

MATH C7002: Mathematics for Computing

Module Details	
Module Code:	MATH C7002
Full Title:	Mathematics for Computing APPROVED
Valid From:	Semester 1 - 2021/22 (September 2021)
Language of Instruction:	English
Duration:	2 Semesters
Credits:	10
Module Owner::	Sarah Tanner
Departments:	Unknown
Module Description:	Introduction to Calculation, Algebra, Logs, Exponential and Trigonometric functions and their application in computing.

Module Learning Outcome		
On successful completion of this module the learner will be able to:		
#	Module Learning Outcome Description	
MLO1	Use algebra to solve problems in computer science.	
MLO2	Identify and use functions, such as exponential laws in a computing setting.	
MLO3	Define and use arithmetic and geometric sequences and series	
MLO4	Use matrix algebra to solve systems of simultaneous equations and carry out transformations.	
MLO5	Define and use truth tables and analyze logical expressions	
MLO6	Define and use number conversions in appropriate number bases	
Pre-requisite learning		
Module Recommendations		
<i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named DkIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</i>		
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Module Indicative Content
Algebra -Use of calculator, algebra, order of precedence, algebraic expressions, indices
Equation Solving Formulation of worded computing problems, logical structure and transposition of formulae.
Functions -Analysis of functions, exponential, logarithmic and trigonometric functions.
Linear Algebra Matrix algebra, inverses and determinants, solutions to simultaneous equations using matrix methods.
Applied Linear Algebra Matrix transformations, scaling, rotation, translation and reflections.
Series and Sequences Arithmetic and geometric series and sequences. Convergence and divergence.
Logic Logical operators, order of precedence, tautologies and truth tables.
Number Representation Number conversions, binary, hexadecimal, Octal, binary arithmetic, computer representation of decimal numbers.

Module Assessment

Assessment Breakdown	%
Course Work	60.00%
Final Examination	40.00%

Module Special Regulation

Assessments

Full Time

Course Work			
Assessment Type	Class Test	% of Total Mark	15
Marks Out Of	0	Pass Mark	0
Timing	Week 6	Learning Outcome	1,2
Duration in minutes	0		
Assessment Description	Written Test		
Assessment Type	Class Test	% of Total Mark	15
Marks Out Of	0	Pass Mark	0
Timing	Week 13	Learning Outcome	2,3
Duration in minutes	0		
Assessment Description	Written Test		
Assessment Type	Class Test	% of Total Mark	15
Marks Out Of	0	Pass Mark	0
Timing	Week 24	Learning Outcome	4,5
Duration in minutes	0		
Assessment Description	Written Test		
Assessment Type	Class Test	% of Total Mark	15
Marks Out Of	0	Pass Mark	0
Timing	Week 28	Learning Outcome	4,5,6
Duration in minutes	0		
Assessment Description	Written test		

No Project

No Practical

Final Examination			
Assessment Type	Formal Exam	% of Total Mark	40
Marks Out Of	0	Pass Mark	0
Timing	End-of-Semester	Learning Outcome	2,3,4,5,6
Duration in minutes	0		
Assessment Description End-of-Semester Final Examination			

Part Time

Course Work

Assessment Type	Class Test	% of Total Mark	15
Marks Out Of	0	Pass Mark	0
Timing	Week 6	Learning Outcome	1,2
Duration in minutes	0		
Assessment Description Written Test			

Assessment Type	Class Test	% of Total Mark	15
Marks Out Of	0	Pass Mark	0
Timing	Week 13	Learning Outcome	2,3
Duration in minutes	0		
Assessment Description Written Test			

Assessment Type	Class Test	% of Total Mark	15
Marks Out Of	0	Pass Mark	0
Timing	Week 24	Learning Outcome	4,5
Duration in minutes	0		
Assessment Description Written Test			

Assessment Type	Class Test	% of Total Mark	15
Marks Out Of	0	Pass Mark	0
Timing	Week 28	Learning Outcome	4,5,6
Duration in minutes	0		
Assessment Description Written Test			

No Project

No Practical

Final Examination

Assessment Type	Formal Exam	% of Total Mark	40
Marks Out Of	0	Pass Mark	0
Timing	End of Year	Learning Outcome	2,3,4,5,6
Duration in minutes	0		
Assessment Description n/a			

Reassessment Requirement

A repeat examination
Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.

Module Workload

Workload: Full Time					
<i>Workload Type</i>	<i>Contact Type</i>	<i>Workload Description</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>	<i>Hours</i>
Lecture	Contact	No Description	Every Week	2.00	2
Tutorial	Contact	No Description	Every Week	1.00	1
Practical	Contact	Interactive maths problem solving lab	Every Week	1.00	1
Independent Study	Non Contact	No Description	Every Week	4.00	4
Total Weekly Learner Workload					8.00
Total Weekly Contact Hours					4.00

Workload: Part Time					
<i>Workload Type</i>	<i>Contact Type</i>	<i>Workload Description</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>	<i>Hours</i>
Lecture	Contact	No Description	Every Week	2.00	2
Tutorial	Contact	No Description	Every Week	1.00	1
Practical	Contact	No Description	Every Week	1.00	1
Independent Study	Non Contact	No Description	Every Week	4.00	4
Total Weekly Learner Workload					8.00
Total Weekly Contact Hours					4.00

Module Resources

Recommended Book Resources

Anthony Croft and Robert Davison. (2016), *Foundation Mathematics*, 6. Pearson, [ISBN: 978-129209517].

Supplementary Book Resources

KA Stroud. (2009), *Foundation Mathematics*, 1. Palgrave Macmillan, [ISBN: 978-0230579071].

This module does not have any article/paper resources

Other Resources

[Website], Math Tutor,
<http://www.mathtutor.ac.uk>

[Website], Math Centre,
<http://www.mathcentre.ac.uk>

[website], Khan Academy,
<http://www.khanacademy.org>