

H6IMBC: Introduction to Mathematics for Business & Computing

Module Code:	H6IMBC
Long Title	Introduction to Mathematics for Business & Computing DRAFT
Title	Introduction to Mathematics for Business & Computing
Module Level:	LEVEL 6
EQF Level:	5
EHEA Level:	Short Cycle
Credits:	5
Module Coordinator:	PRAMOD PATHAK
Module Author:	MICHAEL BRADFORD
Departments:	School of Computing
Specifications of the qualifications and experience required of staff	
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
#	Learning Outcome Description
LO1	Explain mathematical concepts such as sets and operations.
LO2	Associate the rules of sets and operations to the areas of Relations and Functions.
LO3	Describe the core principles of logic and the foundational role that it plays in mathematics and computer science.
LO4	Apply set theoretical concepts and methods of counting to solve problems involving calculations in probability and statistics.
LO5	Approach and solve problems in the area of computing using the appropriate Mathematical techniques.
Dependencies	
Module Recommendations	
No recommendations listed	
Co-requisite Modules	
No Co-requisite modules listed	
Entry requirements	

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Module Content & Assessment			
Indicative Content			
Sets and Operations • Notation Predicates. • Set Operations Solving • Problems Using Venn Diagrams • Principle of Duality Algebra of Sets • Cardinality & Principle of Inclusion and Exclusion • Cartesian Product			
Functions and Relations • Functions from one set to another. • Partial and Total Functions. • Injections and Surjections. • Composition of Functions. • Binary Relations. • Equivalence Relations. • Partial Orders.			
Logic • Propositions & Logic. • Predicates and Quantifiers. • Truth Tables. • Logic Equations. • Disjunctive Normal Form.			
Statistics and Probability • Principles of counting - permutations and combinations. • Probability. • Probability rules. • Types of Data Frequency distributions. • Grouped and ungrouped data. • Descriptive measures. • Probability. • Distributions. • The Normal Distribution.			
Assessment Breakdown			%
Coursework			50.00%
End of Module Assessment			50.00%
Assessments			
Full Time			
Coursework			
Assessment Type:	Continuous Assessment (0200)	% of total:	50
Assessment Date:	n/a	Outcome addressed:	1,2,3,4,5
Non-Marked:	No		
Assessment Description: Continuous assessment via project work, homework assignments, and in-class quizzes throughout the semester			
End of Module Assessment			
Assessment Type:	Terminal Exam	% of total:	50
Assessment Date:	End-of-Semester	Outcome addressed:	3,4,5
Non-Marked:	No		
Assessment Description: End-of-Semester Final Examination			
No Workplace Assessment			
Reassessment Requirement			
Repeat examination <i>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.</i>			

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Module Workload				
Module Target Workload Hours 0 Hours				
Workload: Full Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	2	Every Week	2.00
Tutorial	No Description	1	Every Week	1.00
Independent Learning	No Description	7.5	Every Week	7.50
Total Weekly Contact Hours				3.00
Workload: Part Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	3	Every Week	3.00
Total Weekly Contact Hours				3.00

Module Resources	
<i>Recommended Book Resources</i>	
<p>David Makinson. (2012), Sets, Logic and Maths for Computing, 2nd. Springer, p.304, [ISBN: 1447124995].</p> <p>John Schiller, R. Alu Srinivasan, Murray Spiegel. (2012), Schaum's Outline of Probability and Statistics, 4th Edition, 4th. McGraw-Hill, p.432, [ISBN: 007179557X].</p>	
<i>Supplementary Book Resources</i>	
<p>Peter Grossman. (2008), Discrete mathematics for computing, 3rd. Basingstoke [England] ; Palgrave Macmillan, 2009., [ISBN: 0230216110].</p>	
<i>This module does not have any article/paper resources</i>	
<i>This module does not have any other resources</i>	
Discussion Note:	