Liverpool John Moores University

Title: Mathematics for Computing
Status: Definitive
Code: **4006ELE** (120113)
Version Start Date: 01-08-2016

Owning School/Faculty: Electronics and Electrical Engineering
Teaching School/Faculty: Electronics and Electrical Engineering

Team	Leader
Princy Johnson	Y

Academic Level:	FHEQ4	**Credit Value:**	20	**Total Delivered Hours:**	74
Total Learning Hours:	200	**Private Study:**	126		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	48
Tutorial	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Supported examination	70	2
Report	Report	Statistical Analysis	30	

Aims

The aims of this module are to develop the mathematical grounding required to undertake programming on a range of platform and applications

Learning Outcomes

After completing the module the student should be able to:

1	Define fundamental mathematical concepts such as sets, relations, functions, and integers, Basic Calculus
2	Apply graph theory models of data structures and state machines to solve problems of connectivity and constraint satisfaction, for example, scheduling.
3	Complete elementary mathematical arguments
4	Complete numbers of possible outcomes of elementary combinatorial processes such as permutations and Combinations
5	Complete probabilities and discrete distributions for simple combinatorial processes; calculate

Learning Outcomes of Assessments

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

Supported examination   1   2   3   4

Statistical Analysis   4   5

Outline Syllabus

Definitions, Proofs, Sets, Functions, Relations, Numbers, Graphs, and Trees
Discrete Structures

Modular Arithmetic, Graphs, State Machines, Counting

Discrete Probability Theory, probabilities and expectations of simple random processes

Numerical Integration, Numerical Differentiation
Trigonometry, Logs and Powers, Complex Numbers and Vectors

Learning Activities

Lectures, Tutorials, Group work on Statistical Analysis

Notes

Software running on Embedded and computer systems generally is designed and implemented around mathematical principles.
Interfacing electronic systems and microprocessors with measurement systems also required a level of mathematical ability.
This module is intended to give a grounding in the basic mathematical skills required for Computer Engineers.