ISEN 5801 - Operations Research 1

Fall 2026 Syllabus, Section 01, CRN 41097,

Credit hours: 3

Instructor

Seok Gi Lee

Email: slee10@ysu.edu

Public Instructor Information

Instructor Title: Assistant Professor

Instructor Professional Qualifications: PhD, Industrial and Manufacturing Engineering, Pennsylvania State University
Instructor Office Location: Moser 2465
Instructor Office Phone: 330 941 7116

Course Description

5801. Operations Research 1. Formulation and solution of engineering problems using linear programming. Model formulation, the primal, dual, and transportation simplex methods, duality theory, and sensitivity analysis. Prereq.: MATH 2673. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Optional	Introduction to Operations Research	Hillier and Lieberman	978-1259162985

All course content will be summarized in PowerPoint slides and uploaded to Blackboard.

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Course schedule (subject to change depending on the progress of the lecture)

Week of	Proposed Topic	Due/To Prepare for Class
8/24	Linear programming formulation - 1	
8/31	Linear programming formulation - 2	
9/7	Graphical solution of two-dimensional linear programs	
9/14	Overview of simplex method Simplex algorithm	
9/21	Simplex algorithm	
9/28	Integer programming formulation	
10/5	Branch-and-bound algorithm - 1	
10/12	Branch-and-bound algorithm - 2	
10/19	Optimization solver – Gurobi & Excel solvers Dynamic programming formulation	
10/26	Dynamic programming applications	
11/2	Network and algorithms – Graph concepts	
11/9	Network approach applications - 1	
11/16	Network approach applications - 2	
11/23	Course project instruction Thanksgiving holiday	

11/30	Course project instruction
12/7	Review materials

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.