FLUID POWER SYSTEMS AND CONTROL

1	Course Title:	FLUID POWER SYSTEMS AND CONTROL	
2	Course Code:	MAK5243	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	1	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. ELİF ERZAN ERZAN TOPÇU	
15	Course Lecturers:	Doç. Dr. Gürsel ŞEFKAT	
16	Contact information of the Course Coordinator:	Prof. Dr. Elif ERZAN TOPÇU Bursa Uludağ Üniversitesi Mühendislik Fakültesi Makine mühendisliği Bölümü Görükle BURSA Tel: 0224 29 41990 e-mail: erzan@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	Introducing fluid power transmission systems widely used in the industrial field, examining the characteristics of their basic elements and understanding the design of hydraulic/pneumatic circuits.	
19	Contribution of the Course to Professional Development:	Recognizes the fluid power transmission systems widely used in the industrial field, learns the characteristics of its basic elements and understands the design of hydraulic / pneumatic circuits.	
20	Learning Outcomes:		
		1	To be able to comprehend the basic components of fluid power transmission systems and their role in integrity.
		2	To understand the design features and criteria of fluid power transmission systems.
		3	To be able to define the symbols of the elements used in fluid power transmission systems
		4	Understanding the control methods and cycles of these systems
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21	Course Content:		
	Course Content:		

Week	Theoretical	Practice
1	Giving information about the course content, introducing fluid power systems	
2	Basic components and system elements of hydraulic	
3	Types of hydraulic pumps, motors and cylinders, their basic equations.	
4	Types of hydraulic pumps, motors and cylinders, their basic equations.	
5	Problem solving for hydraulic circuits	
6	Hydraulic valve systems, investigation of motion equations of hydraulic valve-cylinder system	
7	Examination of motion equations of hydraulic pump-cylinder, pump-motor systems, closed loop control of hydraulic systems	
8	Application for simulation of hydraulic systems	
9	Laboratory work and examination of closed loop system.	
10	Basic components, equations and usage areas of pneumatic systems	
11	Valves used in pneumatic systems, cylinder systems, pneumatic circuits	
12	Examination of motion equations of pneumatic valve-cylinder system and closed control	
13	Student presentations	
14	Student presentations	
22	Textbooks, References and/or Other	1. Ders Notları. Pdf basım, (UKEY üzerinden sunulacaktır.) 2. [illegible] 3. Fluid Power Circuits and Controls (Fundamentals and [illegible] Control, 2003, M. Jelali Dr-Ing, A. Kroll Dr-Ing. Springer [illegible]
23	Assesment	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	5.00	70.00
Homeworks	4	12.00	48.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	10.00	10.00
Others	0	0.00	0.00
Final Exams	1	10.00	10.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

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Quiz	0	0.00
Home work-project	4	30.00
Final Exam	1	60.00
Total	6	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Exam, homework

24	**ECTS / WORK LOAD TABLE**

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	5	4	3	2	2	0	0	0	0	0	0	0	0	0	0	0
ÖK2	5	4	3	2	2	0	0	0	0	0	0	0	0	0	0	0
ÖK3	2	2	3	1	1	0	0	0	0	0	0	0	0	0	0	0
ÖK4	4	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	**1 very low**		**2 low**			**3 Medium**			**4 High**			**5 Very High**				