



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Geotechnics		
Module Code	UBGMWQ-15-3	Level	Level 6
For implementation from	2019-20		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Geography and Environmental Management
Department	FET Dept of Geography & Environmental Mgmt		
Module type:	Standard		
Pre-requisites	Soil Mechanics 2018-19		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p><b>Educational Aims:</b> In this module you will develop a basis for interpreting ground conditions for the analysis and design of geotechnical structures. There is an emphasis on decision-making based on understanding uncertainty and risk associated with geotechnical design.</p> <p><b>Outline Syllabus:</b> You will cover:</p> <ul style="list-style-type: none"> <li>Principles for design and planning of site investigations.</li> <li>Interpretation of site investigation reports to extract engineering data.</li> <li>Bearing capacity for piles and shallow foundations.</li> <li>Settlement of shallow foundations.</li> <li>Slope stability analysis of natural and engineered slopes (e.g. embankment dams).</li> <li>Active and passive lateral earth pressures.</li> <li>Geotechnical design of gravity, reinforced concrete and embedded retaining walls.</li> </ul>

## STUDENT AND ACADEMIC SERVICES

**Teaching and Learning Methods:** The module will be taught using a combination of lectures and tutorials. Directed independent learning tasks will be used to help students develop through the module and prepare for the coursework.

### Part 3: Assessment

Component A – Examination:

Exam (2 hours). The examination allows individual assessment of application of theory to a wide range of classical geotechnical problems.

Component B1 – Site investigation design problem (1000 words):

A geotechnical design report on a design problem related to the design of site investigation works for a specific geotechnical project. The use of a design problem allows students to explore the topic in more detail and produce output more closely align with professional practice in the form of a design report, and synthesis data from a range of sources.

Component B2 – Embankment design problem (1000 words):

A geotechnical design report on a design problem related to a specific embankment, requiring slope stability analysis. The use of a design problem allows students to apply theory to a realistic design problem and through iteration and optimisation develop an awareness of how design needs and constraints affect the solution. Unique design input data can be generated for each student individually.

Formative feedback will be provided on tutorial exercises during timetabled sessions. The tutorial exercise prepare the students to undertake the design problems, and support learning for the examination.

First Sit Components	Final Assessment	Element weighting	Description
Professional Practice Report - Component B		20 %	Site investigation design problem (1000 words)
Professional Practice Report - Component B		20 %	Slope stability design problem (1000 words)
Examination - Component A	✓	60 %	Examination (2 hours)
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STUDENT AND ACADEMIC SERVICES

<b>Part 4: Teaching and Learning Methods</b>																	
Learning Outcomes	<p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>Module Learning Outcomes</b></th> <th style="text-align: left;"><b>Reference</b></th> </tr> </thead> <tbody> <tr> <td>Apply soil mechanics to the analysis and geotechnical design of foundations (deep and shallow) and earth retaining structures</td> <td>MO1</td> </tr> <tr> <td>Analyse the stability of slopes</td> <td>MO2</td> </tr> <tr> <td>Identify possibilities of uncertainty in geotechnical engineering and adopt appropriate strategies to deal with uncertainty</td> <td>MO3</td> </tr> <tr> <td>Apply understanding of site investigation, laboratory and in-situ testing to the development of a Geotechnical Design Report</td> <td>MO4</td> </tr> </tbody> </table>	<b>Module Learning Outcomes</b>	<b>Reference</b>	Apply soil mechanics to the analysis and geotechnical design of foundations (deep and shallow) and earth retaining structures	MO1	Analyse the stability of slopes	MO2	Identify possibilities of uncertainty in geotechnical engineering and adopt appropriate strategies to deal with uncertainty	MO3	Apply understanding of site investigation, laboratory and in-situ testing to the development of a Geotechnical Design Report	MO4						
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Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p><a href="https://uwe.rl.talis.com/index.html">https://uwe.rl.talis.com/index.html</a></p>																

<b>Part 5: Contributes Towards</b>
This module contributes towards the following programmes of study: