



MODULE SPECIFICATION

Part 1: Information			
Module Title	Structural Analysis and Geotechnics (cee)		
Module Code	UBGMHA-30-3	Level	Level 6
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	Structural Design and Soil Mechanics 2019-20		
Excluded Combinations	None		
Co- requisites	Applications of Mathematics in Civil and Environmental Engineering 2019-20		
Module Entry requirements	None		

Part 2: Description
<p>Overview: Pre-requisites 30 credits at Level 2 to include: UBGMJD-30-2 Structural Design and Soil Mechanics</p> <p>Features: Module entry requirements: 30 credits at Level 2</p> <p>Educational Aims: In addition to the learning outcomes, in this module students will develop the necessary knowledge, understanding and skills to analyse and solve problems relating to multi-variable structural systems of both statically determinate and indeterminate structure types. The ground engineering part provides a basis for interpreting ground conditions and analysing a range of problems related to both hard and soft solutions. There is an emphasis on decision making based on an understanding of uncertainty and risk throughout the asset lifecycle.</p> <p>Outline Syllabus: The syllabus includes:</p> <p>Internal loading functions: moment and shear functions.</p> <p>Deflection calculations of beams and trusses (e.g. virtual work method).</p> <p>Elastic analysis of statically indeterminate structures (e.g. moment distribution method).</p>

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Plastic analysis to calculate collapse loads of beams and frames.

Influence line of beams and trusses.

Arch Analysis.

Qualitative analysis and the use of computer software.

Site investigation design and planning, phases; site reports; obtaining/extracting engineering data.

Bearing capacity and settlement of foundations.

Slope stability and preliminary design of earth embankment dam.

Design of gravity and embedded earth and water retaining walls.

Teaching and Learning Methods: This module will be delivered through lecture sessions aimed at establishing the discipline context, key definitions/concepts, and also at establishing a framework for learning. The lectures will be supported by e-learning using computer-based learning exercises. Scheduled learning also includes a number of practical and field work sessions aimed at skills development. Through these mechanisms learners will also build upon the fundamental concepts covered in the lectures and start applying new understanding through the tasks and activities provided. Regular formative feedback is built into the weekly 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, laboratory practicals, field work, 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): 72

Assimilation and development of knowledge: 168

Coursework preparation: 60

Total study time: 300

Part 3: Assessment

Component A - Examination. Learning outcomes 1,2,3, 4 and 5.

Exam (3 hours) on structural analysis.

Component B – Examination. Learning outcomes 6, 7 and 8.

Exam (3 hours) on geotechnics

First Sit Components	Final Assessment	Element weighting	Description
Examination - Component B		50 %	Examination (3 hours)
Examination - Component A	✓	50 %	Examination (3 hours)

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Resit Components	Final Assessment	Element weighting	Description
Examination - Component B		50 %	Examination (3 hours)
Examination - Component A	✓	50 %	Examination (3 hours)

Part 4: Teaching and Learning Methods

Learning Outcomes	On successful completion of this module students will achieve the following learning outcomes:		
	Module Learning Outcomes	Reference	
	Understand the key difference between determinate and indeterminate structures and between plastic and elastic analysis with reference to equilibrium, compatibility and material properties	MO1	
	Use qualitative methods to analyse determinate and indeterminate structures elastically	MO2	
	Use quantitative methods to analyse determinate and indeterminate structures elastically	MO3	
	Use plastic methods to analyse determinate and indeterminate structures	MO4	
	Analyse the effect of moving loads on beams and trusses	MO5	
	Apply soil mechanics to the analysis and design of foundations (deep and shallow), earth retaining structures and embankments	MO6	
	Recognise the nature of uncertainty in geotechnical engineering and adopt appropriate strategies to deal with uncertainty	MO7	
	Apply understandings of site investigation, laboratory and in-situ testing to the development of a Geotechnical Design Report	MO8	
Contact Hours	Independent Study Hours:		
	Independent study/self-guided study	228	
	Total Independent Study Hours:	228	
	Scheduled Learning and Teaching Hours:		
	Face-to-face learning	72	
	Total Scheduled Learning and Teaching Hours:	72	
	Hours to be allocated	300	
	Allocated Hours	300	
	Reading List	<i>The reading list for this module can be accessed via the following link:</i>	
		https://uwe.rl.talis.com/modules/ubgmha-30-3.html	

Part 5: Contributes Towards
This module contributes towards the following programmes of study: