

## Introduction to Materials I

### Module Information

2022.01, Approved

#### Summary Information

Module Code	4302CIV
Formal Module Title	Introduction to Materials I
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	10
Academic level	FHEQ Level 4
Grading Schema	40

#### Teaching Responsibility

LJMU Schools involved in Delivery
Civil Engineering and Built Environment

#### Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	8
Tutorial	11

#### Module Offering(s)

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

#### Aims and Outcomes

Aims	Provide introduction to different civil engineering materials in terms of their source and properties. Also to provide understanding of the mechanics of materials behaviour. This includes exploring the relationship between stresses and strains and hence provide a sound rationale for the selection and use of materials in civil engineering.
------	--

**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Develop understanding of the sources and properties of the different materials used in civil engineering.
MLO2	2	Describe and apply data from appropriate tests for concrete throughout the construction process'
MLO3	3	Interpret the stress-strain behaviour of some of the main civil engineering materials used in the industry.

### Module Content

Outline Syllabus	Introduction to concrete behaviour and properties including the different constituent materials that are used for its production. This includes the testing of fresh concrete for its setting and consistence/workability, and assessing the compressive strength of hardened concrete. The mechanics of materials including the stress and strain relationship for some of the main civil engineering materials. Consideration of the source and properties of materials such as Metals & Alloys and Polymers. The properties and behaviour of Timber and the influence of moisture on its strength development and durability. The manufacture process and the application of Bricks and Glass in civil engineering are also studied. The embodied carbon of the materials used in the built environment. Health and Safety of working with civil engineering materials.
Module Overview	
Additional Information	The module provides students with an introduction to the properties of materials and the factors relating to their behaviour and selection for use in the construction industry. Students should develop understanding of the mechanics of materials relating to civil engineering. Laboratory practicals will enhance the experience and understanding of the different civil engineering materials.

### Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	100	1.5	MLO1, MLO2, MLO3

### Module Contacts

#### Module Leader

Contact Name	Applies to all offerings	Offerings
Abhijit Ganguli	Yes	N/A

#### Partner Module Team

Contact Name	Applies to all offerings	Offerings
--------------	--------------------------	-----------

