

Module1:

**Introduction to Management Science-** Types of decisions; Steps in decision making; Quantitative analysis and decision making; Different types of models and their uses; Model building steps.

**10 hours**

Module 2

**Linear Programming:** Basic concepts; mathematical formulation and applications; Solution of LP problem using graphic and simplex method; – Application in Business.

Transportation and Assignment: Formulation; Solving transportation (NWC method – Least Cost method

– Vogel's approximations method – stepping stone method – Modified Distribution method) and assignment problems (Hungarian Method).

**25 hours**

Module3

**Inventory and Queuing Management:** Concepts of *inventory management*; Inventory models – classical EOQ, planned shortage model- deciding optimum safety stock and reorder level. *Queuing models:* Elements of a queuing system; Models with Poisson arrival and Exponential services rates- single server and infinite and finite population.

**17 hours**

Module 4

**Project Scheduling:** Concepts of PERT & CPM techniques and their applications; Network analysis- scheduling activities, determining critical path, calculation of floats; Time-cost trade-off; Resource allocation and resource leveling.

**18 hours**

**Module 5**

**Markov Chains and Theory of Games:** Markov Chains- decision processes; Market share analysis; Account receivable analysis. Game Theory- Pure strategy games; Mixed strategy games; Value of the game; Rules of Dominance.

**10 hours**

**Theory 30% Problems  
70%**

