

IM 449 SNOW HYDROLOGY		CIVIL ENGINEERING	
Semester	Credit Structure		
	Lecture	Recitation	Laboratory
7	3	0	0
Language	English		
Compulsory / Elective	Elective		
Prerequisites	No		
Catalog Description	Introduction. Perennial snow Cover. Snow Observations. Relation of measured point values to estimated areal snow values. Water balance in basins with snow pack. Melting process of snow pack. Snowmelt indices. Areal snow cover (By Geographic Information System and Satellite Techniques). Snowmelt Runoff. Snowmelt Runoff Models. Hydrograph Synthesis and design flow determination. Spring flood forecasting methods.		
Course Objectives	This course aims at informing civil engineering students for the real time operation of reservoirs mainly fed by snowmelt.		
Course Outcomes	The ability of utilizing the theoretical knowledge and skill to use in multipurpose reservoir operations fed mainly by snow melt water.		
Textbook and /or References	USA, Corps of Engineers, 1956. Snow Hydrology, Portland, Oregon, USA		
Assessment Criteria		Quantity	Percentage
	Midterm Exams	2	40
	Quizzes	-	-
	Homeworks	6	10
	Projects	-	-
	Term Paper	-	-
	Laboratory Work	-	-
	Other	-	-
	Final Exam	1	50
Course Category by Content (%)	Mathematics and Basic Sciences	30	
	Engineering Science	40	
	Engineering Design	30	
	Social Sciences	0	
Instructors	Prof. Dr. İbrahim GÜRER		

COURSE PLAN	
Week	Topics
1	Introduction
2	Precipitation and snow accumulation
3	Snow observations and instrumentation
4	Point precipitation measurements in areas of snowfall
5	Relation of measured point values to estimated areal values
6	Water balance in basins with snow pack
7	Melting process of snow pack
8	Snowmelt indices
9	Areal snow cover
10	Effect of snow pack conditions to runoff
11	Hydrograph synthesis and design flood determination
12	Spring flood forecasting
13	Snow loads on the buildings
14	Snow drift and blowing

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				