Course Name: Quantitative Methods
Course Code: 15MB51C0

Semester I / Year I **L-T- P : 3-0-0**

Credits : 3

COURSE OUTCOMES

After completion of this course, the student will be able to

1. Identify the source of a quantifiable problem, recognize the issues involved and produce an appropriate action plan.
2. Translate a problem into a simple mathematical model to allow easier understanding and to aid problem solving
3. Employ appropriate mathematical tools to solve problems
4. Calculate and interpret numerous statistical values and appreciate their value to the business Manager.

SYLLABUS

Probability and Sampling: Definitions and rules for probability, conditional probability independence of events, Bayes' theorem, and random variables. Probability distributions: Binomial, Poisson, Uniform and Normal distributions. Sampling: Introduction to sampling, Basic Concepts, Types of Sampling. Sampling distributions, sampling distribution of mean and proportion, application of Central Limit Theorem. **Estimation and Hypothesis Testing: Estimation**: Point and Interval estimates for population parameters of large sample and small samples, determining the sample size. Hypothesis testing: one simple and two sample tests for means and proportions of large samples (z-test), one sample and two sample tests for means of small samples (t-lest), F-test for two sample standard deviations. ANOVA one and two way.Chi-square test for single sample standard deviation. Chi-square tests for independence of attributes and goodness of fit. Sign test for paired data. Rank Test. **Correlation and Regression:** Correlation, Regression. Correlation Analysis: Meaning, Types of Correlation, measurement: graphic and algebraic, Scatter Plot, Pearson Correlation Coefficient, Rank Correlation: Spearman's Rank Correlation. Testing the significance of correlation coefficient. Regression: Meaning, Types. Estimating the regression coefficients. Testing the significance of regression coefficients. **Index Numbers and Time Series Analysis:** Time series analysis: Meaning and Components of Time Series. Variations in time series, Smoothing Methods: trend analysis, cyclical variations, seasonal variations and irregular variations**. Index Numbers**: Unweight and Weighted Index numbers – Laspeyre's, Paasche's Index numbers and Fisher's Ideal index. Base Shifting and Splicing; Growth Rates: AGR and CAGR.

RECOMMENDED TEXT BOOK

Levin R.I.and RubinD.S., Statistics for Management. 7th edition.Pearson Education, 2010.

REFERENCE BOOKS

1. Anderson D.R. Sweeney D.J. and WilliamsT. A. Statistics forbusiness and economics. 11th edition. Thomson (South — Western) Asia, Singapore. 2010.
2. Guptha. S.C and KapoorV.K: Fundamentals of Mathematical Statistics. 11th edition. SulthanChand. 2010.
3. Aczel A.D. and Sounderpandyan J., Complete Business Statistics, 8th edition. Tata McGraw – Hill, 2008.