Business Statistics
New Syllabus

Course Objectives _____

The aim of the course is to develop competency and ability to use statistical techniques in conducting research and project work. The emphasis of the course is more on interpretation of results and understanding of the strengths and limitations of different statistical measures.

Course Description _____

This course has a business focus. The course covers fundamentals of descriptive and inferential statistical techniques. The contents include data summaries and descriptive statistics; introduction to a statistical computer package; Probability: distributions, expectation, variance, covariance, statistical inference of univariate and bivariate data for hypothesis testing.

Learning Outcomes _____

By the end of this course students would be able to

- understand and use the descriptive and inferential statistical tools used in business decision making,
- select an appropriate graph to describe a distribution,
- calculate and interpret the shape, center and spread of a distribution,
- understand the problem of inference when working with the results from random samples, and
- analyze the data using excel.

Course Details _____

Unit I: Introduction _____ **5 hours**

Basic concepts of statistics, Terminologies associated with statistics such as populations and samples, Variables (Dependent and independent only), Types and sources of data, Descriptive and inferential statistics, Data processing (editing and coding), Applications of statistics in business and management.

Unit II: Describing Data: Graphs and Tables _____ **6hours**

Data array, Stem and leaf Display, Frequency tables, Histograms, Polygon, Cumulative Polygon, Scatter plots, Simple Bar and Pie charts, Cross tabulation

Unit III: Describing Data: Summary Measures _____ **10hours**

Central Location: Mean, Median and Mode; Non Central Location: Quartiles, Deciles and Percentiles; Dispersion: Range, Inter-quartile range, Variance, Standard deviation, Coefficient of variation, Index for qualitative variation (IQV); Shape: Crude measure (comparison of mean, median, and mode), Five number summary, Box plot; Inequality Measure: Gini concentration ratio

Unit IV: Basics of Probability Theory _____ **5hours**

Basic concepts, Counting rule, Objective and subjective probability, Marginal and joint probability, Addition rule, Conditional probability, Multiplication rules, Bayes' theorem

Unit V: Probability Distributions _____ **10hours**

Discrete probability distribution (Binomial and Poisson distribution and mean and standard deviation of their distributions), Continuous probability distribution: Normal distribution, Normal approximation of Binomial and Poisson distribution

Unit VI: Estimation and Hypothesis Testing _____ **12hours**

Concept of estimation, Confidence intervals, confidence intervals for means and proportions (one sample case only), Test of significance, p-value approach to hypothesis testing, connection between confidence intervals and hypothesis testing, comparing two means (two sample z and t-test procedures), and comparing two proportions.

Basic Texts _____

1. Davis, G., & Pecar, B. *Business Statistics using Excel*. New Delhi: Oxford University Press
2. Berenson, M. L. & David M. L. *Basic Business Statistics: Concepts and Applications*. Upper Saddle River, New Jersey: Pearson Prentice Hall of USA.