



Module Specification

Soil Mechanics

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Part 1: Information

Module title: Soil Mechanics

Module code: UBGMUQ-15-2

Level: Level 5

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Geography & Environmental Mgmt

Partner institutions: None

Field: Geography and Environmental Management

Module type: Module

Pre-requisites: Engineering Principles for Civil Engineering 2023-24, Mathematics for Civil and Environmental Engineering 2023-24

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: In this module you will be introduced to the fundamentals of soil mechanics including the properties and behaviour of soils.

Features: Not applicable

Educational aims: See Learning Outcomes.

Outline syllabus: You will cover:

Soil as a three-phase material.

Soil description, classification and properties.

Laboratory and in situ tests to determine the properties of soils.

The principle of horizontal and vertical effective stress.

Strength of soils (Tresca and Mohr-Coulomb failure criteria).

Compaction, compression and consolidation.

Permeability of soils.

Seepage and flow nets

Part 3: Teaching and learning methods

Teaching and learning methods: This module is taught through a combination of lectures, laboratory practicals and tutorials. The tutorial will involve the discussion of solutions to problems set as part of directed independent learning.

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

MO1 Interpret and analyse data from laboratory and in-situ soil tests to derive appropriate parameters for geotechnical design

MO2 Calculate vertical, horizontal and principal, total and effective stresses in soils

MO3 Calculate the drained and undrained strength of cohesive and cohesionless soils

MO4 Describe the mechanisms of compression, consolidation and compaction in soils

MO5 Calculate the compaction and consolidation of soils

MO6 Calculate seepage using flow nets

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

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

Part 4: Assessment

Assessment strategy: The learning outcomes require application of theory in the analysis of soil mechanics problems, this is assessed through an unseen written examination. More involved work of interpretation and analysis of test data will be assessed through a report based on practical work.

Assessment Task 1 – Online Examination (4 hours). Learning outcomes 2 - 6.
A written examination.

Assessment Task 2 – Report (1000 words). Learning outcomes 1.
A laboratory report documenting and interpreting individual laboratory practical work completed during term time; and analysing and interpreting data provided from other tests. The provided data can be generated uniquely for each student.

Formative feedback will be provided in the laboratory sessions and through discussion of solutions to problems in the tutorial sessions.

Assessment tasks:

Report (First Sit)

Description: Report (1000 words)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1

Examination (Online) (First Sit)

Description: Online Examination (4 hours)

Weighting: 75 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO2, MO3, MO4, MO5, MO6

Report (Resit)

Description: Report (1000 words)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1

Examination (Online) (Resit)

Description: Online Examination (4 hours)

Weighting: 75 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO2, MO3, MO4, MO5, MO6

Part 5: Contributes towards

This module contributes towards the following programmes of study:

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

Civil and Environmental Engineering [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2022-23

Civil and Environmental Engineering [Sep][FT][Frenchay][3yrs] - Not Running BEng (Hons) 2022-23

Civil Engineering [Frenchay] MEng 2022-23

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 and Environmental Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not
Running BEng (Hons) 2021-22

Civil and Environmental Engineering {Foundation} [Sep][SW][Frenchay][5yrs] - Not
Running BEng (Hons) 2021-22

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

Civil Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22

Civil Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22