Gujarat University

K. S. School of Business Management and Information Technology
[Five Years' (Full – Time) M.B.A. Integrated Degree Course]
First Year B.B.A. (Sem - I)
Code: KS-MBA-MDC-114 A
Basic Statistics for Data Analytics

Course Credit: 4

Instructions: The formulation of policy decisions and planning of future programmes in any field of work, such as - agriculture, industry, sociology, psychometry, biometry, economics, business, management, insurance, accounting, auditing or any sphere of social, physical and natural sciences, can be facilitated by absorbing information from data using statistical methods. This course presents systematic and comprehensive description and explanation of principles and techniques that can be applied in various disciplines to fetch information from analysed data. It is a Multidisciplinary / Interdisciplinary Course requiring approximately 55 to 60 hours of direct teaching in the First Semester. During the course minimum two assignments will be given.

Course Objective: The developments in business activities have taken such unprecedented dimensions both in the size and the competition in the market that the use of statistical data and its analysis have become indispensable in almost all the branches of business activity. To cater to this requirement, the objective of this course is to throw light on the process of collecting, condensing, comprehending, analyzing and presenting data.

Program Outcomes: The MBA program, offered by the institute, tries to develop analytical and strategic thinking, decision making ability and communication skills of the students. It tries to make them competent and responsible professionals to be able to become a part of the growing business and corporate sector of India. As India is slowly paving its way ahead and emerging as a global superpower, the young generation should be the agent of positive change and development of the country. The program provides knowledge, skills and proficiency to create well-read responsible graduates who are an asset for the society.

Course Outcomes: The course would help the students to learn the tools of analysing given real life data and applying this analysis to infer the information hidden in the data set.

Detailed Syllabus:

Module 1: Collection, Organization and Presentation of Data   **[25%]**

Collection of Data:
          Definition and Preliminaries of Data Collection
          Methods of Collecting Primary Data
          Drafting the Questionnaire
          Sources of Secondary Data

Organization of Data:

        Classification: Functions, Rules and Bases of Classification
        Frequency Distribution: Discrete, Grouped, Continuous, Cumulative and Bi-variate Frequency Distributions
        Tabulation: Parts and Requisites of a Good Table

Presentation of Data:

        Diagrammatic Presentation: One-, Two- and Three-Dimensional Diagrams, Pictograms and Cartograms
        Graphical Presentation:
        Graphs of Frequency Distribution: Histogram, Frequency Polygon, Frequency Curve and Ogive curves
        Graphs of Time Series: Horizontal Line Graph or Historigram, Silhouette or Net Balance Graph, Range or Zone Graph, Band Graph or Component Part Line Chart, Semi-logarithmic Line Graph or Ratio Chart

Module 2: Measures of Central Tendency, Dispersion and Shape   [25%]

Measures of Central Tendency:

        Introduction and Meaning of Measure of Central Tendency
        Requisites of a Good Measure of Central Tendency
        Different Types of Measures of Central Tendency: Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Partition Values -Quartiles, Deciles, Percentiles, Graphic Method of Locating Partition Values, Mode, Graphic Method of Locating Mode
        Merits and Demerits of Different Measures of Central Tendency
        Relation between Various Measures of Central Tendency

Measures of Dispersion:

        Introduction, Meaning and Significance of Measure of Dispersion
        Characteristics of an Ideal Measure of Dispersion
        Absolute and Relative Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Co-efficient of Variation
        Merits and Demerits of Different Measures of Dispersion
        Relation between Various Measures of Dispersion

Measures of Shapes:

        Introduction and Meaning of Measures of Shape: Skewness and Kurtosis
        Different Types of Measures of Skewness: Karl Pearson's, Bowley's and Kelly's Measures of Skewness.
        Moments: Raw and Central Moments and their Relationships, Examples of First Four Moments. Measures of Skewness and Kurtosis Based on Moments

Module 3: Index Numbers   [25%]

        Meaning and Uses of Index Numbers
        Types of Index Numbers. Methods of Constructing Index Numbers: Simple (Unweighted)Aggregate Method, Weighted Aggregate Method, Simple Average of Price Relatives, Weighted Average of Price Relatives, Chain Base

Index Numbers, Cost of Living Index Number: Its Construction and its Uses. The Tests of Consistency of Index Number Formulae. Base shifting, Splicing and Deflating of Index Numbers

Module 4: Co-ordinate Geometry **[25%]**

Coordinates of a Point:
Introduction and Meaning of Cartesian Coordinate System
Distance Formula
Section Formula: Internal Division, External Division, Coordinates of a Mid-Point of a Line
Area of a Triangle, Co-linearity of Three Points
Coordinates of Centroid, In-centre, Ex-centre, Circum-centre and Ortho-centre

Straight Line:
Different forms of Equation of a Straight Line:
- Equation of a Line Parallel to the x-axis
- Equation of a Line Parallel to the y-axis
- Slope-Intercept Form
- Point-Slope Form
- Equation of a Straight Line when Two Points are Given
- Intercept Form of Equation of a Straight Line (X-intercept and Y-intercept)
- General Form $ax + by + c = 0$ of a Straight Line

Distance of a Point from a Straight Line
Angle between Two Straight Lines
Condition when Two Lines are Parallel
Condition when Two Lines are Perpendicular
Equations of Straight Lines Parallel or Perpendicular to a given Line
Point of Intersection of Two Lines
Equation of a Straight Line Passing through the Point of Intersection of Two Lines and Satisfying Some Other Condition
Condition for Concurrency of Three Given Straight Lines

Note: All results will be given without proof.

Reference Books:

➢ Fundamentals of Statistics: S.C. Gupta; Himalaya Publishing House
➢ Fundamentals of Business Statistics: J.K. Sharma; Pearson Education
➢ Statistics for Management: T.N. Srivastava, Shailaja Rego; Tata McGraw Hill
➢ Statistics: D.C. Sancheti, V.K. Kapoor; Sultan Chand
➢ Business Statistics: Bharat Jhunjhunwala; S. Chand
➢ Basic Statistics: B. L. Agarwal; New Age
➢ Business Statistics: Padmalochan Hazarika; S. Chand
➢ Business Mathematics: P. Mariappan; Pearson Education

<u>Mode of Evaluation</u>:

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

<u>Assessment Tools</u>: Test, Quiz, Assignment, Presentation, Project etc.