



MODULE SPECIFICATION

Part 1: Information			
Module Title	Mathematics for Civil and Environmental Engineering		
Module Code	UFMFYG-15-1	Level	Level 4
For implementation from	2020-21		
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		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Overview: In this module students will study standard mathematical techniques used in the solution of engineering problems.</p> <p>Educational Aims: See Learning Outcomes</p> <p>Outline Syllabus: Algebraic Manipulation and Standard engineering functions: Dimensions, polynomials, rational functions, exponential and logarithmic functions, trigonometric and hyperbolic functions, the inverse function, solving non-linear equations.</p> <p>Matrix and Vector Algebra: Properties of matrices and determinants, the inverse matrix, Gaussian elimination. Vector and scalar quantities, resolution of forces, properties of vector quantities, vector addition, unit vectors, position vectors, scalar product, vector product.</p> <p>Differential and Integral Calculus: Limits, average rate and instantaneous rate of change, differentiation, linearity, product rule, quotient rule and chain rule. Higher order derivatives, classification of turning points. Integration, indefinite and definite integration, integration by parts, numerical integration. First order differential equations, separation of variables.</p> <p>Teaching and Learning Methods: Scheduled learning includes lectures and workshops with tutorial sessions.</p>

STUDENT AND ACADEMIC SERVICES

Independent learning includes hours engaged in problem solving and preparation of tutorial questions.

Contact time: 36 hours

Assimilation and skill development: 54 hours

Coursework: 15 hours

Exam preparation: 45 hours

Total: 150 hours

Part 3: Assessment

Component A, an end of module examination has been chosen to test the understanding and knowledge of functions, calculus and linear algebra techniques under controlled conditions.

Component B, uses an e-assessment strategy to provide regular and rapid feedback to help students consolidate their knowledge as the module progresses.

First Sit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	75 %	Online Examination
Online Assignment - Component B		25 %	E-assessment
Resit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	75 %	Online Examination
Online Assignment - Component B		25 %	E-assessment

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
	Select and apply appropriate techniques from calculus to the solution of a given problem	MO1
	Select and apply appropriate techniques from linear algebra to the solution of a given problem	MO2
	Interpret a mathematical model in terms of the physical problem being described with reference to the underlying assumptions and limitations of the mode	MO3
	Use appropriate notation and terminology to communicate mathematical concepts	MO4
Contact Hours	Independent Study Hours:	
	Independent study/self-guided study	114

STUDENT AND ACADEMIC SERVICES

	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><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/modules/ufmfyg-15-1.html</p>	

Part 5: Contributes Towards
<p>This module contributes towards the following programmes of study:</p> <p>Civil and Environmental Engineering [Sep][PT][Frenchay][5yrs] BEng (Hons) 2019-20</p> <p>Civil and Environmental Engineering {Apprenticeship} [Sep][PT][Frenchay][5yrs] BEng (Hons) 2019-20</p> <p>Civil and Environmental Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2019-20</p> <p>Civil and Environmental Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20</p> <p>Architecture and Environmental Engineering {Foundation} [Sep][SW][Frenchay][6yrs] BEng (Hons) 2019-20</p> <p>Architecture and Environmental Engineering {Foundation} [Sep][FT][Frenchay][5yrs] BEng (Hons) 2019-20</p>