Module Title:	Mathematics and Computer Applications 1
Language of Instruction:	English

Credits:	5

NFQ Level:	6

Module Delivered In	3 programme(s)

Teaching & Learning Strategies:	This module will be delivered using a mixture of lectures and tutorials. The Institute Managed Learning Environment will be used to interactively communicate with students e.g. tutorial sheets, on-line tests, discussion forums, reference information.

Module Aim:	To give the students the knowledge, competencies and skills necessary to support the mathematical procedures encountered in the other modules of this programme.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Apply fundamental algebra theory to solve different types of problems, equations and formulae.
LO2	Produce and interpret graphs; analyse various mathematical functions.
LO3	Practice trigonometric functions and graphs and employ trigonometric ratios in various engineering contexts
LO4	Express and solve mathematical problems using a numerical computation environment

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

Module Content & Assessment

Indicative Content
Basic Algebra • Apply rules of precedence in calculation • Use calculator • Apply rules of indices • Convert units and use prefixes • Add, subtract, multiply fractions and algebraic expressions • Factorise algebraic expressions • Solve simple equations, simultaneous and quadratic equations • Transpose formulae • Use log laws and solve log and exponential equations • Form Partial Fractions
Graphs and Functions • Plot and note properties of straight line, quadratic, log, exponential and sinusoidal graphs • Prove laws using linear graphs • Use and apply graphs in engineering applications.
Trigonometry and Waveforms • Solve right-angled triangles using Pythagoras' theorem, trigonometric ratios, inverse trigonometric functions • Use the sine and cosine rules in the solution of non-right angled triangles • Use degree and radian measure • Sketch graphs of waves including amplitude, period, frequency, phase angle • Waves in electrical/electronic applications
Numerical Computation Express and solve mathematical and engineering problems in a computational environment. Plot and analyse graphs.

Assessment Breakdown	%
Continuous Assessment	20.00%
Practical	40.00%
End of Module Formal Examination	40.00%

Continuous Assessment				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	A range of continuous assessments will be carried out throughout the term	1,2,3	20.00	n/a

No Project

Practical				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	A range of laboratory exercises and assessments will be carried out throughout the term	1,2,3,4	40.00	n/a

End of Module Formal Examination				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	A final exam will be carried out at the end of term	1,2,3	40.00	End-of-Semester

Continuous Assessment				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	A range of continuous assessments will be carried out throughout the term	1,2,3	20.00	n/a

No Project

Practical				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	A range of laboratory exercises and assessments will be carried out throughout the term	1,2,3,4	40.00	n/a

End of Module Formal Examination				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	A final exam will be carried out at the end of term	1,2,3	40.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	Every Week	3.00
Laboratory	Every Week	2.00
Independent Learning	Every Week	4.00
	Total Hours	9.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEBEE_B	[Bachelor of Engineering (Honours) in Biomedical Electronics](#)	1	Mandatory
CW_EESYS_B	[Bachelor of Engineering (Honours) in Electronic Engineering](#)	1	Mandatory
CW_EEBEE_D	[Bachelor of Engineering in Biomedical Electronics](#)	1	Mandatory