

Course 102: Mathematics

Course Code	102
Course Title	Mathematics
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation etc.)
Review / Revision	June 2017
Purpose of Course	Purpose of this course is to develop mathematical abilities relevant to Computer Science.
Course Objective	The objective of this course is to guide/help students in developing Mathematical Abilities relevant to Computer Science.
Pre-requisite	School Mathematics
Course Out come	After studying this subject, students will be able to develop Mathematical Abilities relevant to Computer Science.
Course Content	<p>Unit 1. Set Theory</p> <p>1.1. Introduction 1.2. Representation 1.3. Operation and its properties 1.4. Venn Diagram 1.5. Cartesian product and graph</p> <p>Unit 2. Functions</p> <p>2.1. Definition 2.2. Types – Domain and Range 2.3. Construction and functions</p> <p>Unit 3. Mathematical Logic</p> <p>3.1. Introduction to logic 3.2. Truth Table</p> <p>Unit 4. Boolean Algebra</p> <p>4.1 Definition & Examples of Boolean Algebra 4.2 Boolean Functions 4.3 Representation and minimization of Boolean Functions 4.4 Design example using Boolean algebra</p> <p>Unit 5. Matrices and Determinants</p> <p>5.1. Matrices of order $M * N$ 5.2. Row and Column transformation 5.3. Addition, Subtraction and multiplication of Matrices 5.4. Computation of Inverse 5.5. Cramer's Rule 5.6. Business Application of Matrices</p>
Reference Books	<ol style="list-style-type: none"> 1. Co-ordinate Geometry – Shanti Narayan 2. Linear Algebra – Sushoma Verma 3. Advanced Mathematics – B.S. Shah & Co. 4. Schaum's Outline of Boolean algebra and switching circuits – Elliot Mendelson 5. Digital Computer Fundamentals - Tata McGraw Hill, 6th Edition, Thomas C. Bartee 6. Business Mathematics - Qazi Zameeruddin, V. K. Khanna and S. K. Bhambri, Vikas Publishing House Pvt. Ltd.

Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.