Liverpool John Moores University

Title: DISCRETE MATHEMATICS
Status: Definitive
Code: **4115COMP**   (121213)
Version Start Date: 01-08-2021

Owning School/Faculty: Computer Science and Mathematics
Teaching School/Faculty: Computer Science and Mathematics

Team	Leader
Martin Randles	Y
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Academic Level: FHEQ4   **Credit Value:** 20   **Total Delivered Hours:** 57

Total Learning Hours: 200   **Private Study:** 143

Delivery Options
Course typically offered: Semester 1

Component	Contact Hours
Lecture	33
Practical	22

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	To complete a modelling exercise	40	
Exam	AS2	Examination	60	2

Aims

To enhance students problem solving skills through the use of mathematics and computer science techniques.

Learning Outcomes

After completing the module the student should be able to:

1   Apply appropriate mathematical concepts and operations to solve problems
2   Identify a problem and analyze it in terms of its significant parts and the information needed to solve it
3   Evaluate possible solutions to problems, and defend the chosen solutions

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Modelling exercise   1   3

Examination   1   2   3

Outline Syllabus

Propositions and predicates, logical connectives, truth tables, Boolean Algebra
Proof Methods
Mathematical Induction
Concepts of set theory, set membership, union, intersection and difference
Cartesian products; coordinate systems; vectors and matrices
Relations, inverse relations, composition
Functions and their properties; composition. Recursive definitions
Combinatorics
Trees and Graphs

Learning Activities

Learning activities will be through lectures and practical sessions where students will be encouraged to ask questions and discuss case studies. The practical sessions will be based around supported labs where students will be encouraged to put the theory gained in lectures into practice.

Notes

This module is intended to provide a strong mathematical underpinning for computer science. The module engages the student with modelling and analysis techniques that are used to investigate and understand computing and software engineering problems. The intention is for the student to develop a scientific and engineering ethos that will enable the computer science student to think formally about computing.