Syllabus

- Linear programming:
  - Foundation of linear programs;
  - convex set;
  - graphical solution of linear program;
  - solution of linear program by simplex method;
  - algebraic basis and computational set up;
  - duality problem-duality theorem;
  - transportation problems;
  - assignment problem and simple applications;
  - two-person zero-sum game;
  - simple inventory problems.
- Non-linear programming
  - Definiteness of matrix;
  - general optimization problem;
  - concave and convex functions;
  - optimization of convex functions;
  - general nonlinear programming problem;
  - tangent plane;
  - regular point;
  - equality constraint;
  - Lagrangian for equality and inequality constraints;
  - Kuhn-Tucker condition;
  - standard extermination problem of convex and concave programming;
  - saddle point.

Books Recommended:

- Haldey, G.: Linear Programming
- Gass, S.I.: Mathematical Programming
- Saaty, T.L.: Mathematical Methods of Operational Research
- Lieberman: Operational Research
- Luenberger: Linear and Nonlinear Programming
- Taha: Operation Research