(3) Quantitative Methods

UNIT I

- **QT – Introduction** –Quantitative decision- making-Function and progression- Basic calculus and applications-Matrix algebra and Application.

- **Collection of data** –Presentation of Data- Measures of Central Tendency – Mean, Median, Mode. Measure of variations and Skewness

UNIT II

- **Probability** – definitions – addition and multiplication Rules (only statements) – simple business application problems – probability distribution – expected value concept – theoretical probability distributions – Binomial, Poison and Normal

- **Decision Theory :** Decision Making Environments, Decision Making under Uncertainty (Maximax, Maximin, Equally Likely, Hurwicz criterion, Mini Max Regret) and risk (expected proft/loss), Using Continuous Distributions: Marginal Analysis, Utility as a Decision Criterion, Decision Tree Analysis.

- **Linear Programming:** Formulating Linear Programming Problems-its structure and variables, Nature of feasible, basic and optimal solutions. Solution of LP Problem through graphic, Simplex method.

UNIT III

- **Mathematical Models** – deterministic and probabilistic – simple business examples – Linear Programming – formulation –graphical solution – simplex – solution.
- **Transportation model** – Initial Basic Feasible solutions – optimum solution for non – degeneracy and degeneracy model – Trans-shipment Model – Assignment Model – Travelling Salesmen problem.

UNIT IV

Sampling and Sampling Distributions : Population and Samples, Parameters and Statistics, Types of Sampling:Simple Random, Stratified, Systematic and Cluster Sampling, Sampling Distributions, Standard Errors, Sampling from Normal and Non-normal Populations, Sampling methods, Testing of hypothesis,Chi-Square Tests

UNIT V

Time Series and Forecasting : Business forecasting, Correlations and regressions analysis, Time series analysis ,Variations in Time Series, Trend Analysis-fitting linear and second degree trends, Cyclic Variation, Seasonal Variation (Computing using Ratio to Trend Method), Irregular Variation.