



MODULE SPECIFICATION

Part 1: Information			
Module Title	Structural Design and Soil Mechanics		
Module Code	UBGMJD-30-2	Level	Level 5
For implementation from	2018-19		
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		
Contributes towards			
Module type:	Standard		
Pre-requisites	Engineering and Environmental Materials 2018-19, Engineering Principles for Civil Engineering 2018-19, Mathematics for Civil and Environmental Engineering 2018-19		
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.</p>

STUDENT AND ACADEMIC SERVICES

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.
 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)
Resit 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)

STUDENT AND ACADEMIC SERVICES

Part 4: Teaching and Learning Methods		
Learning Outcomes	On successful completion of this module students will be able to:	
	Module Learning Outcomes	
	MO1	Select appropriate engineering properties for structural design in a range of materials
	MO2	Design basic structural steel elements and connections
	MO3	Design basic reinforced concrete elements
	MO4	Design masonry elements
	MO5	Demonstrate familiarity with the most common laboratory and in-situ soil tests
	MO6	Interpret geotechnical data to select appropriate parameters for analysis and design
MO7	Identify the failure mechanisms associated with soils, including structural and ground water modes	
Contact Hours	Contact Hours	
	Independent Study Hours:	
	Independent study/self-guided study	224
	Total Independent Study Hours:	224
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	76
	Total Scheduled Learning and Teaching Hours:	76
	Hours to be allocated	300
	Allocated Hours	300
Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p>https://uwe.rl.talis.com/modules/ubgmjd-30-2.html</p>	