MODULE DESCRIPTOR

Module Title

Mathematics 1B

Reference	EN1912	Version	4
Created	March 2023	SCQF Level	SCQF 7
Approved	June 2002	SCQF Points	15
Amended	August 2023	ECTS Points	7.5

Aims of Module

To provide the student with the ability to apply introductory level calculus and statistics to engineering problems.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Employ matrix techniques to solve simultaneous linear equations.
2	Apply simple descriptive and summary statistics and elementary probability theory to problems in engineering.
3	Implement algebraic and numerical techniques for simple first order ordinary differential equations.
4	Apply calculus to problems in engineering mathematics.
5	Implement computational packages in support of the other Learning Outcomes.

Indicative Module Content

The syllabus will include: Matrices: Simple matrix algebra. Determinants. Applications to the solution of simultaneous linear equations. Differential Equations: Solution of 1st order ODEs by separation of variables and integration factor methods. Power series for elementary functions. Partial differentiation. Statistics: Simple descriptive statistics. Probability and reliability. Elementary probability distributions. Applications to problems in engineering. The use of a computer mathematics package for solving problems in engineering mathematics.

Module Delivery

The module is delivered using a series of lectures with associated tutorials and computer laboratories where techniques can be applied.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	40	N/A
Non-Contact Hours	110	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Practical Exam	Weighting:	30%	Outcomes Assessed:	5
Description:	Computer based laboratory test.				

Component 2

Type:	Examination	Weighting:	70%	Outcomes Assessed:	1, 2, 3, 4
Description:	Closed book examination.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The overall grade will be calculated using the table shown below:

		Practical Exam:						
		A	**B**	**C**	**D**	**E**	**F**	**NS**
	A	A	A	B	B	E	E	
	B	B	B	B	C	E	E	
	C	B	C	C	C	E	E	
Examination:	**D**	C	C	D	D	E	E	
	E	E	E	E	E	E	F	
	F	F	F	F	F	F	F	
	NS	Non-submission of work by published deadline or non-attendance for examination						

Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1. STROUD, K.A. and BOOTH, D.J., 2020. Engineering Mathematics. 8th ed. Red Globe Press
2. SINGH, K., 2011, Engineering Mathematics Through Applications, 2nd ed., Palgrave
3. James, G. and DYKE, P., 2020, Modern Engineering Mathematics, 6th ed., Palgrave