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, Pearson Education Inc., 2003. 5. Taha H.A., Yoneylem Arastirmasi, Literatur Yayincilik (cev. Alp Baray ve Sakir Esnaf), 2000. 6. Winston W.L., Albright S.C., Practical Management Science, Duxbury Press, Wadsworth Inc., 2001.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	2	30.00
Final Exam	1	70.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		30.00
Contribution of Final Exam to Success Grade		70.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	**ECTS / WORK LOAD TABLE**

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
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	35.00	35.00
Total Work Load			145.00
Total work load/ 30 hr			4.83
ECTS Credit of the Course			5.00

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