

MODULE DESCRIPTOR

Module Title

Statics and Dynamics

Reference	EN1700	Version	8
Created	March 2023	SCQF Level	SCQF 7
Approved	March 2004	SCQF Points	15
Amended	August 2023	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 Apply the concept of equilibrium of forces and moments, tensile and compressive loading, on materials and simple experimental systems.
- 2 Determine the forces on beams and pin-jointed structures.
- 3 Process the kinematics of simple translation and rotational systems, kinetics of rigid bodies involving the concepts of work, power and energy.
- 4 Obtain friction force and mass moment of inertia applied to the dynamics of simple experimental systems.

Indicative Module Content

Statics: Forces, moments and equilibrium. 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.

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
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

ASSESSMENT PLAN

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

Component 1

Type:	Examination	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	Closed book examination				

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

The assessment of this module comprises 100% on an Examination. To pass this module, a minimum D grade is required.

Module Grade	Minimum Requirements to achieve Module Grade:
A	A
B	B
C	C
D	D
E	E
F	F
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None.
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.