



MODULE SPECIFICATION

Part 1: Information			
Module Title	Stress Analysis		
Module Code	UFMFQA-15-2	Level	Level 5
For implementation from	2018-19		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Contributes towards			
Module type:	Standard		
Pre-requisites	Stress & Dynamics 2018-19		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Educational Aims: One of the key disciplines that underpin mechanical engineering is introduced in this module and supported by practical laboratory exercises. This foundation of knowledge presented here will be used to extend specialist knowledge in future years.</p> <p>Outline Syllabus: Stress Analysis: Stress Concentration Un-symmetric bending, Curved beams, Bending of composite beams Torsion (non-circular cross sections) Elementary elastic plastic analysis, Buckling of struts, Beams deflections, Mohr's Circle for stress and strain, Rosette analysis, Failure criteria for ductile and brittle materials,</p>

STUDENT AND ACADEMIC SERVICES

Experimental Stress Analysis:

Torsion (non-circular cross sections), Buckling of struts, Beams deflections, Rosette analysis, Un-symmetric bending, Curved beams,

Teaching and Learning Methods: Large group lecture supported by small tutorials and laboratory sessions. Study time outside of contact hours will be spent on going through exercises and example problems.

Lab sessions (Group work) will provide experience of empirical methods and comparison with theoretical analysis

Scheduled learning includes lectures, tutorials and lab sessions.

Independent learning includes hours engaged with essential reading, assignment preparation and completion.

Part 3: Assessment

Component A: Exam

Assessed via end of semester Exam (3 hours) to assess the students understanding of concepts and techniques and a series of online e-assessment tests to encourage engagement and provide formative feedback.

Component B: Laboratory report

Assessed via end of semester report. Students will work in groups to carry out a series of experiments. Each student will write a detailed report on one of those experiments and reflect on other experiments carried out by the rest of the group.

First Sit Components	Final Assessment	Element weighting	Description
Online Assignment - Component A		18.75 %	Online tests
Laboratory Report - Component B		25 %	Lab report
Examination - Component A	✓	56.25 %	Exam (3 hours)
Resit Components	Final Assessment	Element weighting	Description
Laboratory Report - Component B		25 %	Lab report
Examination - Component A	✓	75 %	Exam

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	Show a detailed knowledge and understanding of theoretical and experimental Stress analysis and structural behaviour with regard to the standard engineering components and artefacts
	MO2	Demonstrate subject specific skills with respect to solving complex problems in the general stress analysis of realistic engineering components and understand the design principles involved.
	MO3	Select, apply and evaluate advanced stress analysis techniques for a wide range of engineering problems
	MO4	Demonstrate a comprehensive understanding of analytical and experimental methods for the solution of strength and stiffness
	MO5	Demonstrate a comprehensive understanding of structures subjected to a variety of load types and be able to predict modes of failure.
	MO6	Model and simplify real problems, and apply mathematical methods of analysis
Contact Hours	Contact Hours	
	Independent Study Hours:	
	Independent study/self-guided study	114
	Total Independent Study Hours:	114
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	36
	Total Scheduled Learning and Teaching Hours:	36
	Hours to be allocated	150
	Allocated Hours	150
Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p>https://uwe.rl.talis.com/modules/ufmfqa-15-2.html</p>	