Science Materials and Applied Mathematics

Module Information

2022.01, Approved

Summary Information

Module Code	4303CIVH
Formal Module Title	Science Materials and Applied Mathematics
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
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	48
Practical	9
Tutorial	9

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	28 Weeks

Aims and Outcomes

Aims	To introduce to the student through theory and experiment the basic scientific principles underpinning engineering calculations.To expand the student's knowledge of the engineering properties of the most important construction materials based upon scientific principles.To introduce to the student the principles governing the choice and specification of materials.To provide the student with an opportunity to develop skills in applying statistical and analytical methods to solving engineering problems.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Make use of standard laboratory experiments and report upon the outcome.
MLO2	2	Describe the composition, manufacturing processes and engineering properties of the major construction materials.
MLO3	3	Determine the behaviour of materials and structures under various loading conditions.
MLO4	4	Describe the most common process by which construction materials degrade, and the methods by which quality and durability are assured.
MLO5	5	Apply analytical methods to engineering problems.
MLO6	6	Apply statistical methods to engineering problems.

Module Content

Outline Syllabus	Writing laboratory reports, interpretation and presentation of data.To identify health and safety issues and perform risk assessments.Testing of materials: determination of properties, measurements, standard testing methods.Basic physical science: forces and motion, energy, static's (solid and fluid), thermal properties, the use of various materials in the design of structural elements.Basic mathematical processes to solve Civil Engineering problems: algebra, graphical techniques, trigonometry, statistical methods.
Module Overview	Through theory and experiment, this module introduces you to the basic scientific principles underpinning engineering calculations. Emphasis is placed upon experimental work with clear analysis and presentation of results, together with problem solving in relation to the engineering properties and performance of materials. The module incorporates the development of the mathematical and scientific skills required to solve engineering problems.
Additional Information	An introduction to science and materials for civil engineers together with methods of analysis. Emphasis is placed upon experimental work with clear analysis and presentation of results, together with problem solving in relation to the engineering properties and performance of materials. The module incorporates the development of the mathematical and scientific skills required to solve engineering problems.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	REPORT 2000 WORD MAXIMUM	40	0	MLO1, MLO5
Centralised Exam	Examination	60	2	MLO1, MLO2, MLO3, MLO4, MLO5, MLO6

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
David Yeboah	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings