

MM 476 Introduction to Fluid Power Control				DEPARTMENT of MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS Credit
8	42	0	-	46		-	88	3	3.5
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	MM 301								
Course Contents	Elements of hydraulic and pneumatic systems, their characteristics and fields of application. Pumps and their performance characteristics. Hydraulic and pneumatic valves and their flow characteristics. Direction, flow and pressure control valves. Reservoirs, accumulators, actuators. Filtering. Hydraulic and pneumatic circuit design. Elements of electro-hydraulic control. Closed loop control.								
Course Objectives	The main objectives of the course are to teach the students the functions and utilization principles of the directional control, flow control, pressure control valves, hydraulic pumps and motors used in hydraulic and pneumatic circuits, to establish the skills of efficient use of pumps and motors, filters and hydraulic fluids and to develop the skills to recognize, read and create the hydraulic and pneumatic circuits.								
Learning Outcomes and Competences	At the end of this course, the students recognize all types of elements of hydraulic and pneumatic circuits, to define the functions of circuits, able to read and analyze hydraulic and pneumatic circuit diagrams and able to create any hydraulic and pneumatic circuit.								
Textbook and /or Reference	Güç Hidroliği, M.S.Pinches ve J.G.Ashby,Çeviri MEB Yayını 1994. Fluid Power: Theory and Application, J.A.Sullivan, Pneumatics and Hydraulics, H.L.Stewart, Fluid Power Design Handbook, F.Yeaple, Marcel Dekker, Hidrolik Akışkan Gücü, F.Özcan,Pnömatik Akışkan gücü, F.Özcan								
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 and hydraulic principles								
2	Basic hydraulic and pneumatic systems and hydraulic symbols								
3	Hydraulic pumps, types of pump and pumping circuits								
4	Hydraulic pumps, types of pump and pumping circuits								
5	Hydraulic valves; pressure control, flow control and directional control valves								
6	Hydraulic valves; pressure control, flow control and directional control valves								
7	MIDTERM EXAM I								
8	Actuators; hydraulic cylinders, hydraulic motors, hydraulic motor circuits and motor circuits design examples.								
9	Fluids for hydraulic system, reservoirs, filters and accumulators								
10	Hydraulic system design								
11	Hydraulic system design								
12	Hydraulic system design								
13	MIDTERM EXAM II								
14	Pneumatic systems								