

Summary Information

Module Code	7006MSC
Formal Module Title	Advanced Materials Engineering
Owning School	Engineering
Career	Postgraduate Taught
Credits	10
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	6
Seminar	6
Tutorial	11

Module Offering(s)

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

Aims and Outcomes

Aims	To develop a wide knowledge of advanced materials and to study the materials selection process involved in the design and manufacture of engineering products.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Critically review the mechanical performance and applications of a range of engineering materials
MLO2	2	Demonstrate knowledge of the structures, properties of composites and high performance alloys and new development
MLO3	3	Select materials to meet the performance requirements of a range of engineering applications
MLO4	4	Have knowledge of the use of life cycle analysis and maintainability principles and practices with respect to recycling issues

Module Content

Outline Syllabus	Structure, properties and applications of engineering materials - metals, polymers, foams, rubbers and composites Advanced materials, applications: Low weight structures, composites and high performance alloys The selection of materials on the basis of performance requirements:- strength, stiffness, toughness, fatigue resistance and energy absorption. New modern materials development Life cycle analysis and maintainability related to recycling issues.
Module Overview	This module provides an in-depth understanding of the structure and properties of advanced modern materials together with techniques available for improving properties of materials. It aims to develop a wide knowledge of advanced materials and to study the materials selection process involved in the design and manufacture of engineering products.
Additional Information	This module will provide an in depth understanding of the structure and properties of advanced modern materials together with techniques available for improving properties of materials. The selection of materials based applications will also be developed.

Assessments

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

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
James Ren	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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