# H6IMBC: Introduction to Mathematics for Business & Computing

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|---|---|
| **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**

*On successful completion of this module the learner will be able to:*

| # | 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*

# H6IMBC: Introduction to Mathematics for Business & Computing

## 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**
*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.*

## H6IMBC: Introduction to Mathematics for Business & Computing

| 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

*Recommended Book Resources*

**David Makinson. (2012), Sets, Logic and Maths for Computing, 2nd. Springer, p.304, [ISBN: 1447124995].**

**John Schiller, R. Alu Srinivasan, Murray Spiegel. (2012), Schaum's Outline of Probability and Statistics, 4th Edition, 4th. McGraw-Hill, p.432, [ISBN: 007179557X].**

*Supplementary Book Resources*

**Peter Grossman. (2008), Discrete mathematics for computing, 3rd. Basingstoke [England] ; Palgrave Macmillan, 2009., [ISBN: 0230216110].**

*This module does not have any article/paper resources*

*This module does not have any other resources*

**Discussion Note:**