

Module Information

2022.01, Approved

Summary Information

Module Code	5505ICBTME
Formal Module Title	Mechatronic Systems and Robotics
Owning School	Engineering
Career	Undergraduate
Credits	15
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	45
Practical	6
Tutorial	15

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks

JAN-PAR	PAR	January	12 Weeks
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module aims to develop understanding of concepts in mechatronics and robotics. It introduces the student to basic programming as well as problem solving strategies. This course will involve students in the development, building and programming of a basic robot.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Demonstrate an understanding of mechatronic systems and robotics.
MLO2	2	Demonstrate an understanding of computer control of machines including microprocessors and microcontrollers.
MLO3	3	Solve the problems related to embedded systems in mechatronics with C++ language.
MLO4	4	Demonstrate an understanding of how to design robots for specific activities and scenarios.

Module Content

Outline Syllabus	State-Space Representation PLCs and Micro controllers Design control circuits using electronic gates Carno-Maps and design electronic circuit using J-K flip-flop Calculate stability and determine the controllability and observability of a systems when differential equations are given Introduction to robotics Robolab programming software
Module Overview	
Additional Information	

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Examination	70	2	MLO1, MLO2, MLO3
Report	Practical Assignment	30	0	MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Karl Jones	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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