Spring 2024 **Yıldız Technical University** **Course Syllabus**
Mechatronics Engineering
MKT 3842 - HYDRAULIC AND PNEUMATIC SYSTEMS GR2

Recommended Reference Books:

- Hydraulics and Pneumatics, A Technician's and Engineer's Guide,3rd edition, Andrew Parr, MSc, CEng, MIEE, MInstMC, Butterworth-Heinemann.
- Hydraulic and Pneumatic, İsmail Karacan, Simav Press, 2000.
- Hydraulic and Pneumatic, Faruk Kartal, Birsen Press, 2006.
- Hydraulic Pneumatic, Mehmet Küçük, M.E.B. Press, 2003.
- Fluid Power, 4th Edition, Anthony Esposito, Prentice Hall, 1997.

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Office Hours: Monday 13:00-13:50
Tuesday 09:00-09:50

Assistant: Res.Assist. Furkan Cihangir

Class Hours: Monday 14:00-15:50 **Classroom:** A410

Application and Lab Hours: Tuesday 10:00-11:50 **Lab:** E2-Festo

Specific goals: The purpose of the course is to introduce the Hydraulic and Pneumatic systems, the differences between them and their application areas and system components; to teach how to analyze complex hydraulic and pneumatic systems by using and design the circuits in project and application levels by using basic mechanics of materials, machine elements, fluid mechanics, material science knowledge.

Weekly Subjects:

Week #	***Subjects***
1	Introducing the Hydraulic and Pneumatic systems
2	Comparing the Hydraulic and Pneumatic systems
3	Fundamentals of the Hydraulic and Pneumatic systems and elements: Pressure, Flow and Direction Control Valves
4	Fundamentals of the Hydraulic and Pneumatic systems and elements: Pressure, Flow and Direction Control Valves
5	Hydraulic Power Units: Pumps, Motors, Hydraulic Liquids
6	Hydraulic Power Units: Accumulators, Cylinders, Filters, Sealing Elements, Heaters and Coolers
7	Drawing and Reading Hydraulic Circuits, Standards and designing example project.
8	MIDTERM EXAM
9	Pneumatic Power Units: Compressors, Motors, Cylinders, Air conditioners, Transportation units
10	Pneumatic Power Units: Compressors, Motors, Cylinders, Air conditioners, Transportation units
11	Drawing and Reading the Pneumatic Circuits, Standards and designing example project
12	Drawing and Reading the Pneumatic Circuits, Standards and designing example

	project
13	Hydraulic Applications and Example Designs
14	Pneumatic Applications and Example Designs
15	FINAL EXAM

Grading: 0.3* (Quizzes+Homeworks) + 0.3* Midterm Exam + 0.4*Final Exam

Attendance rate: Minimum 70% (University Senate Regulations may change this rate).

Make-up exams: Students should act according to the directives of YTU. Don't be surprised if you find that make-up exams are harder.

Code of ethics: Akademik Etik (http://www.aek.yildiz.edu.tr/frameset1.htm)

***** Every student taking this class must also join Google Classroom: **HPS-Gr2-2024B** . The invitation link for this classroom is provided to the students via their YTU email addresses.
****** This syllabus can be updated. Students are responsible for following the announcements.
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