SE671 LINEAR MATHEMATICAL PROGRAMMING 3 0 0 3

1. Linear Programming 14

Statement of problems - Mathematical Models – Linear Programming Models – Graphical Method –The Simplex Algorithm – Optimality and Feasibility Criteria – Product Criterion – Multiple Optimal Solution - Two Phase Method – Degeneracy, Redundancy, Cycling, Popping Variables and connectivity among them – Transportation and Assignment Models – Revised Simplex Method.

2. Sensitivity In Linear Programming 12

Generic Activities versus Resources Perspective – Quantifying Sensitivity to changes in LP Model parameters – Primal-Dual Models Properties – Simplex Multiplier – Economic Interpretation of Simplex Multiplier – Dual Simplex Method – Post Optimality or Sensitivity Analysis.

3. Redundancy Analysis 10

Heuristics Algorithm – a priori Identification of Redundancies of constraints and variables using Matrix of Intercepts – Gradient Matrix of the Constraints – Union of the Matrix of Intercepts and the Gradient Matrix of the Constraints - Application of Primal – Dual Properties to identify redundancies – Model Reduction – Comparison of Computational Efficiencies.

4. Advanced Linear Programming 14

Integer Linear Programming – Branch and Bound Algorithm – Cutting Plane Algorithm - Bounded Variable Algorithms.

5. Decision Analysis And Games 10

Decision Making – Under Certainty – Decision making under Risk - Decision making under Uncertainty - Game Theory – Optimal Solution to Two-Person Zero – Sum Games – Solution of Mixed Strategy Games.

TOTAL = 45

References

1. Hamdy A. Taha, “Operations Research – An Introduction”, seventhEdition, Pearson Education, Asia, 2002.
2. Ronald L. Rardin, “Optimization in Operations Research”, Pearson Education, Asia, 2002..
3. Tulsian, “Quantitative Techniques – Theory and Problems”, Pearson Education, Asia, 2002.
4. JIT. S. Chandran, Mahendran P. Kawatra, Ki Ho Kim, “Essentials of Linear Programming”, Vikas Publishing House Pvt. Ltd., New Delhi, 1994.
5. Hiller F.S, Liberman G.J, “Introduction to Operations Research”, sixth Edition, MsGraw Hill, Inc., 1995