MATH C1612: Mathematics and Computer Applications 2

Module Title:	Mathematics and Computer Applications 2
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	Solve problems using complex numbers and apply De Moivre's theorem.
LO2	Apply appropriate rules and methods to differentiate various functions and solve calculus problems
LO3	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

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Module Content & Assessment

Indicative Content
Complex Numbers • Represent complex numbers in Cartesian and polar form Convert from one form to the other Understand phasors Add, subtract, multiply and divide complex numbers in Cartesian form Multiply and divide complex numbers in polar Use De Moivre's Theorem for powers and roots of complex numbers
Differential Calculus Evaluate simple limits Differentiate simple polynomial functions from first principles Differentiate by rule algebraic, trigonometric, exponential and logarithmic functions using chain, product and quotient rules Apply the derivative as a rate of change and as the slope of the tangent to a curve
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	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	3	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		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	3	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		40.00	End-of-Semester

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

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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	2	Mandatory
CW_EESYS_B	Bachelor of Engineering (Honours) in Electronic Engineering	2	Mandatory
CW_EEBEE_D	Bachelor of Engineering in Biomedical Electronics	2	Mandatory