

### Summary Information

<b>Module Code</b>	6560USST
<b>Formal Module Title</b>	Materials Engineering
<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

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

#### Module Team Member

Contact Name	Applies to all offerings	Offerings
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#### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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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
Lecture	11
Practical	3
Tutorial	11

## Module Offering(s)

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

## Aims and Outcomes

<b>Aims</b>	To provide an in-depth understanding of advanced engineering materials together with techniques for material property and performance improvements.
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## Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Critically review the structure-properties relationships of advanced materials and techniques for performance improvements.
MLO2	Relate how the properties and behaviour of materials govern their design and manufacture through consideration of the basic mechanisms involved.
MLO3	Apply a range of techniques for improving the properties and performance of materials.
MLO4	Select materials to meet the performance requirements of a range of engineering applications.

## Module Content

### Outline Syllabus

High performance materials and applications.

Structure and properties of advanced materials, composition design, processing.

New modern materials developments.

Use of engineering principles in materials design and developments.

Performance oriented materials design and selection.

Use of modelling techniques in materials selection and product developments.

Life cycle analysis of materials and structures.

### Module Overview

#### Additional Information

This module will cover a broad range of materials and techniques to improve the performances. It will equip the students with in-depth understanding of the structures of advanced materials and properties improvement. The selection of materials based on applications will also be developed.

This module includes content which relates to the following UN Sustainable Development Goals:

SDG8 – This module will consider how to provide students with skills that match that labour market in materials and manufacture field and allow them to attain productive employment.

SDG9 – This module will consider how to promote sustainable industrialisation and foster innovation.

SDG12 – This module will consider the issues of materials waste and recycling when designing engineering solutions.

### Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
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Exam	Exam	100	2	MLO1, MLO2, MLO3, MLO4
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