THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Systems Modeling and Optimization for Analytics

ISE 3230

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 and nonlinear models to optimize systems using data-driven techniques.

Prerequisites and Co-requisites:
Prereq: Math 1152, 2568, and CSE 2231.

Course Goals / Objectives:
- Model problems with linear or nonlinear objective and constraints, and discrete and continuous decision variables.
- Model and solve network flow problems
- Use modeling and optimization software packages to model and solve linear, nonlinear, and mixed-integer programs and interpret their outputs.
- Conduct sensitivity analysis
- Recognize optimization problems that are convex and non-convex

Course Topics:

- Linear Programming Models
- Network Flow Models
- Integer Programming Models
- Nonlinear Programming Models
- Convexity
- Software
- Sensitivity Analysis

Designation:

Elective