

Construction Operation Simulation

Course Overview

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Construction Engineering and Management



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□ **Purpose of the course**


- To introduce simulation as an applied tool for analysis and design of construction operations.

□ **Prerequisites:**

- General engineering knowledge; Basic knowledge of computer programming; Basic knowledge of statistics; Basic knowledge of construction operations.

□ **Class audiences**

- Construction Engineering and Management Students; Civil Engineering Students (BSc, MSc and PhD) who are interested in construction operation planning.

 How many of you come from construction group? How many come from other civil programs? Is there any body from other disciplines than Civil Engineering?

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□ Course outline

#	Topic
1	Introduction to construction operation simulation
2	Discrete Event Simulation (DES) modeling concepts
3	DES engine and hand simulation
4	Stochastic simulation and random number generation
5	Introduction to DES modeling software
6	Simulation model input analysis
7	Model verification and validation
8	Simulation model output analysis
9	Simulation as an optimization tool
10	Construction operation simulation examples

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□ **Grade Distribution:**

- Home Assignments: 15%
- Lab/ in Class Exercises: 10%
- Term Project: 15%
- Final Exam: 60%

□ **Texts and References**

- Banks, J., Carson, J.S., Nelson, B.L. And Nicol D.M. (2004) “Discrete event simulation” Prentice Hall, ISBN: 0131446797.

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- **Contact info:**
 - ▣ Webpage: sharif.edu/~alvanchi/Sim.html
 - ▣ **Find course materials, assignments and announcement on the webpage**
 - ▣ Email: alvanchi@sharif.edu
 - ▣ Office hours: Please Contact
 - ▣ Teaching Assistant: Parham Pazari
 - ▣ Email: parhampzr@gmail.com
 - **Submit your electronic assignments and send your questions to TA.**

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sharif.edu/~alvanchi/Sim.html



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Simulation

Course#: 20-893
Lecturer: Dr. Amin Alvanchi
Room: Virtual Class
Start date: Ahan 3th 1400
Last day of classes: Day 12th, 1400
Final exam date: Day 29th, 1400, 9 AM
Course hours: Even days from 9:00 to 10:30
Office hours: Please email me to set a time
Contact: alvanchi@sharif.edu
Teaching Assistant (TA): TBA
TA contact: TBA
TA office hours: TBA

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Topics

Topic #	Topic Description
1	Introduction to construction simulation
2	DES modeling concepts
3	DES engine and hand simulation
4	Stochastic simulation and random number generation
5	Introduction to VBNET Lecture 5 VBNET Simple Examples
6	Coding Simulation Models Lecture 6 Supporting materials
7	Introduction to DES Software Lecture 7 Supporting materials
8	Simulation model input analysis Corder Bridge example Pipeline example
9	Simulation model validation
10	Simulation model output analysis Simulation model examples

Announcements

Date Posted	Announcement Description
1400/8/6	Welcome to Simulation course, a place to learn new materials and share novel ideas!

Assignments

Assignment	Solution
TBA	



Thank you!