



## **Module Specification**

### **Foundation Engineering**

Version: 2021-22, v2.0, 20 Jul 2021

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## Part 1: Information

**Module title:** Foundation Engineering

**Module code:** UBLMWM-15-0

**Level:** Level 3

**For implementation from:** 2021-22

**UWE credit rating:** 15

**ECTS credit rating:** 7.5

**Faculty:** Faculty of Environment & Technology

**Department:** FET Dept of Architecture & Built Environ

**Partner institutions:** None

**Delivery locations:** Frenchay Campus

**Field:** Architecture and the Built Environment

**Module type:** Standard

**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:** See Learning Outcomes

**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:** See Outline Syllabus and Assessment.

### **Module 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** Select and apply suitable mathematical techniques to solve extended problems

**MO4** 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

Total = 150

**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:** Component A Exam - an end of module examination has been chosen to test numeracy and the understanding and knowledge of the fundamentals of physics, engineering and mathematics under controlled conditions. The exam will take 2 hours and can be taken any time within a 24 hour window.

Component B Engineering portfolio - consisting of a series of short weekly 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.

**Assessment components:**

**Examination (Online) - Component A (First Sit)**

Description: Online exam (24 hours). The exam will last two hours and students can undertake it at any time with a 24 hour window.

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO4

### **Portfolio - Component B (First Sit)**

Description: A series of weekly tests focusing on calculations, theory and processes covered in that weeks teaching. (1500 words)

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

### **Examination (Online) - Component A (Resit)**

Description: Online exam (24 hours). The exam will last two hours and students can undertake it at any time with a 24 hour window.

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO4

### **Portfolio - Component B (Resit)**

Description: An opportunity to retake some or all of the weekly tests which were set throughout the module main run.

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

## **Part 5: Contributes towards**

This module contributes towards the following programmes of study: