

Module Details	
Module Title	Mathematics for Computing
Module Code	COS4014-B
Academic Year	2020/1
Credits	20
School	Department of Computer Science
Subject Area	Computer Science
FHEQ Level	FHEQ Level 4
Pre-requisites	N/A
Co-requisites	N/A

Contact Hours	
Type	Hours
Online Lecture (Synchronous)	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
01	Use the mathematical language of computer science and explain the fundamental concepts of computational mathematics.
02	Construct and validate many of the logical tools inherent in the construction and analysis of computer systems and develop and implement efficient algorithms.
03	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) and the labs (1 hour per week). Furthermore, as there are well developed sets of self contained Beamer overheads for BOTH academic components, students will study the subject also 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 (with model solutions) 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 measure the knowledge achieved.

Mode of Assessment				
Type	Method	Description	Length	Weighting
Summative	Coursework	Coursework; Formal languages, finite state automata, regular expressions	N/A	25%
Summative	Coursework	4 questions drawn from topics in both discrete and continuous mathematics	N/A	75%

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

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.