



Module Specification

Foundation Engineering

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Part 1: Information

Module title: Foundation Engineering

Module code: UBLMWM-15-0

Level: Level 3

For implementation from: 2025-26

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Architecture and Environment

Partner institutions: None

Field: Architecture and the Built Environment

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: This module is an introduction to mechanical engineering principles through applied mathematics.

Features: Not applicable

Educational aims: The aim of this module is to provide students with a foundational understanding of engineering principles and their application through the integration of design, mathematics, and data analysis. Students will develop key analytical skills,

practical problem-solving abilities, and an appreciation for the relationship between engineering and real-world applications, equipping them to effectively address challenges in mechanical products, structures, and materials.

Outline syllabus: The syllabus may change slightly from year to year to include all or some key subjects in response to the needs of the students and specific project assignments in this and other modules in the programme.

Introduction to Engineering

What is Engineering, and the relationship between designing and engineering. Case studies shall be explored such as mechanical products (e.g. bicycles, desk lamps, chairs etc.) and building materials and structures. Units: mass, weight volume and area, density, measurement, accuracy and precision.

Mathematics

Basic Algebra. Factorisation. Algebraic Fractions, Linear Equations. Rearranging Formulae. Arithmetic and Geometric Series. Graphical methods. Geometry.

Applied Mathematics

Areas, volumes, angles, forces, stress, strain, weight, mechanisms.

Data Analysis

Introduction to spreadsheets and basic data manipulation and analysis.

Part 3: Teaching and learning methods

Teaching and learning methods: Teaching Strategy for the Module

The subject is taught through a structured and diverse set of activities designed to

enhance student understanding and engagement. The strategy includes the following components:

1. **Introductory Lectures** - A comprehensive set of lectures provide a foundational overview of the subject, establishing key concepts and objectives. These sessions serve as a starting point for deeper exploration through subsequent activities.
2. **Interactive Tutorial** - Tutorials are designed to foster engagement by encouraging questions, discussions, and problem-solving. These sessions allow students to clarify concepts and apply their knowledge in a collaborative setting.
3. **Laboratory Experimentation** - Hands-on learning is facilitated through laboratory-based experiments, where students utilise specialised lab facilities to test and analyse the physical parameters of the subject. This practical approach reinforces theoretical knowledge and develops technical skills.
4. **Online Learning Resources** - A rich suite of online learning materials supports students in their independent study. These resources include multimedia content, readings, interactive tools, and self-assessment opportunities, enabling students to learn at their own pace and in the manner that suits their individual preferences.

This multi-faceted teaching strategy ensures a well-rounded learning experience, combining theoretical understanding, practical application, and independent exploration to meet diverse learning needs.

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

MO1 Perform numerical calculations to an appropriate level of accuracy to applied design problems associated with physics and mechanical principles.

MO2 Interpret an algebraic expression and select an appropriate method for changing the subject of the expression.

MO3 Demonstrate awareness of the fundamental physics and mechanical principles.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ublmwm-15-0.html) via the following link <https://uwe.rl.talis.com/modules/ublmwm-15-0.html>

Part 4: Assessment

Assessment strategy: Portfolio - consisting of a series of short weekly engineering tests comprising of calculations, prototypes and processes. These have been chosen to ensure students can demonstrate practical and theoretical understanding of how products work, solve simple engineering design problems, display cognitive skills with respect to simplifying real problems and apply mathematical methods of analysis.

Formative feedback offered to students on written assignment. Assessment designed to allow feed-forward, empowering students to improve their performance within the module.

Resit Portfolio - a similar brief to that described above except the full portfolio will be submitted by a deadline rather than weekly. Tests may include an adjusted topic choice.

Assessment tasks:

Portfolio (First Sit)

Description: Portfolio - weekly tests (1500 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Portfolio (Resit)

Description: Portfolio (1500 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Architectural Technology and Design {Foundation} [GCET] BSc (Hons) 2025-26

Architectural Technology and Design {Foundation} [Frenchay] BSc (Hons) 2025-26

Construction Project Management {Foundation} [Frenchay] - WITHDRAWN BSc (Hons) 2025-26

Building Surveying {Foundation} [Frenchay] - WITHDRAWN BSc (Hons) 2025-26

Quantity Surveying and Commercial Management {Foundation} [Frenchay] - WITHDRAWN BSc (Hons) 2025-26

Real Estate {Foundation} [Frenchay] - WITHDRAWN BSc (Hons) 2025-26

Architecture and Planning {Foundation} [Frenchay] - WITHDRAWN BA (Hons) 2025-26

Architectural Technology and Design {Foundation} [GCET] DipHE 2025-26

Architecture {Foundation} [Frenchay] - WITHDRAWN BSc (Hons) 2025-26

Product Design Technology {Foundation} [Frenchay] - Suspended for Sept 2025 BSc (Hons) 2025-26

Architecture and Environmental Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Product Design {Foundation} [Frenchay] - Suspended for Sept 2025 intake BA
(Hons) 2025-26

Architecture and Environmental Engineering {Foundation} [Frenchay] BEng (Hons)
2025-26

Architecture and Planning {Foundation}[Frenchay] BA (Hons) 2025-26

Architecture {Foundation}[Frenchay] BSc (Hons) 2025-26