



## **Module Specification**

### **Soil Mechanics**

Version: 2021-22, v5.0, 23 Dec 2021

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## Part 1: Information

**Module title:** Soil Mechanics

**Module code:** UBGMUQ-15-2

**Level:** Level 5

**For implementation from:** 2021-22

**UWE credit rating:** 15

**ECTS credit rating:** 7.5

**Faculty:** Faculty of Environment & Technology

**Department:** FET Dept of Geography & Environmental Mgmt

**Partner institutions:** None

**Delivery locations:** Frenchay Campus

**Field:** Geography and Environmental Management

**Module type:** Standard

**Pre-requisites:** Engineering Principles for Civil Engineering 2021-22, Mathematics for Civil and Environmental Engineering 2021-22

**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/ubgmuq-15-2.html) via the following link <https://uwe.rl.talis.com/modules/ubgmuq-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.

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

Component B – 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 components:

#### Examination (Online) - Component A (First Sit)

Description: Online Examination (4 hours)

Weighting: 75 %

Final assessment: Yes

Group work: No

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

**Report - Component B (First Sit)**

Description: Report (1000 words)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1

**Examination (Online) - Component A (Resit)**

Description: Online Examination (4 hours)

Weighting: 75 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

**Report - Component B (Resit)**

Description: Report (1000 words)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested:

**Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Civil and Environmental Engineering [Sep][SW][Frenchay][5yrs] - Not Running MEng  
2020-21

Civil and Environmental Engineering [Sep][FT][Frenchay][4yrs] - Not Running MEng  
2020-21

Civil and Environmental Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-  
21

Civil Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2020-21

Civil Engineering [Sep][FT][Frenchay][4yrs] MEng 2020-21

Civil Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Civil Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Civil and Environmental Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2020-21

Civil and Environmental Engineering [Sep][PT][Frenchay][5yrs] BEng (Hons) 2019-20

Civil and Environmental Engineering {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BEng (Hons) 2019-20

Civil and Environmental Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2019-20

Civil and Environmental Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20

Civil and Environmental Engineering [Sep][PT][Frenchay][7yrs] MEng 2019-20