

Course Title: Quantitative Analysis for Business Decision

Course Code	: 17BA1T6	External Marks	: 60
Core / Elective	: Core	Internal Marks	: 40
Credits	: 3	Contact Periods	: 3
Year/Semester	: I year/I semester	Tutorial Periods	: 2

Course Objectives

Quantitative analysis for business decisions introduces students to a collection of widely used quantitative tools and models. This course is intended:

1. To provide basic knowledge of analyzing data using various statistical and mathematical techniques for business decisions.
2. To enable better reporting for decision making.
3. To highlight the benefits as well as the limits of quantitative analysis in a real-world context.
4. To orient the students to various hypotheses testing methods as to how and where appropriately they can be applied.

Course Outcomes

Student shall be able to:

1. Relate a formal quantitative approach to problem solving and decision making and acquire the knowledge about mean, median, mode and measures of dispersion.
2. Apply the concepts of probabilistic distributions in solving problems.
3. Recall the knowledge of hypothesis testing for large and small samples.
4. Extend the ability to solve linear programming problems by graphical and simple methods.
5. Outline quantitative models to decision making and problem analysis, and their interpretations in transportation problems and game theory.

Unit 1 - Applications of Descriptive Statistics: Measures of central tendency - Mean, Median and Mode. Measures of dispersion. Skewness and Kurtosis.

Unit2 - Probability and Probability Distributions: Probability: Concepts of Probability- Binomial distribution, Poisson Distribution and Normal Distribution.

Unit 3 - Hypothesis Testing: Type I and Type-II Errors- Large Sample Tests, Mean Test- Difference between Two Means- Small Sample Tests: Mean Test- Difference between Means of Two Independent Samples - Difference between Two Dependent Samples or Paired Observations.

Unit 4 - Linear programming: Mathematical formulations of LP for product mix problems, graphical and simplex method of solving LP problems.

Unit 5 - Transportation problems and Game theory: Transportation problems: Various methods of finding initial basic feasible solutions and optimal cost assignment problem.

Game theory-concept of game, two-person zero sum game, pure and mixed strategy games, saddle point, odds method, dominance method and graphical method

Case Study: Compulsory. Relevant cases have to be discussed in each unit.

Reference Books

1. “Fundamentals of Mathematical Statistics” S.C. Gupta and V.K. Kapoor , Sultan Chand & Sons,
2. “Quantitative Techniques in Management”, Vohra N.D., Tata McGraw Hill, New Delhi.
3. “Operations Research” by Prem Kumar Gupta, D.S. Hira, S. Chand & Company Ltd.,
4. U.K. Srivastava, G.V.Shenoy, S.C.Sarma, “Quantitative Techniques for Managerial Decisions” New Age International Publications.
5. Dr. T.K.V. Iyengar, Dr. B. Krishna Gandhi, et al., “Probability and Statistics”, S. Chand.
6. J.K. Sharma, “Quantitative methods Theory and Applications”, Macmillan.
7. “Business Statistics”, by Gupta, S.C., Himalaya Publishing House, Bombay.
8. “Business Statistics” A first Course”, by Levine, Krehbiel and Berenson, Pearson Education Asia.