

**18 PTMBA 402
DECISION SCIENCE**

Objectives:

1. To lay an adequate theoretical foundation to study various applied fields in statistics and decision science.
2. To understand role of quantitative techniques in managerial decision making.
3. To understand applications of various quantitative techniques in managerial settings.

Module-I: Statistical Methods:

Measures of central tendency and dispersion: Standard Deviation, Simple Correlation, calculation of correlation coefficient, probable error, Rank correlation. Regression: Linear regression, calculation of regression coefficients,

Module II: Decision Sciences & role of quantitative techniques. Linear programming:

Concept, Formulation & Graphical and Simplex Solution, **Assignment Models:** Concept, Flood's Technique / Hungarian Method, applications including restricted & multiple assignments.

Transportation Models: Concept, Formulation, Problem types: Balanced, Unbalanced, Minimization, Maximization Basic initial solution using North West Corner, Least Cost & VAM, and Optimal Solution using MODI.

Module-III:

Queuing Theory : Concept, Single Server (M/M/1), Markov Chains & Simulation Techniques: Markov chains: Applications related to management functional areas,

Decision Theory: Concept, Decision under risk (EMV) & uncertainty, **Game Theory:**

Concept, 2 zero sum game with dominance, Pure & Mixed Strategy.

Reference Books

Quantitative Techniques for Management, Levine, Krehbiel, Berenson, Pearson Quantitative Techniques in Management by N.D. Vohra Tata, McGraw Hill Quantitative Techniques-Davis.B, Oxford
Operations Research by R. Pannerselvam, Prentice Hall
Statistics for Business and Economics; R P Hooda, Vikas
Operations Research by Nita Shah, Ravi Gor, Hardik Soni, PHI Business Statistics : J K Sharma, Vikas