

Module Information

2022.01, Approved

Summary Information

Module Code	6500CVQR
Formal Module Title	Advanced Materials, River and Coastal Engineering
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Oryx Universal College WLL

Learning Methods

Learning Method Type	Hours
Lecture	44
Practical	8
Tutorial	11
Workshop	11

Module Offering(s)

Display Name	Location	Start Month	Duration Number	Duration Unit
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SEP-PAR	PAR	September	12 Weeks
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Aims and Outcomes

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.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Critically review the use of non-destructive testing methods in the evaluation of structural concrete under high levels of exposure.
MLO2	2	Critically analyse the materials requirements for specific structural and non-structural applications.
MLO3	3	Critically analyse current advancements in materials development.
MLO4	4	Critically evaluate the design and operation of flood alleviation measures
MLO5	5	Critically appraise river and coastal engineering works and suggest improvements.

Module Content

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.
Module Overview	
Additional Information	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.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	REPORT <2000 WORDS	30	0	MLO1, MLO4, MLO5
Exam	Examination	70	2	MLO1, MLO2, MLO3, MLO4, MLO5

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Bill Atherton	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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