

QUANTITATIVE METHODS

MEM 114

Semester: First

Credit Hr: 3

General objectives:

- State and explain the concept of statistical methods and technique which can be applied to any research studies.

Specific objectives:

Specific objectives of this unit are:

- to provide knowledge to the students about probability theories and their appropriate application.
- to familiarize the students with descriptive as well as inferential statistics and their application for their research studies.
- to develop an understanding of different method of hypothesis testing and appropriate selection of hypothesis.
- to provide skills for the selection of sampling technique and proper planning different sampling methods.
- to develop an understanding of different method of statistical process control, control charts and their statistical interpretation .

Course contents

Unit 1: Introduction

5 hrs

Definition of statistics, Descriptive and Inferential Statistics, Sources of Data (Primary and Secondary), Types of Data (Categorical and Numerical), Parameter and Statistics, Census and Sampling, Mean, Median, Mode, Range, Quartile Deviation, Mean Deviation, Standard Deviation, Variance, Descriptive analysis in SPSS

Unit 2: Hypothesis Testing

6 hrs

Null and Alternative Hypothesis, Level of Significance, Critical Value, One and Two Tailed Test, Type I and Type II Error, Sampling Distribution of mean, One Sample Tests for Mean (Z and t Test), Two Sample Tests for Mean (Z and t Test), Hypothesis testing in SPSS

Unit 3: Correlation and Regression Analysis

5 hrs

Definition, Methods of studying correlation (graphical and mathematical), Rank correlation coefficient, Simple regression analysis, Estimating equation, Interpretation of intercept and slope,, Multiple regression analysis, Correlation and Regression analysis in SPSS

Unit 4: Chi Square Test & Analysis of Variance

8 hrs

Introduction, Chi Square as a Test of Independence, One way ANOVA and Two ways ANOVA, ANOVA & Chi- Square test in SPSS

Unit 5: Non Parametric Test

3 hrs

Differences between parametric and non parametric test, One sample test (Run test), Two related sample test (Sign test)

Unit 6: Introduction of Quality Control

3 hrs

Introduction, Uses of S.Q.C, \bar{X} Chart, R chart, p chart, C-chart

References:

- 1 Statistics for Management, Seventh Edition, Richard I. Levin, David S. Rubin, Prentice Hall.
- 2 Business Statistics, Third Edition, Levine, Krehbiel, Berenson, Pearson Education
- 3 Practical Business Statistics, Siegel, Andrew F, Irwin
- 4 Practical Nonparametric Statistics, Conover, W.J., Wiley