



Module Specification

Solid Mechanics

Version: 2023-24, v2.0, 03 May 2023

Contents

Module Specification	1
Part 1: Information	2
Part 2: Description	2
Part 3: Teaching and learning methods	3
Part 4: Assessment.....	4
Part 5: Contributes towards	5

Part 1: Information

Module title: Solid Mechanics

Module code: UFMFSP-30-1

Level: Level 4

For implementation from: 2023-24

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: This module covers fundamental physical concepts and mathematical models of static and dynamic systems. It will cover modelling of such systems in software packages.

Outline syllabus: Statics:

Static Equilibrium

Supports

Loads and Joint

Materials Stress and Strain

Beams

Torsion and Shafts

Pressure Vessels

Dynamics:

Fundamentals of Dynamics

Newton's Law of Motion

Diagrams

Energy, Momentum and Impulse

Rotational Energy, moments and torque

Springs

In this module students will be introduced to the following mathematical concepts:

Engineering Functions

Matrices and Algebra

Integration

Differential Equations

Laplace Transforms

Solving Differential Equations using computer software

Part 3: Teaching and learning methods

Teaching and learning methods: Learners will carry out a series of experimental tasks involving the interpretation and critical evaluation of data.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Conduct stress and dynamics analysis calculations.

MO2 Explain the theoretical principles of stress and dynamics.

MO3 Conduct computer-based stress and dynamics modelling.

MO4 Interpret and critically evaluate experimental data.

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/index.html) via the following link <https://uwe.rl.talis.com/index.html>

Part 4: Assessment

Assessment strategy: Oral Examination – This oral examination will assess the learners' ability to conduct and communicate technical principles and calculations in an effective way when confronted with a new problem.

Technical Report Portfolio – Learners will perform workshop based practicals and submit a portfolio of reports based on the mechanics principles involved.

The resit assessment tasks for this module will involve a rework and reflective evaluation of the work carried out in the original task.

Assessment tasks:

Examination (First Sit)

Description: Oral Examination (1 Hour)

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1

Portfolio (First Sit)

Description: Technical report portfolio

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

Examination (Resit)

Description: Oral Examination (1 Hour)

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

Portfolio (Resit)

Description: Technical report portfolio

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mechanical Engineering with Nuclear {Apprenticeship-UCS} [UCS] BEng (Hons)
2023-24

Mechanical Engineering with Nuclear {Apprenticeship-UCS} [UCS] BEng (Hons)
2023-24

Mechanical Engineering with Nuclear [UCS] BEng (Hons) 2023-24

Electromechanical Engineering (Nuclear) {Apprenticeship-UCS} [UCS] FdSc 2023-
24

Electromechanical Engineering (Nuclear) [UCS] FdSc 2023-24

Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS}
[UCS] BEng (Hons) 2023-24

Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS}
[UCS] BEng (Hons) 2023-24

Electrical, Electronic and Control Engineering with Nuclear [UCS] BEng (Hons)
2023-24