SIMULATION

1	Course Title:	SIMULATION	
2	Course Code:	EKO4305	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	7	
7	ECTS Credits Allocated:	5.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç. Dr. ARZU EREN ŞENARAS	
15	Course Lecturers:	Doç.Dr.V.Sinem Arıkan Kargı	
16	Contact information of the Course Coordinator:	arzueren@uludag.edu.tr Uludağ University Faculty of Economics and Administrative Sciences A Block 16059 Nilüfer/Bursa	
17	Website:		
18	Objective of the Course:	To explain various simulation solution models and to enable them to apply simulation models.	
19	Contribution of the Course to Professional Development:	By using simulation programs, it becomes easier to solve, analyze and design the system problem.	
20	Learning Outcomes:		
		1	To be able to apply the basic principles of simulation studies.
		2	To be able to establish and interpret simulation models for different systems
		3	To be able to apply Monte Carlo Simulation in MS Excel
		4	To be able to develop a simulation model with Micro Saint Sharp
		5	To be able to create activity cycle diagrams
		6	To be able to apply simulations by hand
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21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Basic Concepts of Simulation and Modeling: Simulation Definition, Advantages and Disadvantages of Simulation, Application Areas, System and System Environment, System Elements, Discrete and Continuous Systems	

2	Concept of Model , Classification of Models, Classification of Simulation Models, Continuous and Batch Simulation Concept, Steps of Simulation Study
3	Fundamentals of Simulation in MS Excel and Monte Carlo Simulation: Fundamentals of Simulation in MS Excel, Structure of Simulation Sheet in MS Excel, Monte Carlo Simulation
4	Discrete Event Simulation
5	Time Slicing, Next Event Technique
6	Simulation model development with Micro Saint Sharp Program
7	Example in MSS Program
8	Activity Cycle Charts
9	Three-Phase Approach
10	Basics of Manual Simulation, Example of manual simulation
11	Random sampling in discrete event simulation
12	Random Number Generators
13	Reversion, Rejection, Composition, Transformation, Warm-up period
14	Model Validation and Validity, Black Box Validity, White Box Validity, Analysis of

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	5.00	70.00
Homeworks	14	2.00	28.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	5.00	5.00
Others	0	0.00	0.00
Final Exams	1	5.00	5.00
Total Work Load			150.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

Contribution of Term (Year) Learning Activities to Success Grade	40.00
Contribution of Final Exam to Success Grade	60.00
Measurement and Evaluation Techniques Used in the Course	Homework, midterm and final exam

24 ECTS / WORK LOAD TABLE

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	3	2	3	3	3	3	3	4	1	2	3	3	0	0	0	0
ÖK2	2	3	4	3	2	3	4	2	3	3	3	3	0	0	0	0
ÖK3	3	4	4	3	3	3	2	3	3	3	4	3	0	0	0	0

ÖK4	4	2	3	3	3	4	2	4	3	3	2	3	0	0	0	0
ÖK5	3	3	2	4	3	3	3	3	3	3	3	4	0	0	0	0
ÖK6	2	2	3	3	2	2	3	2	3	3	2	2	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**