

Stat-324 Operation Research

50 Marks: 02 Credits

Number of Class: 20-26

Introduction: Definition, scope and limitations of operational research, problem formulation and modeling in operational research, classification of operational research and important characteristics of operational research techniques.

Linear Programming: Introduction, formulation of linear programming problem, hyper-plane, hyper-sphere, open set, closed set, convex set, convex polyhedron, convex and concave functions, basic solution, basic feasible solution, non-degenerate and degenerate basic solution, theorem related to solution, properties of solution to linear programming problem, graphical solution, generating extreme point solution, simplex methods, revised simplex method, Dual Simplex Method, Two-phase Method, Big-M method, introduction to transportation problem, setting up of transporting problem with its solutions, concept of non-linear programming.

Game Theory: “Two person zero sum” game and non-zero sum games, pure, mixed and optimal strategy games, solution of game by graphical methods, simplex method, approximate solution of game by brown’s algorithm.

Text

1. Gass, S.I (2010): *Linear Programming Methods and Applications*, 4th edition, Dover Publications/McGraw-Hill, New York.
2. Hadley,G (1990): *Linear Programming*, Oxford and IBH.

References

1. Swarup,K Gupta,,P.K and Mohan, M (2003): *Operations Research*, Sultan Chand and Publications, New Delhi.
2. Saaty, T.L.: *Mathematical Methods of Operation Research*, McGraw-Hill, New York.
3. Sasieni, M. and Yaspan, A.: *Operation Research Methods and Problems*, Wiley, New York.
4. Taha, H.A.: *Operation Research An Introduction*, Prentice-Hall New Delhi.