

Course Description Form

1. Course Name:	
Fluid power system	
2. Course Code:	
FLPO-3353	
3. Semester / Year:	
1 st Semester	
4. Description Preparation Date:	
12/2/2024	
5. Available Attendance Forms:	
Personal	
6. Number of Credit Hours (Total) / Number of Units (Total) 2/4	
30/2	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Arif A. A-qassar Email: Arif.A.Alqassar@uotechnology.edu.iq Name: Asst. lect Haider Hashim Abbas Email: 50144@uotechnology.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Enabling and introducing the students in the third stage of the Control Engineering branch to know the basic principles of fluid power system • Enable students to acquire knowledge and understanding of the components of hydraulic and pneumatic systems. • Helping the students at this stage to understand the basic applications of hydraulic and pneumatic systems. • Detailed study, analysis, and design of all theories related to hydraulic and pneumatic circuits designs.
9. Teaching and Learning Strategies	
Strategy	1- Presentation of fluid power systems and their problems. 2- Providing solutions to problems in fluid power systems. 3- Discussing solutions and resulting problems

4- The above points are accomplished through a presentation, homework, surprising exams.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Introducing of fluid power system and Pascal law with solving a tutorial sheet.	Lectures + Solving tutorial sheet	Quiz
2	2		Governing principles and laws (Bernouli's equation) with solving tutorial sheet.	Lectures + Solving tutorial sheet	Quiz
3	2		Hydraulic Transmitting Medium	Lectures	Quiz
4	2		Hydraulic pumps and solving tutorial sheets	Lectures + Solving tutorial sheet	Evaluate homework solutions.
5	2		Hydraulic motors and solving tutorial sheets	Lectures + Solving tutorial sheet	Evaluate homework solutions.
6	2		Hydraulic cylinders and solving tutorial sheets	Lectures + Solving tutorial sheet	Quiz
7	2		Control components	Lectures	Quiz.
8	2		Exam	Exam	Exam
9	2		Hydraulic Circuit Design and Analysis	Lectures	Discussing and evaluating reports
10	2		Introduction of pneumatic power systems	Lectures	Quiz
11	2		Ideal gas laws with solving tutorial sheets.	Lectures + Solving tutorial sheet.	Quiz
12	2		Basic Components of Pneumatic System , compressors and solving tutorial sheets	Lectures + Solving tutorial sheet	Quiz.
13	2		Air treatment	Lectures.	Quiz
14	2		Pneumatic actuators and solving tutorial sheets.	Lectures	Quiz
15	2		Pneumatic control components	Lectures.	Quiz

11. Course Evaluation

20% documented exam
5% Quizes
5% homeworks

12. Learning and Teaching Resources

Required Readings
(Core texts)

Anthony Esposito," Fluid Power with Applications",
Prentice-Hall, 1997.

(Course Materials)	
Main references (sources)	Andrew Parr, Hydraulics and Pneumatics A technician's and engineer's guide, Great Britain, 1998.
Recommended books and references (scientific journals, reports...)	M. Galal Rabie, "Fluid Power Engineering", The McGraw-Hill Companies, 2009. Srinivasan. R, "Hydraulic and Pneumatic Control", 2nd Edition, Tata McGraw - Hill Education, 2012.
Community-Based facilities (include for example guest lectures, field studies)	
Electronic references, websites:	http://nptel.ac.in