Module Specification

Foundation Mathematical Investigations

Version: 2023-24, v2.0, 17 May 2023

Contents

Part 1: Information

Module title: Foundation Mathematical Investigations

Module code: UFMFGG-15-0

Level: Level 3

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Computer Sci & Creative Tech

Partner institutions: None

Field: Computer Science and Creative Technologies

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: See Learning Outcomes

Outline syllabus: Mathematical content
Number systems, basic number theory, sequences and series, discrete dynamical systems, iteration of a function, probability.

Mathematical Software
Use of mathematical software to perform numerical and algebraic computations, data structures, functions, graphical output, simple procedures involving function evaluation, loops and if statements.

Investigations
The types of investigation considered in the module will evolve over time. The following list provides an indication of typical investigations that could be considered; number searches for prime and perfect numbers, sorting algorithms, study of the dynamics of particular integer sequences, e.g. Fibonacci, Catalan, Stirling sequences. Methods for computing approximations to irrational numbers.

Part 3: Teaching and learning methods

Teaching and learning methods: Scheduled learning: Lectures, workshops and PC Lab based sessions.

Independent learning: Problem solving; worksheet exercises, assignment work, examination preparation and (directed) reading.

Hours:
Contact: 36
Assimilation and skill development: 54
Coursework: 15
Exam preparation: 45
Total: 150

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

MO1 Communicate mathematical concepts using appropriate language in a clear and concise manner

MO2 Implement an iterative process

MO3 Conduct and summarise findings from a mathematical investigation

MO4 Use mathematical software to implement mathematical techniques and procedures

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/ufmfgg-15-0.html

Part 4: Assessment

Assessment strategy: This module is designed to encourage students to learn mathematics through investigation and enquiry and this is reflected in the assessment strategy which will involve a single assignment containing exercises designed to assess understanding and proficiency in the use of the mathematical software introduced in the module and mathematical investigation skills.

Assessment tasks:

Written Assignment (First Sit)
Description: Assignment - 2500 words
Weighting: 100 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4

Written Assignment (Resit)
Description: Assignment - 2500 words

Weighting: 100 %

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:

Mathematics {Foundation} [Frenchay] BSc (Hons) 2023-24