



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Structural Integrity in Design		
Module Code	UFMEBP-15-M	Level	Level 7
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	Robotics [Jan][PT][Frenchay][2yrs] MRes 2018-19 Mechanical Engineering [Sep][FT][Frenchay][1yr] MSc 2018-19 Robotics [Sep][FT][Frenchay][1yr] MRes 2018-19 Robotics [Sep][PT][Frenchay][2yrs] MRes 2018-19 Robotics [Jan][FT][Frenchay][1yr] MRes 2018-19 Mechanical Engineering [Sep][PT][Frenchay][2yrs] MSc 2018-19		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p><b>Educational Aims:</b> See Learning Outcomes.</p> <p><b>Outline Syllabus:</b> The syllabus includes:</p> <p>Structural integrity concepts            Failure criteria            Designing against fatigue</p>

## STUDENT AND ACADEMIC SERVICES

Non-destructive testing/inspection techniques  
Structural health monitoring,  
Application of fracture mechanics principles in the design/analysis of components for various loading conditions and materials

**Teaching and Learning Methods:** These will be based on a combination of lectures, discussions in small groups, case studies and tutorials.

This module is based on a lecture series outlining the fundamentals of structural integrity with regard to its application in the practice of engineering analysis and design.

Students will be expected to learn independently and carry out reading and directed study beyond that available in taught classes.

Scheduled learning includes lectures and tutorials.

Independent learning includes hours engaged with essential reading, case study preparation, assignment (tutorial questions) preparation and completion etc.

There is a total of 24 scheduled contact hours for lecturing and tutoring Structural Integrity in Design per 15-credit module.

There is also a total of 12 office contact hours (1 hour per week) for formative feedback and support.

Additional 12 virtual contact hours (1 hour per week) for the preparation of teaching materials and other technology-aided related course materials.

Lectures/tutorials: 24 hours  
Surgery hours: 12 hours  
Scheduled virtual contact hours: 12 hours  
Self-directed learning: 72 hours  
Exam preparation: 30 hours  
Total hours: 150 hours

### Part 3: Assessment

The assessment strategy is to employ one assessment vehicle — a 3 hour exam. Alongside the other modules at M-level, this forms a part of a more general strategy of mixed types of assessment.

The exam has been chosen since it provides a good opportunity to test, under controlled conditions, the breadth and depth of the student's knowledge in areas critical to the module. This mode of assessment is also favoured by the IMechE.

First Sit Components	Final Assessment	Element weighting	Description
Examination - Component A	✓	100 %	Examination (3 hours)
Resit Components	Final Assessment	Element weighting	Description
Examination - Component A	✓	100 %	Examination (3 hours)

STUDENT AND ACADEMIC SERVICES

<b>Part 4: Teaching and Learning Methods</b>		
Learning Outcomes	On successful completion of this module students will be able to:	
	<b>Module Learning Outcomes</b>	
	MO1	Design and undertake substantial investigations to address significant areas of theory and/or practice
	MO2	Select appropriate advanced methodological approaches and critically evaluate their effectiveness
	MO3	Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems
	MO4	Demonstrate and critically evaluate current theoretical and methodological approaches through use of professional literature
	MO5	Act with initiative in decision-making within professional or given guidelines
	MO6	Communicate effectively using professional engineering terms
Contact Hours	<b>Contact Hours</b>	
	<b>Independent Study Hours:</b>	
	Independent study/self-guided study	102
	<b>Total Independent Study Hours:</b>	102
	<b>Scheduled Learning and Teaching Hours:</b>	
	Face-to-face learning	48
	<b>Total Scheduled Learning and Teaching Hours:</b>	48
	<b>Hours to be allocated</b>	150
	<b>Allocated Hours</b>	150
	Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p><a href="https://uwe.rl.talis.com/modules/ufmebp-15-m.html">https://uwe.rl.talis.com/modules/ufmebp-15-m.html</a></p>