Liverpool John Moores University

Title:	SCIENCE, MATERIALS AND APPLIED CE MATHEMATICS
Status:	Definitive
Code:	**4213BEHN** (119863)
Version Start Date:	01-08-2016

Owning School/Faculty:	Civil Engineering
Teaching School/Faculty:	Civil Engineering

Team	Leader
Edward Loffill	Y
Ian Munford	
Neil Kilpatrick	

Academic Level:	FHEQ4	Credit Value:	20	Total Delivered Hours:	68
Total Learning Hours:	200	Private Study:	132		

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	48
Practical	9
Tutorial	9

Grading Basis: BTEC

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	AS1	Practical based	30	
Test	AS2	Online	20	
Exam	AS3	Exam	50	2

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.

Learning Outcomes

After completing the module the student should be able to:

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

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Practical based   1

Online   5

Exam   2   3   4   6

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.

Learning Activities

The module will be delivered via lectures, tutorials, practical and workshop sessions.

Notes

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.