

## OSTİM TECHNICAL UNIVERSITY ENGINEERING FACULTY

# IENG 403 – SIMULATION COURSE CURRICULUM FORM 2022-2023

IENG 403 – Simulation							
Course Name Course Course Period Hour Application Time					Lab Time	Credit	ECTS
Simulation	IENG 403	7	4	0	0	4	5

Precondition	No
Language of the Course	English
Type of the Course	Compulsory
Course Level	Bachelor Degree
Method of Teaching	Face to face, Online
Course Learning and Teaching Techniques	Lecture, Question and Answer, Application

### The Aim of Course

To introduce the place and importance of simulation technique in the design and analysis of complex systems. Examining the applications of simulation in production and service systems for the purpose of examining the behavior of a system, modeling new designs, comparing alternative systems and optimizing.

#### **Course Content**

Ability to model and analyze a system with simulation technique and to design and compare new systems in line with the objectives.

Weekly Topics and Related Preparation Studies						
Week	Topics	Preliminary				
1	System Description					
2	Definitions, System, Model.					
3	Simulation and Definition					
Δ	Types of simulation, Advantages and disadvantages of					
-	simulation, Areas of use					
5	Monte Carlo Simulation					
6	Probability Distributions and Concepts Related to					
0	Probability					
7	Random Variables, Discrete Variables, Continuous					
1	Variables.					
8	Midterm Exam					
9	Discrete Event Simulation					
10	Discrete event simulation steps and other simulation					
	types					
11	Manual simulation, One-service queuing system					
11	simulation					



12	Promodel Simulation Package Program	
13	General Concepts.	
14	Promodel Simulation Package Program	
15	Experiment Elements (Entities, Locations).	
16	Final Exam	

## **Resources (Textbook and Supplementary Books)**

1. Law, A.M., Kelton, W.D., (2000), Simulation Modelling and Analysis, McGraw Hill Inc. 2. Banks, J., Carson, J.S., (2000), Discrete Event System Simulation, PrenticeHall.

Evaluation System				
Studies	Number	Contribution Margin		
Continue				
Laboratory				
Application				
Field Study				
Course Specific Internship (if applicable)				
Quizzes/Studio/Critical				
Homework				
Presentation				
Projects				
Report				
Seminar				
Midterm Exams/Midterm Jury	1	% 40		
General Exam/Final Jury	1	% 60		
	Total	% 100		
Contribution to the Success Grade of Mid-Semester Studies		% 40		
Contribution of End of Semester Studies to Success Grade		% 60		
	Total	% 100		

Course Category				
Basic Vocational Courses	Х			
Specialization/Field Courses				
Support Lessons				
Communication and Management Skills Lessons				
Transferable Skills Lessons				

	Relation of Course Learning Outcomes and Program Qualification						
No	Program Qualifications / Quitcomes	Co	<b>Contribution Level</b>				
NO	r rogram Quaincations / Outcomes	1	2	3	4	5	
1	Ability to design, conduct experiments, collect data, evaluate and interpret results for the analysis and solution of Industrial Engineering problems.					x	
2	To be able to use course information in solving industrial engineering problems.					x	
3	Acquisition of analytical thinking skills				х		
4	Ability to use information technologies required for Industrial Engineering applications.			х			
5	Having an up-to-date and sufficient background in engineering, mathematics, science and social sciences related to industrial engineering; To be able to use the theoretical and applied knowledge in these fields together in solving industrial engineering problems.					x	



ECTS/Workload Table					
Activities	Number	Duration (Hours)	Total Workload		
Lesson hours (Including the exam week: 16 x total lesson hours)	16	4	64		
Laboratory					
Application					
Course Specific Internship					
Field Study					
Out of Class Study Time	16	4	64		
Presentation/Seminar Preparation					
Projects					
Reports					
Homeworks					
Quizzes/Studio Critic					
Preparation Time for Midterm Exams/Midterm Jury	1	16	16		
Preparation Time for the General Exam/General Jury	1	16	16		
Total Workload	(128/30 = 5) 160				