

Parvatibai Chowgule College of Arts and Science
(Autonomous)
FOUNDATION COURSE OFFERED FOR B.A./B.Sc. STUDENTS

Paper Title: Statistical Methods

Paper Code: FC – D (1A)

Marks: 50+50=100

Credits: 2+2 = 4

Marks: 30+30= 60

Course Objective:

- To make student comfortable with understanding numbers, especially those students who are not come from mathematics background.
- To provide brief idea about basic statistical tools.
- To equip student with computing skills using Excel.

Learning Outcome of the Course:

- Apprehension about the numbers /data will be minimised
- Students will be able to apply basic statistical tools in day today life
- Students will gain idea of applicability of EXCEL.

SEM I

Unit 1 Introduction (08 hours)

- Introduction to number system, Percentage, Ratio, fraction and mixed fractions.
- Representation of numbers and arithmetic operation in various formats.
- Solving simple problems, measuring units and their usage.(Optional: use of scientific calculator, Logarithm)
- How to use graph paper and how to take proper scale on it.
- Illustrative examples.

Unit 2: Introduction to Statistics: (10 hours)

- **Introduction of statistics, definition and scope in various fields.**
- Classification and Types of variables: Discrete & Continuous, Qualitative & Quantitative and Types of Scales: Nominal Ordinal, Ratio and interval. (Optional)
- **Tabulation of data**
Construction of frequency distribution
Cumulative frequency distribution
- **Difference between graphs and diagram**
Representation and interpretation of data using various graphs and diagrams.
Graphs: Histogram and Ogive curves
Charts: Simple, Multiple, Subdivided bar diagram and Pie chart

Unit 3: Univariate Statistics (12 hours)

- Meaning of measures of central tendency, Requisites, Types of averages and their properties: Arithmetic Mean, Mode and Median, concept of Quartiles, Deciles and Percentiles.
- Combined average and Weighted average.
- Locating Mode, Median, Quartiles, Deciles and Percentiles using graph.
- Concept, Requisites and properties, Types of dispersion, Range, Variance, Standard Deviation (SD), Coefficient of Variation ,Combined SD.

References:

- S. C. Gupta. (2000). Fundamentals of Statistics. Himalaya Publishing House. New Delhi.
- C. R. Kothari and G. Garg. (2010). Research Methodology Methods and Techniques, NEW AGE International Publishers Ltd. New Delhi.
- B. L. Agarwal (2006). Basic Statistics, New Age International, New Delhi.

SEM 2

Unit 1 Sampling (08 hours)

- Data Collection: Primary & Secondary Data, Data collection Techniques and Concept: Population, Sample and Census . Advantages of sampling over Census.
- Simple random sampling, Stratified sampling and Systematic sampling.
- Techniques of drawing samples.
- **Methods of primary data collection:** Questionnaire, Schedule, difference between Questionnaire, Schedule
- Guidelines of constructing questionnaires and schedules.

. Unit 2 Correlation and regression (17 hours)

- Introduction to bivariate data, meaning of correlation, types of correlations , cause and effect relationship, scatter diagram, Karl Pearson's correlation coefficient . Spearman's Rank correlation coefficient.
- Dependent and independent variables, line of regressions and its uses.
- Introduction to time series , components of time series , method of trend analysis (Moving average, semi average)
- Illustrative examples

Unit 3: Introduction to Excel (05 hours)

- Introduction to Excel
- Simple arithmetic calculations
- Plotting graphs, diagrams, basic calculations and descriptive statistics using Excel (central tendency and dispersion)
- Calculations of descriptive statistics using functions (*raw data*)

References:

- S. C. Gupta. (2000). Fundamentals of Statistics. Himalaya Publishing House. New Delhi.
- C. R. Kothari and G. Garg. (2010). Research Methodology Methods and Techniques, NEW AGE International Publishers Ltd. New Delhi.
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