UNIVERSITY of BRADFORD

Module Details

Module Title	Mathematics for Computing
Module Code	COS4014-B
Academic Year	2022/3
Credits	20
School	Department of Computer Science
FHEQ Level	FHEQ Level 4

Contact Hours

Type	Hours
Lectures	24
Tutorials	12
Directed Study	164

Availability

Occurrence	Location / Period
BDA	University of Bradford / Semester 1

Module Aims

To provide the foundations for formal specification and modelling of computer systems. To provide the foundations for the use of computer technology for computations mathematics.

Outline Syllabus

(a) Introduction to Discrete Mathematics: Sets and relations, logic, functions, graph theory. Introduction to formal languages, finite state automata and regular expressions.
(b) Introduction to the techniques available for differentiation, and integration and concepts of matrices, probability

Learning Outcomes

Outcome Number	Description
O1	Use the mathematical language of computer science and explain the fundamental concepts of computational mathematics.
O2	Construct and validate many of the logical tools inherent in the construction and analysis of computer systems and develop and implement efficient algorithms.
O3	Explain in writing how logic is used as a tool for describing computer systems.

Learning, Teaching and Assessment Strategy

Students are expected to learn by attending the lectures (2 x 2 hours per week), the tutorials (1 hour per week). Furthermore, as there are well developed sets of self contained lecture material, students will study the subjectalso in their allocated time in the form of private study by running the overheads (repeatedly if need be). Pertinent (formative) exercises are made available to students via the VLE for deepening the theory explained in the lectures. One coursework (summative) reinforces the learning process.

The credit achievable thereby is designed to encourage students and keep them interested throughout the semester in learning about this fascinating subject. Finally, the closed book examination is intended to measurethe knowledge achieved.

Mode of Assessment

Type	Method	Description	Weighting
Summative	Coursework - Written	Coursework; Formal languages, finite state automata, regular expressions	25%
Summative	Examination - Closed Book	Three questions drawn from topics in both discrete and continuous mathematics (2 Hrs)	75%

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html