Module Details	
Module Title	Foundation Mathematics 1
Module Code	ENM3001-B
Academic Year	2021/2
Credits	20
School	Department of Chemical Engineering
FHEQ Level	RQF Level 3

Contact Hours	
Type	Hours
Lectures	24
Tutorials	48
Directed Study	128

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1

Module Aims

(1) To develop the basic skills of algebra and geometry and to introduce the mathematics of engineering. To extend the knowledge base in algebra and geometry.
(2) To provide students with an appreciation of the breadth of engineering. To develop computing skills by using Mathematical Software Suites. To successfully deploy these skills to generate and communicate engineering knowledge to a range of audiences.

Outline Syllabus

Basic algebra: rules of indices and logarithms, manipulation of formulas, factorisation, completing the square, linear and quadratic equations and associated inequalities.
' Plane co-ordinate geometry: distance, lines, circles.
' Functions: notation, polynomial, reciprocal, trigonometric, exponential and logarithmic functions with properties and graphs.
' Series: arithmetic, and geometric series.
' Limit definition and graphical representation.
' Derivatives and integrals of algebraic functions.
Use of GeoGebra and Mathway to solve many engineering problems.

Learning Outcomes

Outcome Number	Description
O1	Apply standard algebraic techniques, geometry and trigonometry when solving problems; describe the capabilities and limitations of computer systems and know how to use these systems when solving problems.
O2	See how different mathematical techniques are needed to solve problems in engineering contexts; use appropriate PC systems, tools and applications when solving problems.
O3	Apply the skills and knowledge learnt to systematic problem solving; use these skills for data management, data presentation and other IT processes.

Learning, Teaching and Assessment Strategy

Concepts, principles & practical calculations are developed and practised in mixed lecture/tutorial classes and are consolidated in tutorial group sessions. All lectures and tutorials will be delivered online. Face to face meetings with individual groups will be set up to provide further support and guidance, as appropriate. Written classroom tests will assess the development of the application of practical skills to the knowledge base of the strand, and the formal examinations will assess the wider learning outcomes expressed in the descriptor. In all cases feedback is provided. Practical skills will be developed in laboratory sessions using GeoGebra and MathWay. Cognitive and personal skills will be developed by problem solving and design exercises.

Mode of Assessment

Type	Method	Description	Weighting
Summative	Examination - Open Book	Examination open book	70%
Summative	Classroom test	Online open book tests with a feedback and reflection session	30%
Referral	Examination - Open Book	Examination open book (2 Hrs)	100%

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.