

Geotechnics

Module Information

2022.01, Approved

Summary Information

Module Code	5203CIV
Formal Module Title	Geotechnics
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	10
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Civil Engineering and Built Environment

Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	4
Tutorial	11

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To gain an advanced understanding of soil mechanics in engineering applications, and to apply this to the design of foundations and methods for slope stabilisation.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Evaluate the multiple reasons behind a geotechnical failure.
MLO2	2	Apply the principles of site investigation to make suitable preliminary design choices.
MLO3	3	Evaluate the significance of water in soils, its movement and effects upon soil properties and strength parameters under advanced conditions.
MLO4	4	Proficiently assess the stability of slopes, foundations and earth retaining structures under effective stress conditions.
MLO5	5	Apply appropriate codes to foundation design for short term and long term conditions.

Module Content

Outline Syllabus	Slope stability in soils covering total and effective stress situations and different soil types. Slope stability in rock, weathering, pinning etc. Lateral earth pressures in effective situations covering thrusts including Coulombs wedge theory, the use of appropriate codes for design and analysis and the different methods of providing stability in a lateral earth situation. Cofferdam design. Foundation design considering pad, strip and pile foundations in multiple different soil and water conditions to appropriate standards. Stress analysis utilising best practice and current techniques to establish long-term effective ground analysis.
Module Overview	This module develops your knowledge and understanding of geotechnics, particularly regarding long term conditions and the important influence of water on ground behaviour for civil engineering applications in analysis, design and construction. The module makes extensive use of mathematics and engineering principles. This is supported by lectures, case studies, tutorials and analytical exercises.
Additional Information	The module develops knowledge and understanding of geotechnics, particularly with regard to long term conditions and the important influence of water on ground behaviour for civil engineering applications in analysis, design and construction. The module makes extensive use of mathematics and engineering principles, this is supported by lectures, case studies, tutorials and analytical exercises. Where this module is part of a Degree Apprenticeship programme, the knowledge learning outcomes are K2, K4 and K5, the skills learning outcomes are S3.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	100	1.5	MLO1, MLO2, MLO3, MLO4, MLO5

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Ed Loffill	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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