MODULE SPECIFICATION

Part 1: Information			
Module Title	Mathematics for Civil and Environmental Engineering		
Module Code	UFMFYG-15-1	Level	Level 4
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	Architecture and Environmental Engineering [Sep][FT][Frenchay][4yrs] BEng (Hons) 2018-19 Building Services Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2018-19 Building Services Engineering {Apprenticeship} [Sep][PT][Frenchay][5yrs] BEng (Hons) 2018-19 Architecture and Environmental Engineering [Sep][SW][Frenchay][5yrs] BEng (Hons) 2018-19 Civil and Environmental Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2018-19 Architecture and Environmental Engineering [Sep][SW][Frenchay][8yrs] - Not Running MDes 2017-18 Civil and Environmental Engineering [Sep][FT][Frenchay][4yrs] MEng 2018-19 Civil and Environmental Engineering [Sep][SW][Frenchay][5yrs] MEng 2018-19 Civil and Environmental Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2018-19 Civil Engineering [Jan][FT][Northshore][4yrs] MEng 2018-19 Building Services Engineering {Top-Up} [Sep][PT][SHAPE][1.5yrs] BEng (Hons) 2018-19 Building Services Engineering {Top-Up} [Sep][FT][SHAPE][1yr] BEng (Hons) 2018-19		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview: In this module students will study standard mathematical techniques used in the solution of engineering problems.

Educational Aims: See Learning Outcomes

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.

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.

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.

Teaching and Learning Methods: Scheduled learning includes lectures and workshops with tutorial sessions.

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, a two hour 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**
Online Assignment - Component B		25 %	E-assessment
Examination - Component A	✓	75 %	Examination (2 hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Online Assignment - Component B		25 %	E-assessment
Examination - Component A	✓	75 %	Examination (2 hours)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Select and apply appropriate techniques from calculus to the solution of a given problem
MO2	Select and apply appropriate techniques from linear algebra to the solution of a given problem
MO3	Interpret a mathematical model in terms of the physical problem being described with reference to the underlying assumptions and limitations of the mode
MO4	Use appropriate notation and terminology to communicate mathematical concepts

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

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/modules/ufmfyg-15-1.html