



MODULE SPECIFICATION

Part 1: Information			
Module Title	Advanced Construction Materials and Technology		
Module Code	UBGMSR-15-M	Level	Level 7
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Geography and Environmental Management
Department	FET Dept of Geography & Environmental Mgmt		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Overview: In this module you will examine the analysis of non-linear behaviour of structures.</p> <p>Educational Aims: See Learning Outcomes.</p> <p>Outline Syllabus: You will cover:</p> <p>Fracture mechanics and fatigue behaviour of materials.</p> <p>Time dependent and non-linear behaviour materials e.g. relaxation, shrinkage and creep.</p> <p>Innovations and sustainable concrete, e.g. high-strength concrete, 3D concrete printing.</p> <p>Innovations and applications in metals, e.g. shape-memory alloys.</p> <p>Application and adaptation of traditional masonry into contemporary smart construction.</p> <p>Timber as sustainable construction material, e.g. use of bamboo as a replacement for steel in reinforced concrete.</p> <p>Composites as alternatives for steel and structural retrofitting.</p>

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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

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 (Online) - Component A	✓	50 %	Online Examination
Resit Components	Final Assessment	Element weighting	Description
Report - Component B		50 %	Report (3000 words)
Examination (Online) - Component A	✓	50 %	Online Examination

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 behaviour of materials	MO1
	Interpret time dependent and non-linear behaviour materials e.g. relaxation, shrinkage and creep	MO2
	Appraise leading innovations in sustainable concrete technology and their suitability for the construction industry, e.g. high-strength concrete, 3D concrete printing	MO3
	Appraise innovations in metals for the construction industry, e.g. shape-memory alloys	MO4
	Identify opportunities for adapting traditional masonry into contemporary smart construction and assess their potential feasibility	MO5
	Identify opportunities for timber as sustainable construction material and opportunities for application, e.g. use of bamboo as a replacement for steel in reinforced concrete	MO6
	Assess the use of composites as alternatives for steel and structural retrofitting	MO7
	Evaluate the sustainability of construction materials for the construction industry	MO8
Contact Hours	Independent Study Hours:	
	Independent study/self-guided study	114

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	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	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/modules/ubgmsr-15-m.html</p>	

Part 5: Contributes Towards

This module contributes towards the following programmes of study: