



Marwadi University

Bachelor of Computer Application

Semester IV

Subject Code: 05BC0401

Subject Name: Foundation of Mathematics-IV (Statistical Methods)

Learning Objectives:

- To develop the ability to compute descriptive statistics including diagrammatic Representation and interpretation.
- To understand the concept of probability.
- To understand the concept of sampling.
- To develop the ability to carry out testing of hypothesis on a population based on statistical measures of samples.
- To be able to carry out simple linear regression analysis and correlation analysis.

Prerequisites:

- None

Course Content:

Unit	Course Content	Hours
1	Descriptive Statistics : <ul style="list-style-type: none">• Introduction to statistics :Scale of data measurement.• Frequency distribution, Quantitative graphs : Histogram, Frequency polygon, ogive, Stem & leaf plot, Qualitative graphs : Pie chart , Bar graph.• Measure of Central Tendency (for ungrouped data) : Mean, Median, Mode, Percentile, Quartiles. Five number summary (ungrouped data)Measures of Variability : Range, interquartile range, Mean absolute Deviation, Variance and Standard deviation. (ungrouped data)	10
2	Probability : <ul style="list-style-type: none">• Introduction to probability, Structure of Probability : experiment, event, elementary events, sample space, union and intersection , mutually exclusive events, independent events, exhaustive events, complementary events. Marginal ,union, joint and conditional probability. Addition law: probability matrices, complement of union, special law of addition, multiplication law, special multiplication law, law of conditional probability.	11
3	Sampling & Estimation of single population : <ul style="list-style-type: none">• Introduction of sampling, sampling techniques: Random sampling (simple random sampling, stratified sampling , systematic sampling, cluster sampling) , Non-Random sampling(convenience sampling, judgment sampling ,quota sampling, snowball sampling)• Estimation of population mean using z statistics(sigma known),• Estimation of population mean using t statistics (sigma unknown), Estimation of population proportion, Estimation of population variance.	12
4	Testing of Hypothesis for single Population: <ul style="list-style-type: none">• Introduction to hypothesis testing , type of hypothesis, Rejection	10



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	region, non-rejection region, Type-I and Type-II error <ul style="list-style-type: none">• Testing hypothesis about a population mean using z statistics (Population standard deviation(σ) known)• Testing hypothesis about a population mean using t statistics (Population standard deviation(σ) unknown)	
5	Correlation & Regression : <ul style="list-style-type: none">• Karl Pearson correlation coefficient.• Introduction to Simple Regression Analysis, Determining the Equation of the Regression Line, Prediction of dependent variable by regression line	5

Text Book(s):

1. "Business Statistics for Contemporary Decision Making" by Ken Black, Wiley Publication.

Reference Book(s):

1. Anderson, Sweeney, Williams, "Statistics for business and economics", 9Th edition., Thompson Pub.
2. S P Gupta, "Statistical Methods", 30Edition, S Chand
3. J.Susan Milton & Jesse Arnold, "Introduction to Probability & Statistics: Principles & Applications for Engineering & Computing Sciences"
4. Bharat Jhunjunwala, "Business Statistics", 1Edition, S Chand, 2008

CHAPTER WISE COVERAGE FROM TEXT BOOK:

UNIT	CHAPTER	TOPICS/SUBTOPICS
1	1, 2, 3	Chapter 1 :1.1 to 1.3 ,Chapter 2: 2.1 to 2.3 ,Chapter 3: 3.1 to 3.2
2	4	Chapter 4 :4.1, 4.3 to 4.7
3	7,8	Chapter 7 : 7.1 Chapter 8 : 8.1 to 8.3
4	9	Chapter 9 : 9.1. To 9.3
5	12	Chapter 12 : 12.1 to 12.3