WATER RESOURCES PLANNING										
1	Course Title:	WATER RESOURCES PLANNING								
2	Course Code:	BSM4508-S								
3	Type of Course:	Optional								
4	Level of Course:	First Cycle								
5	Year of Study:	4								
6	Semester:	8								
7	ECTS Credits Allocated:	3.00								
8	Theoretical (hour/week):	2.00								
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. HAKAN BÜYÜKCANGAZ								
15	Course Lecturers:									
16	Contact information of the Course Coordinator:	cangaz@uludag.edu.tr U.Ü. Ziraat Fakültesi Biyosistem Mühendisliği Bölümü 0.224.2941621								
17	Website:									
18	Objective of the Course:	This course will provide the student an introduction to the planning, design, and operation of water resources systems using mathematical optimization methods and models. The student will learn to apply basic economic analysis (engineering economic) and operations research techniques (linear, nonlinear and dynamic programming) and will apply them to various surface and ground water resource allocation problems.								
19	Contribution of the Course to Professional Development:									
20	Learning Outcomes:									
		1	understand and appreciate the global and local importance of water resources and understand the problems concerning water resources							
		2	develop and solve various types of optimization models of water resources planning and management problems							
		3	understand and appreciate the role of calculus in resolving engineering problems and set relations between calculus and water resources planning and management problems							
		4	use computer software in applying optimization techniques to water resources planning and management problems							
		5	understand and appreciate the role of engineering economics for water resources planning and development							
		6								
		7								
		8								
		9								
		10								
21	Course Content:	Course Content:								
	Course Content:									

Week	Theoretical		Practice							
1	Introduction to water resources plann role and importance of water resourc societies, Historical background of wa resources planning, Current condition resources engineering, Multi-purpose resources projects and their functiona requirements	ning, the es in ater ns, Water e water al								
2	The role of water resources planning development in agricultural productio Turkey's water resources availability, conditions of the country, Soil resources	and n, Climatic ces								
3	Technical, environmental and socio-e problems and limitations in water res engineering	economic ources								
4	Water resources engineering basics: Engineering, System, System Approa steps, System Engineering, Optimiza Operational Research, Models and M Modeling Apps	Plan, ach and ition, lodeling,								
5	Setting different models in water resc engineering, examples, Introduction t optimization techniques, Optimizatior Methods, Graphical Method in Linear Programming	burces to n								
6	Optimization Methods, Simplex Meth Linear Programming	od in								
Activit	Optimization Mathods: LINDO and E CS	YCEL	Number	Duration (hour)	Total Work Load (hour)					
Theore	Pagramming		14	2.00	28.00					
Practica	als/Labs		0	0.00	0.00					
Self stu	planning, economic analysis principle dy and properation	25	2	4.00	8.00					
Homew	vorks		3	8.00	24.00					
Project	& maintenance costs, Cost sharing c	of multi-	0	0.00						
Field S	tudies		0	0.00	0.00					
Midtern	pexiencts: Cost/Benefit Ratio, Net Pres	sent	1	6.00	6.00					
Others			5	3.00	15.00					
Final E	kams		1	10.00	10.00					
Total W	/ork Load				91.00					
Total w	ork load/ 30 hr				3.03					
ECTS (Credit of the Course				3.00					
			Ç.Ü.Ziraat Fakültesi Tarımsal Yapılar ve Sulama Bölümü, Adana. Loucks, Daniel P. and Eelco van Beek, Water Resources Systems Planning and Management: An Introduction to Methods, Models and Applications, UNESCO, Paris, 2005. (Available Online: http://www.wldelft.nl/rnd/intro/fields/water- management/book.html)							
23	Assesment									
TERM L	EARNING ACTIVITIES	NUMBE R	WEIGHT							
Midterm Exam 1			35.00							

0.00

0

Quiz

Home work-project 3							5	15.	15.00								
Final Exam 1							50.	50.00									
Total 5								10	100.00								
Contribution of Term (Year) Learning Activities to Success Grade								50.	50.00								
Contribution of Final Exam to Success Grade							50.	50.00									
Total							10	100.00									
Measurement and Evaluation Techniques Used in the Course						ne											
24 EC	CTS /	WO	RK L	OAD	TAB	LE											
25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS																	
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ1 0	PQ11	PQ12	PQ1 3	PQ14	PQ15	PQ16	
ÖK1	2	2	2	2	2	5	3	3	4	5	2	3	0	0	0	0	
ÖK2	5	4	5	5	5	3	3	4	4	4	5	5	0	0	0	0	
ÖK3	5	4	5	5	5	3	3	4	4	4	5	5	0	0	0	0	
ÖK4	5	4	5	5	5	3	3	4	4	4	5	5	0	0	0	0	
ÖK5	4	4	4	5	5	3	3	4	4	4	4	5	0	0	0	0	
LO: Learning Objectives PQ: Program Qualifications																	
Contrib1 very low2 lowutionLevel:			3 Medium		4 High		5 Very High										