Course No: MCA-5T3

Course Title: Optimization Techniques

Unit I

Linear Programming Problem(LPP) and Duality: Formulating LPPs, Simplex Algorithm, Dual Linear Programs, Duality Theorem, Dual Simplex Method, Sensitivity Problems.

Unit II

Transportation and Assignment Problems: Formulation of Transportation problem (TP).Various methods of selecting in initial basic feasible solution.Degeneracy in TP and its resolution.Assignment problem, Algorithm Unbalanced Assignment Problem.

Unit III

Inventory Models and Game theory. Inventory problems and their analytical structures, deterministic economical lot size model, Stochastic and deterministic order level system. Game theory: Definition and explanation of important terms; saddle points.Dominance mixed strategies: games without saddle points 2Xn games.

Unit IV

Replacement and Sequencing models.Replacement of items that fail.Replacement of items that deteriorate.Sequencing of n jobs on two machines and three machines with no passing.

CPM- Determination of critical tasks. PERT- probability of completing the project on schedule.

Reference Books:

1. S.S. Raw," Optimization Methodologies".
2. H.A.TAHA," Operations Research". Pearson Education
3. S.D. Sharma," Operations Research & Optimization".
4. KantiSwaroop, " Operations Research and Applications"