Module Specification

Higher Mathematics [TSI]

Version: 2023-24, v1.0, 09 Aug 2023

Contents

Part 1: Information

Module title: Higher Mathematics [TSI]

Module code: UFCE3V-24-0

Level: Level 3

For implementation from: 2023-24

UWE credit rating: 24

ECTS credit rating: 12

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

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: The aim of the module is to provide theoretical foundations of the higher mathematic fundamentals such as linear and vector algebra, function of several variables and to develop logical and the algorithmic thinking of students for solution of applied and theoretical tasks. Development of the basis of the

mathematical knowledge and creation of a platform for further mathematical education.

Outline syllabus: The module covers the following topic areas:

Term 1:
Linear and vector algebra
Analytic geometry
Functions and their characteristics
Limits of numerical sequences and functions of one variable.
Continuity of functions.
Derivatives of function, interpretations and computation.

Term 2:
Definite and indefinite integrals
Functions of several variables
Ordinary differential equations and systems of the differential equations.
Functional series (power, Taylor, Fourier)
Multiple integrals.
Linear spaces and operators.

Part 3: Teaching and learning methods

Teaching and learning methods: Learning and teaching will be provided to students in two forms: lectures and labs. During lectures, theoretical aspects of the course will be provided to students by the teaching staff. Lectures will be supported by presentation published and available to the students on e.tsi.lv under the module section. Also, the course includes additional materials, like textbooks, publications on the internet, videos etc.

During practical calculus classes, students receive a set of practical problems for every topic to perform. Several practical problems are explained during classes by a teaching assistant, while other problems are provided as a homework.

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

MO1 Able to think abstractly about a problem, and to express the problem using mathematics as a universal language.

MO2 can apply fundamental concepts of higher mathematics to solve modern real-world problems.

MO3 can combine different methods to efficiently solve problems, paying attention to subtleties.

Hours to be allocated: 240

Contact hours:

Independent study/self-guided study = 192 hours

Face-to-face learning = 128 hours

Total = 320

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://rl.talis.com/3/uwe/lists/87E24D6C-C796-7F93-9450-93F7A7C792A7.html?lang=en-gb&login=1

Part 4: Assessment

Assessment strategy: This module assessment is split into three tasks:
Part 1) Mid-term Exam
Part 2) Practical assessments
Part 3) End point exam.

The student will be required to resit any failed assessments tasks within the resit period.

Assessment tasks:

Examination (First Sit)

Description: Exam. This includes practical assignments as well as theoretical questions (2 hours)
Weighting: 30 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Examination (First Sit)
Description: Mid-Term exam (2 hours)
Weighting: 30 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2

Portfolio (First Sit)
Description: A series of tasks - Includes solutions for a set of problems on every topic covered in the module
Weighting: 40 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Examination (Resit)
Description: Exam. This includes practical assignments as well as theoretical questions (2 hours)
Weighting: 30 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2

Examination (Resit)
Description: Mid-Term exam (2 hours)
Weighting: 30 %
Final assessment: No

Group work: No
Learning outcomes tested: MO1, MO2

Portfolio (Resit)
Description: A series of tasks - Includes solutions for a set of problems on every topic covered in the module.
Students will be required to resit failed tasks during the resit period.
Weighting: 40 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Computer Science and Software Development {Double Degree} {Foundation} [TSI] BSc (Hons) 2023-24

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