

Summary Information

Module Code	6315MECH
Formal Module Title	Sensors and Robotics
Owning School	Engineering
Career	Undergraduate
Credits	10
Academic level	FHEQ Level 6
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Practical	22
Tutorial	6

Module Offering(s)

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

Aims and Outcomes

Aims	To provide a comprehensive overview of possible deployment of sensor payloads for a variety of sensing applications. This will include a variety of imaging and inspection techniques enabled by robotic systems.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Select and specify appropriate sensors for a specified application.
MLO2	2	Demonstrate the knowledge and skills which are required to perform data analysis and image processing tasks for a specified application.
MLO3	3	Select and specify appropriate components for custom robotic design.
MLO4	4	Configure and program a robotic system.

Module Content

Outline Syllabus	3D motion: LIDAR, stereovision. Sensor technology. Image processing. Robotic systems component selection. Robotic systems power requirement. Robotic system payload deployment.
Module Overview	
Additional Information	Due to its multidisciplinary nature, this module includes content which relates to the following UN Sustainable Development Goals: SDG 11: Sustainable Cities and Communities. This module will consider how sensors, actuators and control systems can be used to reduce the energy impact in buildings and autonomous delivery in cities. SDG 12: Responsible Consumption and Production. This module will consider how robots can be used in factories to move goods. SDG 14: Life underwater. This module will consider how unmanned underwater robot can be used to collect environmental data for example. SDG 15: Life on land. This module will consider how sensors deployed as camera traps can be used to monitor wildlife on land.

Assessments

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

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Frederic Bezombes	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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