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 2020
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	**Unit 1. Set Theory**
	    1.1.Introduction
	    1.2.Representation
	    1.3.Operation and its properties
	    1.4.Venn Diagram
	    1.5.Cartesian product and graph
	Unit 2. Functions
	    2.1.Definition
	    2.2.Types – Domain and Range
	    2.3.Construction and functions
	Unit 3. Mathematical Logic
	    3.1.Introduction to logic
	    3.2.Truth Table
	Unit 4. Boolean Algebra
	    4.1Definition & Examples of Boolean Algebra
	    4.2Boolean Functions
	    4.3Representation and minimization of Boolean Functions
	    4.4Design example using Boolean algebra
	Unit 5. Matrices and Determinants
	    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

Reference Books	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.