Gujarat University

K. S. School of Business Management and Information Technology
[Five Years' (Full – Time) M.B.A. Integrated Degree Course]
Second Year M.B.A. (Sem –III)
Code: KS-MBA-MDC-234 A
Business Mathematics

Course Credit: 4

Instructions: Business, Economics and Finance fields require use of mathematical tools for appropriate analysis in complex decision making situations. The issues pertaining to accounting, finance, inventory, marketing, sales and any other department, can be resolved with the help of mathematical concepts. This course presents the various mathematical tools and their concepts that can be applied to resolve any real life business, economic and financial problem. It is a Multidisciplinary / Interdisciplinary Course requiring approximately 55 to 60 hours of direct teaching in the Third Semester. During the course, minimum two assignments will be given.

Course Objective: Taking appropriate decision at right time is the basic requirement for an individual or an organisation to remain competitive. Due to the involvement of uncertainty, decision making has some degree of risk. Measurement of uncertainty can be accomplished by applying the concept of probability. The objective of this course is to introduce fundamentals of probability, initial processes of estimation and forecasting and applications of arithmetic and geometric progressions in business, economics and finance fields.

Program Outcomes: The learnings, at the Second Year of the MBA programme, focus more on practical orientation of the various subjects. For business to grow and flourish, competitive edge is the need of the hour. The application based study of the concepts, introduced in various subject areas, prepares students to face any kind of market competition and make them able to deliver best in any circumstances.

Course Outcomes: The course will help the students to learn and understand various mathematical concepts, pertaining to counting, combinatorics, chance occurrence, progression, estimation and forecasting to deal with real life problems arising in different fields.

Detailed Syllabus:

Module 1: Permutation, Combination, Probability, Probability Distribution and Business Applications   [25%]

Permutation and Combination:
     Introduction
     Properties of Permutation and Combination
     Applications and Related Examples

Probability and Probability Distribution:
      Introduction to Probability
      Definition of Sample Space, Sample Points, Events
      Different Types of Events
      Probability of an Event
      Addition and Multiplication Laws
      Conditional Probability, Joint and Marginal Probability and Bayesian
      Probability Law
      Applications and Related Examples
      Mathematical Expectation and Variance of a Random Variable
      Properties of Expected Value and Variance
      Probability Distribution
      Applications and Related Examples

Module 2: Mathematical Induction and Binomial Expansion   **[25%]**

Mathematical Induction:
      Introduction to the Principle of Mathematical Induction
      Summation of Series
      Applications and Related Examples

Binomial Expansion:
      Introduction to Binomial Expansion Theorem for Positive Integer Power only
      (without proof)
      Properties and Uses of Binomial Expansion
      Pascal's Triangle
      Applications and Related Examples

Module 3: Arithmetic Progression and Geometric Progression   **[25%]**

      Introduction to Arithmetic and Geometric Progressions
      Formulae to Find n^{th} Term and Sum of n Terms of Series in AP and GP
      Arithmetic and Geometric Mean
      Applications and Related Examples

Module 4: Interpolation and Extrapolation   **[25%]**

      Definition and Uses
      Operators
      Methods of Interpolation and Extrapolation:
- Newton's Forward Difference
- Newton's Backward Difference
- Newton's Divided Difference
- Langrage's Method
- Binomial Expansion Method
- Related Examples

Reference Books:

- Business Mathematics: D.C. Sancheti and V.K. Kapoor; Sultan Chand and Sons
- Business Mathematics: Theory and Applications: J.K. Sharma; Ane Books
- Fundamentals of Mathematical Statistics: S.C. Gupta and V.K. Kapoor; Sultan Chand and Sons
- Statistics for Management: Richard I. Levin, David S. Rubin; Pearson
- Business Mathematics: P. Mariappan; Pearson Education
- A Textbook of Business Mathematics: Padmalochan Hazarika; S. Chand
- Business Mathematics: J.K. Singh; Himalaya Publishing House

Mode of Evaluation:

Continuous Evaluation: 30%
Mid Semester Exam: 20%
End Semester Exam: 50%

Assessment Tools: Test, Quiz, Assignment, Presentation, Project etc.