction. Mass moment of Inertia. Impulse and momentum.

Module Delivery

The module is delivered by means of lectures, tutorials and guided self-study and is integrated with applications within the laboratory.

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Indicative Student Workload	Full Time	Part Time
Contact Hours	50	50
Non-Contact Hours	100	100
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	50%	Outcomes Assessed:	5, 6
Description:	Two laboratory based courseworks.				

Component 2

Type:	Examination	Weighting:	50%	Outcomes Assessed:	1, 2, 3, 4
Description:	In-class assessment (20% weighting) and a closed book examination (30% weighting).				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

To pass the module students must achieve at least a grade D AND a minimum of 35% in the exam and coursework components.

Module Grade	Minimum Requirements to achieve Module Grade:
A	=>70%
B	60-69%
C	50-59%
D	40-49%
E	35-39%
F	0-34%
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None in addition to the course entry requirements.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1	HEARN, E.J., 1997. Mechanics of Materials: Volume 1. 3rd ed. Oxford: Butterworth-Heinemann.
2	MERIAM, J.L. and KRAIGE, L.G., 2016. Engineering Mechanics (Statics and Dynamics). 8th ed. New York: Wiley.
3	CLIFFORD, M., 2009. Introduction to Mechanical Engineering Part 1. London: Hodder Education.