

Summary Information

Module Code	4325BEUG
Formal Module Title	Science and Materials
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Ibijoke Idowu	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
Pelumi Ojuri	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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Teaching Responsibility

LJMU Schools involved in Delivery
Civil Engineering and Built Environment

Learning Methods

Learning Method Type	Hours
Lecture	22
Online	11
Practical	22

Module Offering(s)

Offering Code	Location	Start Month	Duration
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To enable students to apply appropriate scientific and analytical methods to investigate the performance and behaviour of common building materials. To provide students with an appreciation of the common scientific principles associated with environmental conditions inside buildings.
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Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Identify and understand the properties of common building materials and classify their performance characteristics with due regard to environmental impact.
MLO2	Apply appropriate scientific and analytical methods to investigate scientific problems related to the environmental conditions and processes in buildings.
MLO3	Describe and evaluate key factors that impact on the indoor environment of residential buildings including temperature, humidity, lighting and noise levels.

Module Content

Outline Syllabus
Properties, design criteria and specification of a range of common building materials including for example, bricks and brickwork, cement, mortar, concrete, plaster, metals, alloys, timber and insulation materials. Thermal properties of common building materials and structures, thermal conductivities and U values Maintenance and replacement of building components Sustainability and environmental issues relating to procurement of materials and construction methods. Analysis of key factors affecting the indoor environment of residential buildings including for example, light and lighting levels for buildings; acoustics and noise in buildings; heat and heat transfer within buildings; air quality, humidity and condensation in buildings. Basic statistics and graphical representation to understand the results generated from scientific experiments. Writing up results and the presentation of Lab reports.

Module Overview

This module enables students to apply appropriate scientific and analytical methods to investigate the performance and behaviour of common building materials. It aims to provide students with an appreciation of the common scientific principles associated with the environmental conditions inside buildings.

Additional Information

The module is designed to provide students on a range of Built Environment study programmes with a sound basic understanding of the principal materials used in construction and the scientific principles related to environmental services within buildings. Alongside this the student will be encouraged to apply appropriate analytical methods. On the Construction Management Degree Apprenticeship, the knowledge learning outcomes are K6 and K7. On the Building Services Engineering Degree Apprenticeship programme, the knowledge learning outcome is K1 and the skills learning outcomes are S1 and S2.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Portfolio	Lab Report	50	0	MLO1
Test	Online Multi-choice Test	50	0	MLO2, MLO3