MODULE SPECIFICATION

Part 1: Information			
Module Title	Advanced Construction Materials and Technology		
Module Code	UBGMSR-15-M	Level	Level 7
For implementation from	2018-19		
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		
Contributes towards	Civil Engineering [Sep][FT][Frenchay][1yr] MSc 2018-19 Civil Engineering [Sep][PT][Frenchay][2yrs] MSc 2018-19		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry 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.

Modelling of time dependent and non-linear behaviour of models e.g. relaxation, shrinkage and creep.

Assessment of the anisotropic behaviour of materials e.g. anisotropic timber behaviour.

Welding and welding procedures.

Confinement effects and how they can be used to address seismic risk.

Application of composites to structural retrofit and how they can be used to enhance the strength of structures.

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

Teaching and Learning Methods: See Learning Outcomes

Part 3: Assessment			
Component A: Examination Learning outcomes 1 - 6 Written examination – 3 hours. The written examination will be used to assess the application of complex and advanced material behaviour learning to classical engineering problems.			
First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A	✓	100 %	Examination 3 hours
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A	✓	100 %	Examination 3 hours

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Interpret experimental data to select a suitable theoretical model for material behaviour
MO2	Critically evaluate design problems to propose welding procedures, including health and safety issues
MO3	Critically evaluate design considerations for the use of composites in structural retrofit to design strengthening solutions, including health and safety issues and lifecycle impact considerations
MO4	Apply mathematical models to model the fatigue behaviour of materials
MO5	Apply models of confinement effects of compression elements to produce design solutions
MO6	Model the time dependent properties of civil engineering materials to produce design solutions

Contact Hours

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	