

Liverpool John Moores University

Title: Foundation Mathematics for Engineering and Technology 1
Status: Definitive
Code: **3002FND** (120962)
Version Start Date: 01-08-2016

Owning School/Faculty: Applied Mathematics
Teaching School/Faculty: Applied Mathematics

Team	Leader
Ian Jarman	Y

Academic Level: FHEQ3 **Credit Value:** 20 **Total Delivered Hours:** 50

Total Learning Hours: 200 **Private Study:** 150

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	24
Tutorial	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS2	Final examination	70	2
Test	AS1	Continual assessment	30	

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:

- 1 Apply arithmetic operations to manipulate numbers and calculate values.
- 2 Manipulate and solve a range of equations algebraically and numerically.
- 3 Represent functions in a graphical form.
- 4 Apply geometrical principles to engineering and technology applications.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Final examination	1	2	3	4
Continual assesement	1	2	3	4

Outline Syllabus

The list below provides an indicative list of topics which may be covered in this module:

Arithmetic:

- *Factors, multiples. Concepts of highest common factor and lowest common multiple.*
- *Fractions, addition, multiplication, division, simplification.*
- *Decimal fractions, decimal places, significant figures, scientific notation, rounding off.*
- *Error, percentage, modulus, sigma notation.*

Algebra:

- *Fractions; addition, multiplications, division, simplification.*
- *Algebraic formulae, equations, transposition, simplification, factorization.*
- *Powers, product, quotient, power of a power, roots, negative indices.*
- *Proportionality, direct proportionality, inverse proportionality.*
- *Linear equations, solution, graphs.*
- *Simultaneous linear equations, analytical and graphical solution.*
- *Quadratic equations, solution using formula, graphs.*
- *Exponential functions, introduction.*
- *Logarithms, logs to base 10, natural logs, products, quotients, powers.*
- *Inequalities, intervals.*

Geometry:

- *Perimeters, areas, volumes, typical applications.*
- *Cartesian coordinates, straight line - gradient intercept form*

Learning Activities

Lectures, Tutorials, Guided Private Study

Notes

In delivering this module, and being mindful of its importance in preparing students for higher level study, it is expected that the module deliverer will provide plenty of practice examples for the students to engage with, in order to establish dexterity with the techniques outlined above.

It is essential that the techniques which are taught in Foundation Mathematics 1 are embedded throughout Foundation Mathematics 2.