



Linear and Integer Programming

ISE 3200

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Lab

Course Description:

Introduction to formulation, solution and analysis of continuous and discrete linear models to optimize the design of production and service systems and other engineering applications.

Prerequisites and Co-requisites:

Prereq: Math 2568 or 2174, and CSE 1222 or 1223 or 1224 or Engr 1281.01H or 1281.02H, and enrollment in ISE or Engineering Physics major. Additional prereq for students enrolled in ISE major: CSE 2112. Additional prereq or co-req for students enrolled in ISE major: ISE 2400.

Course Goals / Objectives:

- Model problems with linear objective and constraints, and discrete and continuous decision variables
 - Use simplex algorithm to solve linear programs
 - Understand duality and conduct sensitivity analysis
 - Model and solve network flow problems
 - Use branch-and-bound algorithm to solve mixed-integer linear programs
 - Use modeling and optimization software packages to model and solve linear and mixed-integer programs
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Course Topics:

- Linear Programming Models
 - Linear Programming Solution Methods
 - Duality and Sensitivity Analysis
 - Network Flow Model and Methods
 - Integer Programming Models
 - Integer Programming Solution Methods
 - Software
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Designation:

Required