Liverpool John Moores University

Title:	ADVANCED MATERIALS, RIVER AND COASTAL ENGINEERING
Status:	Definitive
Code:	**6500CVQR** (127366)
Version Start Date:	01-08-2021
Owning School/Faculty:	Civil Engineering and Built Environment
Teaching School/Faculty:	Oryx Universal College WLL

Team	Leader
William Atherton	Y
Geoffrey Parker	

Academic Level:	FHEQ6	**Credit Value:**	20	**Total Delivered Hours:**	76
Total Learning Hours:	200	**Private Study:**	124		

Delivery Options
Course typically offered: Semester 1

Component	Contact Hours
Lecture	44
Practical	8
Tutorial	11
Workshop	11

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	REPORT <2000 WORDS	30	
Exam	AS2	EXAMINATION	70	2

Aims

To further develop the student's understanding of the behaviour of engineering materials under a wide range of service conditions in consideration of durability and sustainability and to critically review the choice of materials for specific river and

coastal applications.
This module develops an understanding of river and coastal engineering. It examines river and coastal engineering works, in particular flood defence works and the materials used for them.

Learning Outcomes

After completing the module the student should be able to:

1	Critically review the use of non-destructive testing methods in the evaluation of structural concrete under high levels of exposure.
2	Critically analyse the materials requirements for specific structural and non-structural applications.
3	Critically analyse current advancements in materials development.
4	Critically evaluate the design and operation of flood alleviation measures
5	Critically appraise river and coastal engineering works and suggest improvements.

Learning Outcomes of Assessments

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

REPORT <2000 WORDS	1	4	5		
EXAMINATION	1	2	3	4	5

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.
Tides, wind and waves and anthropogenic causes of flooding.
Design of river Structures and structures for Coastal Defence, including choice of materials.
River restoration and design of defences against both river and coastal flooding.
Case studies.
River and Coastal Ecosystems.

Learning Activities

Lectures, workshops and practical sessions.

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 major structures and an appreciation of new developments within the industry including repair techniques. The module further develops an understanding of river and coastal engineering, with a particular emphasis on flooding and its mitigation using suitable methods of design and materials use.