

# AMTE-25 OPERATIONS RESEARCH FOR TEXTILE INDUSTRY

## UNIT-1 SCOPE OF OPERATION RESEARCH, APPLICATIONS, LIMITATIONS

- 1.1 Linear programming problems
- 1.2 Construction, solutions by graphical method,
- 1.3 Simplex method,
- 1.4 Big M method; sensitivity analysis;
- 1.5 Application of LP technique for mixing optimization in spinning mill

## UNIT-2 TRANSPORTATION PROBLEM

- 2.1 Construction, initial basic feasible solution-
- 2.2 North West Corner rule,
- 2.3 Lowest cost entry method,
- 2.4 Vogel's Approximation Method; optimality test
- 2.5 MODI method, stepping stone method; replacement analysis

## UNIT-3 ASSIGNMENT PROBLEM

- 3.1 Construction,
- 3.2 Solution by Hungarian method,
- 3.3 Application in textile industry;
- 3.4 Sequencing problems;
- 3.5 Integer programming
- 3.6 Construction, solving by cutting plane method

## UNIT-4 GAME THEORY

- 4.1 Two person zero sum games, solving by matrix method, graphical method;
- 4.2 Decisions theory
- 4.3 Decisions under assumed certainty, decision under risk,
- 4.4 Decision under uncertainty, illustrations from textile industry; inventory control
- 4.5 EOQ models-deterministic models –probabilistic models

## UNIT V PROJECT PLANNING AND CONTROL MODELS

- 5.1 CPM, PERT- network representation,
- 5.2 Determining critical path,
- 5.3 Project duration; crashing of project duration; resource leveling

### References Books:

1. Hillier and Lieberman, "Introduction to Operations Research", McGraw-Hill International Edition, Seventh Edition, 2001.
2. W.J. Fabrycky, P.M. Ghare & P.E. Torgersen, "Applied Operation Research and Management Science", Prentice Hall, New Jersey, 1984.