Prifysgol **Wrecsam**
Wrexham University

Module specification

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Module Code	ENG4B9
Module Title	Foundation Maths for STEM students
Level	4
Credit value	10
Faculty	FACE
HECoS Code	101029
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BEng Production Engineering	Standalone Module

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	16 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	4 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**20** hrs
Placement / work based learning	0 hrs
Guided independent study	80 hrs
Module duration (total hours)	100 hrs

For office use only	
Initial approval date	10th June 2024
With effect from date	10th June 2024
Date and details of revision	
Version number	1

Module aims

To integrate mathematical principles skills in an engaging and practical manner, enhancing students' ability to solve real-world problems in computing, engineering, and the built environment for apprenticeships.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Understand units, fractions, indices, logarithms and polynomials; also, use algebra to manipulate equations and to solve geometric problems including distance, midpoint, slope, perimeters, areas and volumes.
2	Use trigonometric principles, including Pythagoras' theorem, sine, cosine, and tangent ratios, apply the sine and cosine rules and understand the ratio pi.
3	Represent data in various formats (tables, graphs, charts) and analyse the data using standard statistical methods, including mean, median, mode, standard deviation, etc.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

The assessment tasks for this module evaluate students' comprehension and application of mathematical concepts through a series of 3 in-class test. Students solve problems using trigonometry, equation manipulation and basic statistics. The in-class tests, lasting 45 minutes each, assesses overall understanding across the module topics, aiming to develop mathematical proficiency for real-world challenges in computing, engineering, and the built environment.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2,3	In-class test	100

Derogations

N/A

Learning and Teaching Strategies

Aligned with the principles of the Active Learning Framework (ALF), the module will incorporate a blended digital approach utilising a Virtual Learning Environment (VLE). These resources may include a range of content such as first and third-party tutorials, instructional videos, supplementary files, online activities, and other relevant materials to enhance their learning experience.

The module will be delivered online using a combination of lectures and tutorials delivered through structured video content or as traditional face to face on campus sessions.

Access to lecture materials and additional resources will be provided via the University's VLE platform.

Indicative Syllabus Outline

Number Systems and Data Representation

Units, Fractions, Indices, Logarithms, Polynomials and Powers.

Algebra: Rearranging and Manipulating Equations.

Geometry: Distances, Midpoints, Perimeters, Areas and Volumes. Simpsons and Mid-Ordinant rules.

Trigonometry: Pythagoras' Theorem. Sine, Cosine and Tangent ratios. Sine and Cosine rules. Circles, the ratio Pi, Circumference and Area.

Basic Statistics and Data Analysis – Mean, Median, Mode, Inter-Quartile Ranges and Standard Deviations. Graphical Representation – Bar Charts, Histograms, Scatter Graphs.

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Croft, A. and Davison, R. (2016), *Foundation Maths*, 6th Ed. Prentice Hall.

Other indicative reading
Stroud, K.A, Booth, D.J (2009), *Foundation Mathematics,* 1st Ed. Palgrave.

Jenkyns, T. & Stephenson, B. (2018), F*undamentals of Discrete Math for Computer Science*. 2nd Ed. Springer