Module Proforma

Approved, 2022.02

Summary Information

Module Code	4304CIV
Formal Module Title	Geotechnics I
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Zelong Yu	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
Georgios Nikitas	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
Civil Engineering and Built Environment

Learning Methods

Learning Method Type	Hours
Lecture	33
Practical	8
Tutorial	22

Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To gain a basic understanding of soil and rock mechanics and their engineering applications.

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Identify the physical characteristics and engineering properties of typically encountered soils and rocks in construction.
MLO2	Identify the permeability of soils and the implications of soil compaction and properties
MLO3	Interpret the mechanics of soil under different loading conditions and calculate the short- and long-term effects of different loading on various soils.
MLO4	Collect and process data from laboratory experiments and produce a written report with conclusions.

Module Content

Outline Syllabus
Soil as an engineering material: soil composition, determination of particle size analysis, classification, knowledge and understanding of Atterberg limits, phase relationships, compaction: (understanding the compaction behaviour).Seepage analysis: permeability measurement, flow network construction, seepage through embankment dams (filter design). Introduction to the concept of effective stress: effective stresses calculations at various levels. Understand the difference between immediate effect and long-term effect of load on pore water pressure and effective stress, according to permeability. Calculation of long-term effect of load on effective stress and pore water pressure.Geotechnical aspects of ground investigation, Engineering geology of ground profiles, introduction to rocks, geological structures, geological maps.

Module Overview

Additional Information
The module provides an introduction through practical work to the composition, deposition and behaviour of engineering soil. The module makes extensive use of mathematics and engineering principles, this is supported by lectures, case studies, tutorials and analytical exercises

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Report	Laboratory report	30	0	MLO1, MLO2, MLO3, MLO4
Centralised Exam	Examination	70	2	MLO1, MLO2, MLO3