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Title: ADVANCED CIVIL ENGINEERING MATERIALS
Status: Definitive
Code: **6004UGSL** (120284)
Version Start Date: 01-08-2020

Owning School/Faculty: Civil Engineering and Built Environment
Teaching School/Faculty: Civil Engineering and Built Environment

Team	Leader
William Atherton	Y

Academic Level: FHEQ6 **Credit Value:** 24 **Total Delivered Hours:** 87
Total Learning Hours: 240 **Private Study:** 153

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	48
Seminar	12
Tutorial	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Closed book examination	60	3
Portfolio	AS2	Short Reports	15	
Essay	AS3	1500 word essay	25	

Aims

To further develop the student's understanding of the behaviour of Engineering Materials under a wide range of service conditions. To develop the student's ability to evaluate new developments in Materials Science and to compare critically the

choice of materials for specific applications.

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically analyse the materials requirements for specific structural and non-structural applications.
- 2 Critically analyse current developments in materials development.
- 3 Analyse the behaviour of materials under fire conditions.
- 4 Undertake an in-depth critical analysis of recent developments in a chosen area of Materials Science.

Learning Outcomes of Assessments

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

CLOSED BOOK EXAMINATION	1	3
SHORT REPORTS	2	
1500 WORD ESSAY	4	

Outline Syllabus

Relationships between materials properties and environment leading to durability criteria.

Design for durability, life cycle planning and maintenance.

Production and properties of advanced materials including composite materials.

Assessment of novel structural materials.

Fire: combustion and spread of fire, behaviour and deterioration of structural materials in fire conditions.

Learning Activities

Lectures, seminars, tutorials.

Notes

This module develops techniques for evaluating and understanding the behaviour of engineering materials under various service conditions including exposure and loading regimes. On completion of the module students should have an understanding of the performance of a range of materials commonly used in the design of structures and an appreciation of new developments in the industry.