

*Syllabus* : Classification and general theory of optimization; Linear programming (LP): formulation and geometric ideas, simplex and revised simplex methods, duality and sensitivity, interior-point methods for LP problems, transportation, assignment, and integer programming problems; Nonlinear optimization, method of Lagrange multipliers, Karush-Kuhn-Tucker theory, numerical methods for nonlinear optimization, convex optimization, quadratic optimization; Dynamic programming; Optimization models and tools in finance.

Texts:

1. D. G. Luenberger and Y. Ye, Linear and Nonlinear Programming, 3rd Ed., Springer India, 2008.
2. N. S. Kambo, Mathematical Programming Techniques, East-West Press, 1997.

References:

1. E. K. P. Chong and S. H. Zak, An Introduction to Optimization, 2nd Ed., Wiley India, 2001.
2. M. S. Bazaraa, H. D. Sherali and C. M. Shetty, Nonlinear Programming Theory and Algorithms, 3rd Ed., Wiley India, 2006.
3. S. A. Zenios (ed.), Financial Optimization, Cambridge University Press, 2002.
4. K. G. Murty, Linear Programming, Wiley, 1983.
5. D. Gale, The Theory of Linear Economic Models, The University of Chicago Press, 1989.