First Year B.C.A. (Under Science) Semester II

Course Code: BCA 203
Course Title: Applied Mathematics –II   **Total Contact Hours: 48 hrs.**
                                             Total Credits: 04
Total Marks: 100(60 Lectures)
                    Teaching Scheme: Theory- 05 Lect./ Week

Course Objectives: The objective of this course is to study the applied Mathematics.

UNIT NO.	DESCRIPTION	No. of LECTURES
UNIT 1	**1. Modular Arithmetic** 1.1. Relations 1.2. Congruences 1.3. Applications 1.4. Fermat's Little Theorem 1.5. Congruence and Groups	**15**
UNIT 2	**2. Two Principles of Counting** 2.1. The Pigeonhole Principle 2.2. The Inclusion-Exclusion Principle	**06**
UNIT 3	**3. Graph Theory** 3.1. The Königsberg Bridge Problem 3.2. Isomorphism of Graphs 3.3. Connection and Trees 3.4. Bipartite graphs 3.5. Coloring Problems 3.6. Planar Graphs	**25**
UNIT 4	**4. Recurrence Relations** 4.1. General Properties 4.2. First-Order Recurrences 4.3. Second-Order Recurrences 4.4. General Linear Recurrences 4.5. Other Classical Recurrences 4.6. Generating Functions	**14**

Reference Books:

1. *Mathematical Thinking–Problem Solving and Proofs.* (Second Edition) by John P. D'Angelo& Douglas B. West. Prentice Hall.
2. *Applied Discrete Structure for Computer Science* by Alan Doerr&KnennethLevasseur.