



MODULE SPECIFICATION

Part 1: Information			
Module Title	Structural Design and Soil Mechanics		
Module Code	UBGMJD-30-2	Level	Level 5
For implementation from	2019-20		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Geography and Environmental Management
Department	FET Dept of Geography & Environmental Mgmt		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Overview: Pre-requisites: 60 credits at Level 1 to include: UFMFYG-15-1 Mathematics for Civil and Environmental Engineering UBGLW9-15-1 Engineering Principles for Civil Engineering UBGMXU-15-1 Engineering and Environmental Materials</p> <p>Features: Module Entry Requirements: 60 credits at Level 1 to include pre-requisites.</p> <p>Educational Aims: This module aims to provide students with detailed procedures for designing structural elements. It uses standard codes of practice to design elements using different structural materials. The soil mechanics part provides a basis for interpreting ground conditions and analysing a range of problems related to both hard and soft solutions.</p> <p>Outline Syllabus: The syllabus includes:</p> <p>Loading: permanent load, variable load, wind load, material densities and design loads. Structural steel: material properties, basic beam design, laterally unrestrained beams, columns, basic welded and bolted joints, and composite sections using Eurocodes. Reinforced concrete: material properties, bending design, shear design, flanged beams, slabs, columns, foundations, and detailing using Eurocodes.</p>

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Masonry: material properties, plain walls, concentrated loading, openings, basic lateral loading using Eurocodes.
 Soil description, classification and properties.
 Engineering behaviour of soil (pore pressure and effective stress, mechanics of soil, compaction, compression and consolidation).
 Groundwater: water pressure and flow, permeability, seepage and flow nets.
 Stresses in the ground: geostatic stresses, induced by loading and lateral earth pressures.

Teaching and Learning Methods: This module will be delivered through a number of lecture sessions aimed at establishing the discipline context, key definitions/concepts, and also at establishing a framework for learning. Through this mechanism learners build upon the fundamental concepts covered in the lectures and start applying new understanding through the tasks and activities in tutorials and laboratories. Formative feedback is provided to the group during contact sessions.

Contact Hours:

On average students will receive 3 hours of contact time per week. This will be in a range of formats, including lectures, tutorial or computer-based sessions, formative feedback sessions and support via e-mail.

The amount of time spent on activities in this module is shown below:

Activity:

Contact time (lectures/feedback/practical sessions and fieldwork): 76 hours
 Assimilation and development of knowledge: 192 hours
 Coursework preparation: 32 hours
 Total study time: 300 hours

Part 3: Assessment

Component A - Examination:

Exam (2 hours) on structural design.
 Report (1000 words) on structural design.

Component B - Report:

Portfolio on soil mechanics: In-class tests, observed laboratories and retaining wall exercise (3000 words).

First Sit Components	Final Assessment	Element weighting	Description
Report - Component A		15 %	Report (1000 words)
Portfolio - Component B		50 %	Portfolio (equivalent to 3000 words)
Examination - Component A	✓	35 %	Examination (2 hours)
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Part 4: Teaching and Learning Methods																	
Learning Outcomes	<p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Select appropriate engineering properties for structural design in a range of materials</td> <td>MO1</td> </tr> <tr> <td>Design basic structural steel elements and connections</td> <td>MO2</td> </tr> <tr> <td>Design basic reinforced concrete elements</td> <td>MO3</td> </tr> <tr> <td>Design masonry elements</td> <td>MO4</td> </tr> <tr> <td>Demonstrate familiarity with the most common laboratory and in-situ soil tests</td> <td>MO5</td> </tr> <tr> <td>Interpret geotechnical data to select appropriate parameters for analysis and design</td> <td>MO6</td> </tr> <tr> <td>Identify the failure mechanisms associated with soils, including structural and ground water modes</td> <td>MO7</td> </tr> </tbody> </table>	Module Learning Outcomes	Reference	Select appropriate engineering properties for structural design in a range of materials	MO1	Design basic structural steel elements and connections	MO2	Design basic reinforced concrete elements	MO3	Design masonry elements	MO4	Demonstrate familiarity with the most common laboratory and in-situ soil tests	MO5	Interpret geotechnical data to select appropriate parameters for analysis and design	MO6	Identify the failure mechanisms associated with soils, including structural and ground water modes	MO7
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Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/modules/ubgmjd-30-2.html</p>																

Part 5: Contributes Towards	
<p>This module contributes towards the following programmes of study:</p> <p>Civil Engineering [Jan][FT][Northshore][4yrs] MEng 2018-19</p>	