

IE580: Systems Simulation (Fall 2024)

Purdue School of Industrial Engineering, MWF 1:30-2:20PM, WANG 2599

Course website (Brightspace): purdue.brightspace.com

Instructor: Seokcheon Lee, stonesky@purdue.edu, lee46@purdue.edu
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<https://purdue-edu.zoom.us/j/7592076818>
Distributed Control Lab: <https://engineering.purdue.edu/DClab/>

Teaching assistants: TBD

Course objective: To be able to build simulation models for evaluating behaviors of alternative designs (layout/capacity/decision policy) in various applications such as manufacturing, service, and information systems.

Course description: Simulation is a process of designing and creating a computerized model of a real or proposed system for conducting numerical experiments to understand and analyze the behavior of that system for a given set of conditions. Simulation has been consistently reported as the most popular operations research tool. The main reason for simulation's popularity is its ability to deal with very complicated systems. The course introduces various simulation modeling techniques with emphases on applications, using Arena simulation software.

Pre-requisites: Basic statistics and basic programming skills.

Textbook (optional): W. David Kelton, Randall P. Sadaowski, and Nancy Swets, "Simulation with Arena" 6th Ed, McGraw Hill, 2015

Class software: Arena 15.1. Free downloadable at
http://higher.ed.mheducation.com/sites/0073401315/student_view0/arena_software_download.html

Handouts: Handouts will be posted in Brightspace system.

Homework: Roughly 3 assignments.

Exams: Two midterm exams and one final exam. All take-home exams.

Project: Term project is to design a solution to a problem of your interest by simulation.
Milestones: team composition, proposal, progress report, final report, and presentation.

Grading: HW (20%), Midterm I (20%), Midterm II (20%), Final (20%), Project (20%).
Cutoffs: 90 (A), 80 (B), 70 (C). (+/- will be applied between cutoffs)