

## Module Information

2022.01, Approved

### Summary Information

Module Code	4503ICBTME
Formal Module Title	Engineering Materials and Manufacturing Processes
Owning School	Engineering
Career	Undergraduate
Credits	15
Academic level	FHEQ Level 4
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
Off Site	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_NS-PAR	PAR	September (Non-standard start date)	12 Weeks

## Aims and Outcomes

Aims	This unit will provide learners with the necessary background knowledge and understanding of the macro and micro properties, testing, selection, manufacturing and failure of engineering materials. This unit also aims to provide students with the appropriate set of skills in order to design a product and select the most adequate manufacturing technologies to transform raw materials into a tradable product based on economic, functional and sustainable aspects including application of machine tools.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Identify the differences in properties of common engineering material categories.
MLO2	2	Select suitable materials and processing methods for a specific product.
MLO3	3	Interpret the in-service causes of failure of engineering materials.
MLO4	4	Describe different manufacturing processes, manufacturing materials and tools.

## Module Content

Outline Syllabus	Macro and micro properties of common engineering materials (Metals, Ceramics, Polymer, Semi-conductors, Composites). Structure of common engineering materials and the influence of structure on properties. Common material testing methods to assess properties of engineering materials and testing standards. Sources of material property data. Principles of common manufacturing processes and limitations. Materials property requirements and manufacturing requirements for a product. Common failure methods of engineering materials (Creep, Fatigue, Tensile). Categories of manufacturing processes for metals, ceramics, polymers and composites. Advantages and disadvantages of each method. Selection of materials. Common manufacturing machines, tools, equipment.
Module Overview	
Additional Information	

## Assessments

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