Mathematical Computer Programming

Module Information

2022.02, Approved

Summary Information

Module Code	4112MATHS
Formal Module Title	Mathematical Computer Programming
Owning School	Computer Science and Mathematics
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Computer Science and Mathematics

Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	33

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To develop IT problem solving skillsTo become familiar with a range of mathematical programming techniques To gain an understanding of how software is developedTo prepare students for mathematical software development at higher levels, both work and study

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Apply knowledge of computer programming constructs and algorithms to IT problems.
MLO2	2	Demonstrate problem solving skills to create simple software solutions.
MLO3	3	Evaluate alternatives and make sound judgements about data structures.
MLO4	4	Investigate development environment tools for use in software development.
MLO5	5	Demonstrate familiarity with using mathematical functions within programs.

Module Content

Outline Syllabus	Computers and Computer Programming-How programs work within computers-Current programming languages and their evolutionIntegrated Development Environment-Working with code-Compiling, profiling, testing and organising codeBasic elements of programs-Syntax-Variables/Types-Expressions-Input/Output and Devices-Classes and methodsControl structures-Conditionals / selection-Loops / repetition-Logical problem solving-User defined classes-Value and Reference Types-Arrays / Collections-String manipulation-Code structure, procedures/methods, callbacks.-RecursionGraphics- Plotting graphs and statistical data
Module Overview	This module aims to develop programming and problem solving skills to help prepare for work in mathematics and statistics.
Additional Information	This module aims to develop programming and problem solving skills in students to help prepare them for work in mathematics and statistics.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Portfolio	Portfolio	100	0	MLO2, MLO3, MLO4, MLO5, MLO1

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
James Baker	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings