OPERATIONAL RESEARCH IN AGRICULTURE

1	Course Title:	OPERATIONAL RESEARCH IN AGRICULTURE	
2	Course Code:	TRE6103	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	1	
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:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç.Dr. Tolga Tipi	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	ttipi@uludag.edu.tr, Tel:0 (224) 2941590 U.Ü. Ziraat Fakültesi Tarım Ekonomisi Bölümü Görükle/Bursa	
17	Website:		
18	Objective of the Course:	The objective of this course is to enable the students to learn operational research techniques as a tool for decision making on farm management and farm policy problems.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Ability to define mathematical model of the farm management problems
		2	Ability to choose operations research technique for solving problems
		3	Ability to solve model by using operations research techniques
		4	Ability to analyze and interpret model outputs
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21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Introduction to Operations Research (Basic Definitions, Classification, Historical Development and usage in farm management)	
2	Concept of model, model types, mathematical models; practices in farm management	

3	Linear Programming: Graphical and Simplex Solution	
4	Sensitivity Analysis, primal and dual models	
5	Linear programming problems in farm management	
6	Integer programming: Model Building	
7	Transportation Models: Model Building, Solution Techniques, Assignment and Transshipment Models	
8	Dynamic Programming: Model Building	
9	Dynamic Programming: Model Building	
10	Nonlinear Programming: Model Building	
11	Nonlinear Programming: Problem solving	
12	Markov Chain Analysis	
13	Game Theory	
14	Course review and problem solving	

22	Textbooks, References and/or Other Materials:	1. Rehber, E. Tarımda Yöneylem Araştırması, Basılmamış Ders Notları, Bursa. 2. Ecker, J.G., Kupferschmid, M. 1988. Introduction to Operations Research, John Wile&sons, Newyork. 3. Winston, W.L. 1991. Operations Research (Applications and Algorithms), Duxbury Press, California. 4. Taha H.A., Operations Research: An Introduction 6. Winston W.L., Albright S.C., Practical Management Science, Duxbury Press, Wadsworth Inc., 2001.

23	Assesment				
	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	2.00	28.00
	Homeworks		4	10.00	40.00
	Projects		0	0.00	0.00
	Midterm Exam	0	0.00		
	Field Studies		0	0.00	0.00
	Midterm exams		0	0.00	0.00
	Home work-project	2	30.00		
	Others		0	0.00	0.00
	Final Exams		1	35.00	35.00
	Total	3	100.00		
	Total Work Load				145.00
	Success Grade				
	Total work load/ 30 hr				4.83
	ECTS Credit of the Course				5.00
	Total		100.00		
	Measurement and Evaluation Techniques Used in the Course				

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	1	0	2	3	2	3	1	0	0	0	0	0	0	0	0	0
ÖK2	3	0	2	3	3	4	2	0	0	0	0	0	0	0	0	0

ÖK3	0	0	2	2	2	3	0	0	0	0	0	0	0	0	0	0
ÖK4	1	0	2	2	4	4	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

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