Code: BSE-204 A **Elective**	Second semester	**Computational Mathematics**	Credits: 04

Course Objectives:

Students will develop problem-solving & critical thinking skills & use these skill to solve complex computational problems

Course Outcome:

Apply mathematical foundation to the discipline of Computer Science

Unit-1:	**Set Theory**

Introduction, Definition & type, Equal sets, Subsets, Venn diagram, Set operation, Properties of sets

Unit-2:	**Mathematical logic**

Propositions, Logical connectivity & compound statement, Truth values & truth table, Statement pattern & logical equivalence, Tautology, Contradiction, Contingency.

Unit-3:	**Matrices & Determinants**

Definition & Types, Equality & transpose of matrices, Algebra of matrices, Definition of determinant, Ad-joint of matrices, Inverse of matrices

Unit-4:	**Co-ordinate Geometry**

Introduction, Co-ordinates of a point and quadrants, Distance between two points, Equation of straight line, Slope of line, Equation of circle.

Unit-5:	**Relation & function**

Cartesian products, Relation, Function, Domain, Range, Type of function

Unit-6:	**Graph theory**

Definition & types of graphs, incidences & degree of vertices, Isomorphism of graphs, Walks, Paths & circuits, Tree, Centre of tree, Binary tree

Reference Books

1.	Elements of discrete mathematics, C. L. Liu
2.	Discrete mathematics, Olympia Nicodemi
3.	Graph theory, Narsing Deo
4.	Basic mathematics, Mittal & Agrawal