MODULE SPECIFICATION

Part 1: Information			
Module Title	Advanced Construction Materials and Technology		
Module Code	UBGMSR-15-M	Level	Level 7
For implementation from	2021-22		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Geography and Environmental Management
Department	FET Dept of Geography & Envrnmental Mgmt		
Module Type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co-requisites	None		
Module Entry Requirements	None		
PSRB Requirements	None		

Part 2: Description

Overview: In this module you will examine the analysis of non-linear behaviour of structures.

Educational Aims: See Learning Outcomes.

Outline Syllabus: You will cover:

Fracture mechanics and fatigue behaviour of materials.

Time dependent and non-linear behaviour materials e.g. relaxation, shrinkage and creep.

Innovations and sustainable concrete, e.g. high-strength concrete, 3D concrete printing.

Innovations and applications in metals, e.g. shape-memory alloys.

Application and adaptation of traditional masonry into contemporary smart construction.

Timber as sustainable construction material, e.g. use of bamboo as a replacement for steel in reinforced concrete.

Composites as alternatives for steel and structural retrofitting.

Discussion of the above topics will include consideration of the lifecycle impacts and sustainability of the material selection and design choices made by the engineer.

Teaching and Learning Methods: See Assessment.

Part 3: Assessment			
Component A: Exam (2 hours) Component B: Report 3000 words report based on laboratory sessions and exploring innovations in the field of construction materials			
First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Report - Component B		50 %	Report (3000 words)
Examination - Component A	✓	50 %	Examination 2 hours
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Report - Component B		50 %	Report (3000 words)
Examination - Component A	✓	50 %	Examination 2 hours

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	**Reference**
Interpret forms of fracture and fatigue, and time dependent and non-linear behaviour of materials	MO1
Assess advanced characteristics and properties of construction materials	MO2
Assess the prospects for alternatives and recycled waste materials for traditional civil infrastructure applications	MO3
Evaluate the sustainability of materials for civil engineering applications	MO4
Identify and evaluate leading innovations in common civil engineering materials and opportunities for adapting advanced materials for use in civil engineering applications	MO5

Contact Hours

Independent Study Hours:

Independent study/self-guided study	114
Total Independent Study Hours:	114

	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	36
	Total Scheduled Learning and Teaching Hours:	36
	Hours to be allocated	150
	Allocated Hours	150
Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/modules/ubgmsr-15-m.html	

Part 5: Contributes Towards
This module contributes towards the following programmes of study: Civil and Environmental Engineering [Sep][FT][Frenchay][4yrs] MEng 2018-19