

**Summary Information**

<b>Module Code</b>	6567USST
<b>Formal Module Title</b>	Sensors and Robotics
<b>Owning School</b>	Engineering
<b>Career</b>	Undergraduate
<b>Credits</b>	10
<b>Academic level</b>	FHEQ Level 6
<b>Grading Schema</b>	40

**Module Contacts****Module Leader**

<b>Contact Name</b>	<b>Applies to all offerings</b>	<b>Offerings</b>
Dante Matellini	Yes	N/A

**Module Team Member**

<b>Contact Name</b>	<b>Applies to all offerings</b>	<b>Offerings</b>
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**Partner Module Team**

<b>Contact Name</b>	<b>Applies to all offerings</b>	<b>Offerings</b>
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**Teaching Responsibility**

<b>LJMU Schools involved in Delivery</b>
LJMU Partner Taught

## Partner Teaching Institution

Institution Name
University of Shanghai For Science and Technology

## Learning Methods

Learning Method Type	Hours
Practical	22
Tutorial	6

## Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-PAR	PAR	September	12 Weeks

## Aims and Outcomes

Aims
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## Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Select and specify appropriate sensors for a specified application.
MLO2	Demonstrate the knowledge and skills which are required to perform data analysis and image processing tasks for a specified application.
MLO3	Select and specify appropriate components for custom robotic design.
MLO4	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)	Learning Outcome Mapping
Portfolio	Lab Portfolio	100	0	MLO1, MLO2, MLO3, MLO4