IM 473 WATER RESOURCES ENGINEERING 1		CIVIL ENGINEERING	
Semester	**Credit Structure**		
	Lecture	**Recitation**	**Laboratory**
7	3.	0	0
Language	Turkish		
Compulsory / Elective	Compulsory		
Prerequisites	IM 376		
Catalog Description	River morphology (classification of rivers, properties of river and drainage area, orientation of river bed, longitudinal and transverse bed profiles). Sediment transport (characteristics of sediment, formation of river bed forms, initiation of particle motion, methods for determining suspended, bed, and total load transport, measurement techniques). River regulation systems (structural materials and elements, structures for protection, restriction and other facilities). Spillways (sidewise, frontal, and bottom intakes, hydraulics of overflow spillways and sluice gates with raftway, energy dissipating basin in diversion weirs). Irrigation and drainage (demand for irrigation, irrigation applications with open channel flow and submerged flow, rotational, demand, conditional demand, unit area unit water irrigation systems).		
Course Objectives	Application of hydraulics to open channel flows and hydraulic structures		
Course Outcomes	Information about river morphology in respect of engineering, sediment, river regulation systems, spillways and intakes.		
Textbook and /or References	"Hydraulic Structures" by Tülay Özbek "Sediment Transport in Rivers" by Tülay Özbek and Çağlar Özcan "Irrigation and Drainage" by Tülay Özbek Lecture notes prepared from national and international references		
Assessment Criteria		**Quantity**	**Percentage**
	Midterm Exams	2	40
	Quizzes	-	-
	Homeworks	5	10
	Projects	-	-
	Term Paper	-	-
	Laboratory Work	-	-
	Other	-	-
	Final Exam	1	50
Course Category by Content (%)	**Mathematics and Basic Sciences**	30	
	Engineering Science	50	
	Engineering Design	20	
	Social Sciences	-	
Instructors	**Prof. Dr. Tülay Özbek, Yrd. Doç. Dr. Müsteyde Baduna Koçyiğit**		

COURSE PLAN	
Week	**Topics**
1	A brief review of open channel hydraulics
2	A brief review of open channel hydraulics
3	River morphology
4	River morphology
5	Sediment on rivers
6	Sediment on rivers
7	River regulation structures
8	River regulation structures
9	I. Midterm
10	Weirs
11	Weirs
12	Water intake structures
13	A basic knowledge about irrigation and drainage
14	2. Midterm

RELATIONSHIP BETWEEN THE COURSE AND DEPARTMENT CURRICULUM				
	Program Outcomes	**1**	**2**	**3**
1	An ability to apply knowledge of mathematics, science, and engineering			X
2	An ability to design and conduct experiments, as well as to analyze and interpret data		X	
3	An ability to design a system, component, or process to meet desired needs			X
4	An ability to function on multi-disciplinary teams		X	
5	An ability to identify, formulate, and solve engineering problems			X
6	An understanding of professional and ethical responsibility			X
7	An ability for effective written and oral communication in Turkish and English	X		
8	The broad education necessary to understand the impact of engineering solutions in a global and societal context		X	
9	A recognition of the need for, and ability to engage in life-long learning			X
10	A knowledge of contemporary issues		X	
11	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			X
	Contribution of the course : 1:None 2:Partially 3:Completely			