

# TOROS ÜNİVERSİTESİ

Faculty Of Engineering  
Industrial Engineering (English)

## Course Information

SYSTEM SIMULATION					
Code	Semester	Theoretical	Practice	National Credit	ECTS Credit
		Hour / Week			
INE401	Fall	3	0	3	4

<b>Prerequisites and co-requisites</b>	MAT311, INE302
<b>Language of instruction</b>	English
<b>Type</b>	Required
<b>Level of Course</b>	Bachelor's
<b>Lecturer</b>	Prof. Dr. Ali KOKANGÜL
<b>Mode of Delivery</b>	Face to Face
<b>Suggested Subject</b>	None
<b>Professional practise ( internship )</b>	None
<b>Objectives of the Course</b>	Providing skills of system analysis, modelling and interpretation
<b>Contents of the Course</b>	Introduction and basics concepts, Simulation models architecture and types, Generation of Random numbers and variables, Modelling of Service systems, Simulation software packages, Inventory control models, Modelling of Logistics and Distribution systems, Modelling of Manufacturing systems

## Learning Outcomes of Course

#	Learning Outcomes
1	Student shall gain the basic principles of simulation studies
2	Student will be able to build and analyze simulation models for several systems with therocial knowledges such as data collection, input analysis, validation and verification of simulation models, output analysis etc.
3	Student will be able to identify basic and complex simulation models with using Microsoft Excel and add-ins, SIMAN simulation language and ARENA Simulation Software Package.
4	

## Course Syllabus

#	Subjects	Teaching Methods and Technics
1	Introduction and basics concepts	Presentation
2	Simulation models architecture and types	Presentation
3	Generation of Random numbers and variables	Presentation
4	Modelling of Queue systems	Presentation
5	Modelling of Service systems	Presentation
6	Modelling of Service systems	Presentation
7	Modelling of Manufacturing systems	Presentation
8	Midterm Exam	Exam
9	Data analysis and distrubitions	Presentation
10	Inventory control models	Presentation
11	Modelling of maintenance and replacement systems	Presentation

12	Modelling of Logistics and Distribution systems	Presentation
13	Verification and validation	Presentation
14	Modelling with Arena	Presentation
15	Modelling with Arena	Presentation
16	Final Exam	Exam

## Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	LAW, A. M. & KELTON, W. D., 2000, Simulation Modeling & Analysis, New York, NY: Mc-Graw Hill , Inc.		
2	BANKS, J., CARSON, J. S. & NELSON, B. L., 1996, Discrete-Event System Simulation (2nd edition), New York, NY: Prentice-Hall, Inc.		

## Method of Assessment

#	Weight	Work Type	Work Title
1	40%	Mid-Term Exam	Mid-Term Exam
2	60%	Final Exam	Final Exam

## Relationship between Learning Outcomes of Course and Program Outcomes

#	Learning Outcomes	Program Outcomes	Method of Assessment
1	Student shall gain the basic principles of simulation studies	1	1,2
2	Student will be able to build and analyze simulation models for several systems with therocial knowledges such as data collection, input analysis, validation and verification of simulation models, output analysis etc.	2	1,2
3	Student will be able to identify basic and complex simulation models with using Microsoft Excel and add-ins, SIMAN simulation language and ARENA Simulation Software Package.	3	1,2
4			

PS. The numbers, which are shown in the column Method of Assessment, presents the methods shown in the previous table, titled as Method of Assessment.

## Work Load Details

#	Type of Work	Quantity	Time (Hour)	Work Load
1	Course Duration	14	3	42
2	Course Duration Except Class (Preliminary Study, Enhancement)	14	5	70
3	Presentation and Seminar Preparation	0	0	0
4	Web Research, Library and Archival Work	0	0	0
5	Document/Information Listing	0	0	0
6	Workshop	0	0	0
7	Preparation for Midterm Exam	1	3	3
8	Midterm Exam	1	2	2
9	Quiz	0	0	0
10	Homework	0	0	0
11	Midterm Project	0	0	0
12	Midterm Exercise	0	0	0
13	Final Project	0	0	0

14	Final Exercise	0	0	0
15	Preparation for Final Exam	1	3	3
16	Final Exam	0	0	0
				<b>120</b>