IM 376 HYDROMECHANICS		CIVIL ENGINEERING	
Semester	**Credit Structure**		
	Lecture	**Recitation**	**Laboratory**
6	3	0	1
Language	English		
Compulsory / Elective	Compulsory		
Prerequisites	IM 371		
Catalog Description	Minor energy losses, parallel and serial pipe systems, multiple reservoir systems, pump-pipeline systems, orifice and discharge coefficient, emptying time for a tank, open channel flow and its types, formulas used in open channel flow computations, specific energy concept, Froude number and flow regimes, changes in open channel flow cross-section, flow measurement in pipe and open channel flows (weirs, velocity and discharge measuring devices), dimensional analysis, principles of modeling and similitude, drag force for submerged objects, laboratory experiments.		
Course Objectives	To give the basic computational principles of pipe and open channel flows		
Course Outcomes	Gaining the skill of handling and solving the problems related to pipe and open channel flows.		
Textbook and /or References	1-Munson, B.R., Young, D.F., and Okiishi, T.H., 'Fundamentals of Fluid Mechanics' John Wiley&Sons Inc., New York, 1990. 2-Fox, R.W.; and McDonald, A.T., 'Introduction to Fluid Mechanics' John Wiley&Sons Inc., New York, 1978. 3-Ilgaz, C., Karahan, E., ve Bulu, A., Akışkanlar Mekaniği ve Hidrolik Problemleri' Çağlayan Yayınevi, 1993.		
Assessment Criteria		**Quantity**	**Percentage**
	Midterm Exams	2	40
	Quizzes		
	Homeworks	5	5
	Projects		
	Term Paper		
	Laboratory Work	5	5
	Other		
	Final Exam	1	50
Course Category by Content (%)	**Mathematics and Basic Sciences**		50
	Engineering Science		40
	Engineering Design		10
	Social Sciences		
Instructors	**Prof.Dr. Nevzat Yıldırım , Prof. Dr. Lale BALAS**		

COURSE PLAN	
Week	**Topics**
1	Minor energy losses, experiments
2	Parallel and serial pipe systems, experiments
3	Multiple reservoir systems
4	Pump-pipeline systems
5	Mid-Term Exam I
6	Orifices, velocity, contraction and discharge coefficients, experiments
7	Open channel flow and its types, formulas used in their computations
8	Specific energy
9	Froude number and flow regimes, experiments
10	Discharge measurements in pipe and open channels (weirs etc.), experiments
11	Mid-Term Exam II
12	Drag force on submerged objects
13	Dimensional analysis
14	Similitude and principles of modeling

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				