Liverpool John Moores University

Module Proforma

Approved, 2022.02

Summary Information

Module Code	3509USST
Formal Module Title	Foundation Mathematics for Engineering and Technology 1
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 3
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Dante Matellini	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
University of Shanghai For Science and Technology

Learning Methods

Learning Method Type	Hours
Lecture	22
Tutorial	22

Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module aims to provide students with the mathematical knowledge, understanding and skills which are required to use mathematics as an analytical tool in engineering and technology subjects.

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Apply arithmetic operations to manipulate numbers and calculate values.
MLO2	Manipulate and solve a range of equations algebraically and numerically.
MLO3	Represent functions in a graphical form.
MLO4	Apply geometrical principles to engineering and technology problems.

Module Content

Outline Syllabus
Arithmetic • Types of number, factors, multiples, order of operations, indices and surds. • Fractions, decimal numbers, addition, subtraction, multiplication and division. • Decimal places, significant figures, scientific and engineering notation, and rounding off. • Percentages, percentage change, percentage error Algebra • Fractions; addition, multiplications, division, simplification. • Powers, product, quotient, power of a power, roots, negative indices. • Algebraic expressions and equations, transposition, simplification and factorisation. • Solution of linear equations, simultaneous equations and quadratic equations both algebraically and graphically. • Direct and inverse proportionality • Graph sketching and transformation of graphs. • Exponential functions, introduction. • Logarithms, logs to base 10, natural logs, products, quotients, powers. • Sequences and series, arithmetic, geometric, sums to infinity. Geometry • Perimeters, areas, volumes and surface areas of common geometrical shapes and typical applications. • Straight line graphs including gradients, intercepts, parallel and perpendicular lines, mid-points and distance from a point or line. • Circles: Equations and graphs, tangents, arc length and areas of sectors. Angles in degrees and radians

Module Overview

Additional Information
This module covers the fundamental mathematical skills needed for further study in engineering and technology subjects, and will include extensive practice problem solving, assessed regularly to support a structured approach to learning.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Test	Test	30	0	MLO1, MLO2, MLO3, MLO4
Exam	Exam	70	2	MLO1, MLO2, MLO3, MLO4