# THE OHIO STATE UNIVERSITY
## COLLEGE OF ENGINEERING

# Linear Optimization

## ISE 5200

**Credit Hours:**
3.00 - 3.00

**Course Levels:**
Undergraduate (1000-5000 level)
Graduate

**Course Components:**
Lecture

**Course Description:**
Introduction to the linear optimization and applications. Topics include model formulation, solution methods, polyhedral and duality theory, sensitivity analysis, and software usage.

**Prerequisites and Co-requisites:**
Prereq: Math 2174, 2415, 2568, or 4568, and permission of instructor; or Grad standing.

**Course Goals / Objectives:**
- Model problems with linear objective and constraints.
- Use simplex algorithm to solve linear programs.
- Understand polyhedral theory as it relates to the simplex method.
- Understand duality and conduct sensitivity and parametric analysis.
- Understand the need for LP Decomposition, and learn some of these methods.
- Use interior point methods for linear programs.
- Use modeling and optimization software packages to model and solve linear programs.

**Course Topics:**
- Linear Programming Applications
- Simplex Method
- Polyhedral Theory
- Duality, sensitivity, and Parametric Analysis
- Decomposition methods
- Interior point methods
- Software

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**Designation:**
Elective
Required