



Module Specification

Engineering Geology Design Project

Version: 2024-25, v3.0, 17 Jul 2024

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Part 1: Information

Module title: Engineering Geology Design Project

Module code: UBGMLU-15-2

Level: Level 5

For implementation from: 2024-25

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Engineering

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module comprises a link between Geology and Civil Engineering and it is designed to introduce students to the applications of Geological Engineering.

Features: Module entry requirements: 60 credits at Level 1

Educational aims: This module aims to enable students to recognise and explore the geological factors that may account for the design, operation and maintenance of

Civil Engineering Structures and Foundations, as well as to propose effective solutions to geo-environmental Engineering problems.

Outline syllabus: This module will cover:

Minerals, rocks, and geologic structures. The geological timescale and principles of stratigraphy.

Engineering description of soils and rocks and factors affecting their strength behaviour.

Effective stress and shear strength behaviour of soils, and Mohr's circle.

Introduction to design of foundations, earth works and excavations.

Land slide, Rockslide, Rock Falls, prevention and mitigation of geological hazards.

Slope failure and improving stability of earth and rocks slopes.

Geological exploration of engineering sites (site investigations, rock mass characterization and engineering geological mapping).

Geological investigation for roads, railways, bridges and critical infrastructure.

Principal geological factors affecting certain engineering projects.

Ground water and ground water recharging.

Part 3: Teaching and learning methods

Teaching and learning methods: Scheduled learning on this module includes lectures, practical work and fieldwork.

Independent learning includes time engaged with directed e-learning, further reading, assessment preparation and assessment completion.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Explain the engineering properties and behaviour of soil and rock as engineering material

MO2 Assess geological conditions for engineering purposes and identify geological engineering factors affecting civil and construction engineering

MO3 Identify and report causes of geological failures and define future measures for protection

MO4 Design basic site investigations and strategies

MO5 Demonstrate (within context) the design and construction of foundations, earth works and excavations for infrastructures

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 0

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ubgmlu-15-2.html) via the following link <https://uwe.rl.talis.com/modules/ubgmlu-15-2.html>

Part 4: Assessment

Assessment strategy: Assessment Task 1: Students will explore the taught theoretical background to the different geological factors that affect design and construction of infrastructural systems, by conducting a literature review of reported case studies, and make an individual presentation of their findings. This assessment task will be marked, fed back on and will lead into Assessment Task 2.

Assessment Task 2: Students will apply their knowledge of the impact of geological factors on engineering projects, and produce a design or site investigation report for professionals and organisations, putting forward ideas including how these geological problems can be combated. Students will be guided in their choice of site and associated project.

Formative Assessment - Practical tests, assignments and feedback

Summative Assessment

Assessment Task 1 – Individual presentation. Learning outcomes 1-3. 15 min presentation.

Assessment Task 2 - Coursework. Learning outcomes 4-5. Individual report (2500 words).

Assessment tasks:

Report (First Sit)

Description: Individual report (2500 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO4, MO5

Presentation (First Sit)

Description: Individual presentation (15min presentation)

Weighting: 0 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Report (Resit)

Description: Individual report (2500 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO4, MO5

Presentation (Resit)

Description: Individual presentation (15min presentation)

Weighting: 0 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Civil Engineering [Frenchay] BEng (Hons) 2023-24

Civil Engineering [Frenchay] MEng 2023-24

Civil Engineering [Frenchay] MEng 2023-24

Civil Engineering {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BEng (Hons)
2021-22

Civil Engineering [Sep][PT][Frenchay][7yrs] MEng 2021-22

Civil and Environmental Engineering [Sep][PT][Frenchay][5yrs] - Not Running BEng
(Hons) 2021-22

Civil Engineering [Sep][PT][Frenchay][5yrs] BEng (Hons) 2021-22

Civil and Environmental Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not
Running BEng (Hons) 2022-23

Civil and Environmental Engineering {Foundation} [Sep][SW][Frenchay][5yrs] - Not
Running BEng (Hons) 2022-23

Civil Engineering {Foundation} [Frenchay] BEng (Hons) 2022-23