Module Specification

Foundation Mathematics for the Built Environment

Version: 2023-24, v2.0, 06 Aug 2023

Contents

Part 1: Information

Module title: Foundation Mathematics for the Built Environment

Module code: UBLMSA-15-0

Level: Level 3

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

College: Faculty of Environment & Technology

School: FET Dept of Architecture & Built Environ

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: Not applicable

Features: Not applicable

Educational aims: This module develops skills in algebra and calculus through applied problem-based numerical methods.

Outline syllabus: Algebra

Introduction to Algebra. Simultaneous Linear Equations. Linear Equations and Graphs. Quadratic Equations. Solving Quadratics by completing the square. Graphs of Quadratic Functions. Simultaneous Solution of Quadratic and Linear Equations. Introduction to Partial Fractions.

Functions

Functions and inverses. Function of a Function. Properties of standard functions used in engineering: polynomial, rational, trigonometric, exponential and logarithmic functions.

Calculus

Differential Calculus. The Derivatives of other Functions. Maxima and Minima. The Chain Rule. The Product Rule and Quotient Rule. The Second Derivative. Integration. The Definite Integral. Introduction to Integration by Parts.

Part 3: Teaching and learning methods

Teaching and learning methods: The learning strategy is to guide students through highly structured workbooks that encourage active learning.

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

MO2 Solve equations that involve standard mathematical functions used in engineering

MO3 Differentiate and integrate standard mathematical functions used in engineering

MO4 Select and apply suitable mathematical techniques to solve extended problems

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 via the following link https://uwe.rl.talis.com/modules/ublmsa-15-0.html

Part 4: Assessment

Assessment strategy: The assessment strategy uses continuous assessment to provide feedback to students so that they can assess their progress throughout the module. An end of module examination to assess whether students have reached an appropriate standard in mathematics to progress to single honours programmes in design engineering.

Examination Online - An end of module examination has been chosen to test numeracy and the understanding and knowledge of the fundamentals of physics, engineering and mathematics.

Online Assignments - consisting of a series of e-assessments that provide instant feedback and a mid-sessional examination that will provide feedback on written work.

Resit Examination Online - same format as above, with different questions. Resit Online Assignments - all e-assessments will be retaken with changed questions.

Assessment tasks:

Examination (Online) (First Sit)
Description: Online exam (24 hours)

Weighting: 75 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Online Assignment (First Sit)

Description: E-assessment

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Examination (Online) (Resit)

Description: Online exam (24 hours)

Weighting: 75 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Online Assignment (Resit)

Description: E-assessment

Weighting: 25 %

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:

Architecture and Environmental Engineering {Foundation} [Frenchay] BEng (Hons) 2023-24

Product Design Technology {Foundation} [Frenchay] BSc (Hons) 2023-24