Course Code: 102
Course Title: MATHEMATICS

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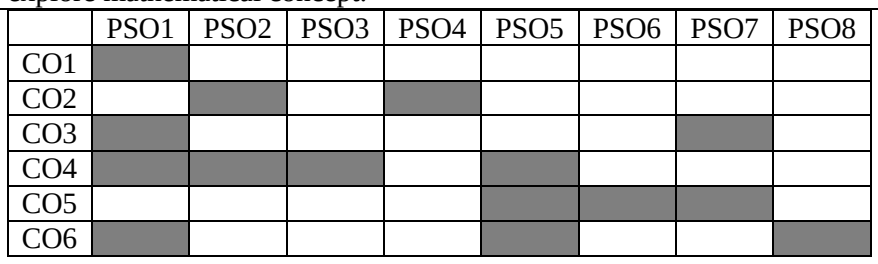
Course Title	Mathematics (Multi-Disciplinary Course – 01) [Title of the course will be the one selected by the student from courses offered by college/institute out of the course basket offered by the University under the Multi-Disciplinary courses or Inter-disciplinary courses.]
Credits	4
Course Category	Multidisciplinary Course (MC-01)
Level of Course	100-199 (Foundation / Introductory)
Teaching per Week	4 Hrs.
Minimum weeks per Semester	15 (Including class work, examination, preparation etc.)
Review / Revision	2022-2023
Implementation Year:	A.Y. 2023-2024
Purpose of Course	To impart fundamental knowledge and develop mathematical abilities relevant to applications relevant to Computer Applications. [In lieu of this course, Student can opt any one course of multi-disciplinary/inter-disciplinary from other than the computer Science and Application faculty. The course will be offered by the institute/college passed by the Board of Studies of University faculties. other than the computer science and application faculty.]
Course Objective	To Provide a foundation in mathematical concepts and methods that are relevant to Computer Applications and develop the ability to apply mathematical knowledge and techniques to solve problems in computing.
Pre-requisite	Knowledge of Fundamentals of Mathematics of 10th Grade Level
Course Outcomes	**CO1:** Define and explain the fundamental concepts of Mathematical Abilities in organizations. **CO2:** Students can apply set theory concepts to real-world scenario, such as analyzing survey data. **CO3:** Enhance student's logical reasoning to solve problems in various contexts, such as puzzles or legal arguments by learning Truth table. **CO4:** Course aims to equip students with the knowledge and skills to define and operate matrices, compute solutions to business problems through the use of mathematical concepts and techniques. **CO5:** Course aims to develop students' ability to think logically and critically, as well as to apply mathematical concepts and techniques to real-world problems. **CO6:** Develop independent learning skills, including the ability to research and explore mathematical concept.
Mapping between Course Outcomes(CO) with Program Specific Outcomes(PSO)	
Course Outcome	After studying the course, students will be able to Implement acquired skills in writing codes using programming languages.

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 – SushomaVerma 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 - QaziZameeruddin, 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	50% Internal assessment. 50% External assessment.