

Liverpool John Moores University

Title: RIVER, COASTAL AND GROUNDWATER ENGINEERING
Status: Definitive
Code: **6123BEUG** (118073)
Version Start Date: 01-08-2021

Owning School/Faculty: Civil Engineering and Built Environment
Teaching School/Faculty: Civil Engineering and Built Environment

Team	Leader
Geoffrey Parker	Y
Clare Harris	
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Academic Level: FHEQ6 **Credit Value:** 24 **Total Delivered Hours:** 87

Total Learning Hours: 240 **Private Study:** 153

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	48
Practical	6
Seminar	6
Tutorial	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS2	Examination	70	3
Report	AS1	Report	30	

Aims

This module provides learners with the opportunity to develop the skills required to examine the engineering of rivers and coastlines, and the associated movement of groundwater. In particular, the learner will be introduced to effective Flood Risk

Management. To illustrate the diversity of practical problems associated with river, coastal and groundwater engineering.

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate ability in analyzing and interpreting hydrological data for estimation of flood and drought conditions, and critically evaluate the results obtained
- 2 Critically evaluate solutions associated with river and coastal engineering schemes.
- 3 Devise Flood Risk Management Strategies, which may include river and flood plain modeling, economic studies, flood warning schemes, consultation and flood alleviation and defence schemes.
- 4 Recognise and evaluate environmental and health and safety issues relating to engineering techniques employed.
- 5 Critically evaluate water need, SUDS and the sustainability issue.
- 6 Critically assess and reflect on river, coastal and groundwater engineering schemes.

Learning Outcomes of Assessments

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

EXAMINATION	1	4	5	6
REPORT	2	3		

Outline Syllabus

Hydrology: hydrological processes; unit hydrograph; reservoirs – function and storage; flood routing; overflow structures.

Flooding: nature of floods; climate change research; delivery of successful flood management; risk to people and environment; river and coastal ecosystems; Flood Estimation Handbook.

Engineering Schemes: design of river and coastal defence structures; river restoration; dams: case studies; engineering techniques employed.

Environmental issues: groundwater occurrence; methods of abstraction and appropriate technology; well/borehole hydraulics; spring sources, filtration as water purifier.

SUDS: traditional drainage; environmental issues; managing the risk of flooding; pollution prevention, recreation and society; sustainable construction.

Coastal dynamics and shoreline protection: winds, tides, waves, sea level variations, erosion, coastal remediation and management.

Learning Activities

Lectures, tutorials, laboratory practicals, seminars.

Notes

The module provides awareness and develops an understanding of the environmental issues and engineering techniques employed in river, coastal and groundwater engineering.