

Advanced Programming

Module Information

2022.01, Approved

Summary Information

Module Code	7440MSDM
Formal Module Title	Advanced Programming
Owning School	Engineering
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	12
Practical	24

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To develop the approach and skills necessary to design and implement engineering softwaresolution using high-level programming constructs.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Critically analyse and design complex software solutions using physical and mathematical concepts
MLO2	2	Design complex systems using an object oriented approach and high-level programming constructs
MLO3	3	Design complex hardware interfaces to realise functional and effective engineering applications
MLO4	4	Analyse complex specifications to develop engineering software solutions

Module Content

Outline Syllabus	Programming language constructs: Datatypes, Operators, Conditional Logic, Loops, Arrays, Collections, Strings, Input & output, Functions, Structures, Sorting, Memory addressing & allocation, Exception handling, Debugging High-level Programming: Classes & Objects, Encapsulation, Operators, Inheritance, Polymorphism, Accessors, Method Hiding, Interfaces, Abstracts, Partial classes, Delegates, Attributes, Reflections Applications: Windows applications, Events programming, Controlling external devices, Security, Late binding, Threading, unsafe code
Module Overview	
Additional Information	This level 7 module provides a valuable opportunity for engineering graduates to develop programming skills with high-level language constructs to design and implement engineering software solutions. United Nations Sustainable Development Goals: 4. Quality Education 8. Decent Work and Economic Growth 9. Industry, Innovation and Infrastructure

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Practice	Implement a software solution	50	0	MLO1, MLO2, MLO4
Practice	Hardware & software interface	50	0	MLO3, MLO2

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Princy Johnson	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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