

MM 510 Fluid Power Control				MECHANICAL ENGINEERING DEPARTMENT					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS credit
1,2	42					146	188	3	7.5
Language	Turkish								
Compulsory / Elective	Optional								
Prerequisites	-								
Course Contents	Theory and design of hydraulic and pneumatic control systems and components, and their applications. Pressure-flow relationships for hydraulic and pneumatic valves. Valve configurations. Valve operating forces. Linkage, force, load pressure and dynamic pressure feedback in valves. Closed loop systems for the control of pressure, flow, speed, position, force and other quantities. Hydraulic and pneumatic components. Application of basic principles to component and system design.								
Course Objectives	The objective of the course is to give the students the theory of fluid power control systems.								
Learning Outcomes and Competences	The students will be able to analyse, design and apply a fluid power control system.								
Textbook and /or Reference	1. Yücel ERCAN, "Akışkan Gücü Kontrolü Teorisi", Gazi Üniversitesi yayın No:206, Ankara, 1995. 2. John F. Blackburn, Gerhard Reethof, J. Lown Shearer, "Fluid Power Control" The M.I.T. Press 1960. 3. Herbert E. Merrit, "Hydraulic Control Systems", John Wiley, 1967 4. D. McCloy, H.R.Martin, "The Control of Fluid Power", Longman, 1973								
Assessment Criteria					If any, mark as (X)		Percentage (%)		
	Midterm Exams				X		60		
	Quizzes								
	Homeworks								
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
Final Exam				X		40			
Instructors	Assoc. Prof. Omer KELES								
Week	Subject								
1	Introduction								
2	Control Valves								
3	Characteristic of Hydrodynamic Valves								
4	Characteristic of Hydrodynamic Valves								
5	Characteristic of Pneumatic Valves								
6	Characteristic of Pneumatic Valves								
7	Valve Selection								
8	Valve Operating Forces								
9	Modeling of Control Valves								
10	Modeling of Control Valves								
11	Closed Loop Electrohydrodynamic Control								
12	Closed Loop Electrohydrodynamic Control								
13	System Design								
14	System Design								