

QUANTITATIVE METHODS II

1	Course Title:	QUANTITATIVE METHODS II	
2	Course Code:	ISL4402	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	8	
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. GÜL EMEL	
15	Course Lecturers:	Dr. Öğretim Üyesi Burcu AVCI ÖZTÜRK	
16	Contact information of the Course Coordinator:	Doç.Dr.Gül GÖKAY EMEL ggokay@uludag.edu.tr Tel: 0224 29 41055	
17	Website:		
18	Objective of the Course:	Applying various quantitative techniques, interpreting the solutions and presenting to the decision-makers in a useful format with the purpose of supporting decisions for business's various functions.	
19	Contribution of the Course to Professional Development:	Building models for business problems, decision making based on quantitative data, using software ve developing analytical skills.	
20	Learning Outcomes:		
		1	To be able to model transportation problems successfully.
		2	To be able to form starting tables with different methods in transportation models.
		3	To be able to solve transportation and assignment problems with minimum and maximum objectives and interpret the solutions.
		4	To be able to apply network models in different business problems and use for project evaluations
		5	To be able to model and solve integer programming problems.
		6	To be able to prepare production plans with discrete variables.
		7	To be able to use solutions with different techniques for decision support and interpret as a manager.
		8	
		9	
		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Structure of transportation problem and establishment of linear programming model.		

2	Starting table methods in transportation problems (northwest corner, minimum cost and Vogel approach methods.			
3	Optimum solution to transportation models with stepping-stone method.			
4	Unbalanced transportation models (situations that demand more than supply and supply more than demand) and degeneration in transportation models.			
5	Optimum solution to transportation models with MODI (modified distribution) method.			
6	Structure of assignment problem and establishment of linear programming model.			
7	Optimum solution to assignment models with Hungarian algorithm.			
8	Applications of transportation and assignment models to different business problems.			
9	Network analysis and network modelling.			
10	Solutions of network models with linear programming and special algorithms.			
11	Integer programming and establishment of integer programming models.			
12	Brunch and bound algorithm solution of integer programming models			
13	Gomory cutting plane algorithm solution of integer programming. models.			
Activites		Number	Duration (hour)	Total Work Load (hour)
22	Theoretical	2004	3.00	42.00
Textbooks, References and/or Other Materials:				
Practicals/Labs		0	0.00	0.00
Self study and preperation		* Wayne L. Winston, Operations Research: Applications	5.00	70.00
Homeworks		14	2.00	28.00
Projects		Programlama Teori Modelleme ve Algoritmalar	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		1	5.00	5.00
23	Assesment			
Others		0	0.00	0.00
Final Exams		1	5.00	5.00
Total Work Load				150.00
Quiz		0	0.00	5.00
Total work load/ 30 hr				5.00
ECTS Credit of the Course				5.00
Final Exam		1	60.00	
Total		2	100.00	
Contribution of Term (Year) Learning Activities to Success Grade		40.00		
Contribution of Final Exam to Success Grade		60.00		
Total		100.00		
Measurement and Evaluation Techniques Used in the Course		Midterm Exam 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	4	3	3	4	0	0	5	3	5	0	0	4	0	0	0	0
ÖK2	0	0	0	0	0	0	0	3	5	0	0	0	0	0	0	0
ÖK3	3	3	0	0	0	0	0	3	5	0	0	0	0	0	0	0
ÖK4	5	0	2	2	0	5	4	0	5	2	3	0	0	0	0	0
ÖK5	0	3	0	0	0	0	0	0	5	2	0	0	0	0	0	0
ÖK6	3	2	4	0	0	2	4	0	5	3	0	0	0	0	0	0
ÖK7	2	3	0	5	5	5	2	1	5	4	2	5	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			