ZMAT H1201: Mathematics

Module Title:	Mathematics
Language of Instruction:	English

Credits:	10

NFQ Level:	6

Module Delivered In	1 programme(s)

Teaching & Learning Strategies:	The students will be organized into lectures and be given two lectures a week in order to cover module content items 3 to 8 inclusive. During these lectures the students will be encouraged to be active. They will be given activities to attempt, during the lecture, in order to re-enforce the learning and understanding achieved through the lecturer's introduction. The students will be then given take home activity sheets in order to be able to continue practicing the techniques. The students will be allocated a one hour tutor supervised computer laboratory session every week. In this session the students will be guided and supported through a Computer Assisted Learning (CAL) package which will cover module content items 1 & 2. The learning here will be self-paced and guided and supported by the tutor. The package will be available for student use outside their scheduled laboratory time.

Module Aim:	This module aims to provide students with a broad and solid foundation in mathematical concepts and techniques that they may encounter in subsequent programme modules.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Manipulate simple algebraic expressions and solve simple algebraic equations with confidence and represent and interpret linear and quadratic graphical representations of data.
LO2	Describe and apply the operations relations of elementary set theory. and interconvert between number systems.
LO3	Describe and apply the operations and relations of elementary logic theory and execute the elementary vector operations in two dimensions.
LO4	Describe and apply the laws of elementary probability & counting theory.
LO5	Carry out calculations involving trigonometric functions using a calculator and solve right angled and non right angled triangles.
LO6	Execute the elementary Matrix operations and identify the inverse Matrix relationship and use Matrices to implement two dimensional rotations and represent this effect on graph diagrams.

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
Algebra & Arithmetic Fractions, Powers, manipulating algebraic expressions, solving equations
Graphs Cartesian Plane, Linear and Quadratic graphs
Number Systems Decimal, binary, octal and hexadecimal systems.
Set Theory and Logic Notations and basic operations, Venn Diagrams, Truth Tables, Equality of Sets and Logical equivalence.
Probability Counting, calculating probabilities
Trigonometry Trigonometric ratios and their inverses, Pythagoras's Theorem, Right angled triangles. Solve non-right angled triangles
Vectors Addition, scalar multiplication and scalar product and their graphical representations in two dimensions
Matrices Addition, multiplication, transpose, inverse, of 2x2 and 3x3 matrices, determinants, Cramer's Rule

Assessment Breakdown	%
Continuous Assessment	100.00%

Continuous Assessment				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	n/a	1	15.00	n/a
Examination	Continuous Assessment	2,3,4,6	80.00	n/a
Open-book Examination	n/a	5	5.00	n/a

No Project

No Practical

No End of Module Formal Examination

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	30 Weeks per Stage	2.00
Laboratory	30 Weeks per Stage	1.00
Estimated Learner Hours	30 Weeks per Stage	3.67
	Total Hours	200.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KWCAP_C	Higher Certificate in Computing	1	Mandatory