Form: Course Syllabus	Form Number	EXC-01-02-02A
	Issue Number and Date	2/3/24/2022/2963 05/12/2022
	Number and Date of Revision or Modification	
	Deans Council Approval Decision Number	2/3/24/2023
	The Date of the Deans Council Approval Decision	23/01/2023
	Number of Pages	06

1.	Course Title	Hydraulic and pneumatic systems lab
2.	Course Number	0908447
3.	Credit Hours (Theory, Practical)	1
	Contact Hours (Theory, Practical)	3 practical
4.	Prerequisites/ Corequisites	Design and control of hydraulic and pneumatic control 0908446
5.	Program Title	B.Sc in Mechatronics Engineering
6.	Program Code	08
7.	School/ Center	Engineering school
8.	Department	Mechatronics
9.	Course Level	fourth year
10.	Year of Study and Semester (s)	4th (1st ,2nd)
11.	Other Department(s) Involved in Teaching the Course	N/A
12.	Main Learning Language	English
13.	Learning Types	■Face to face learning □Blended □Fully online
14.	Online Platforms(s)	■Moodle □Microsoft Teams
15.	Issuing Date	
16.	Revision Date	

17. Course Coordinator:

Name: Eng. Safaa Alwreadat	Contact hours: 10:00 – 12:00
Office number: -107	Phone number:23028
Email:fpe.lab.engsafaa@gmail.com	

18. Other Instructors:

Name:
Office number:
Phone number:
Email:
Contact hours:
Name:
Office number:
Phone number:
Email:
Contact hours:

19. Course Description:

Applications of all hydraulic and pneumatic components (valves, pumps, motors, cylinders) , introduced to symbols, circuits, the principle of design, construction. Modeling and design hydraulic, electro-hydraulic, and pneumatic control circuit.

20. Program Intended Learning Outcomes: (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

1. Take up leading local and global positions in system building companies, manufacturers and contracting firms that have a major impact on the economic performance of the country and the region and contribute positively to the welfare of society.

2. Fulfil leadership roles in civic society, local government and professional engineering associations to contribute to the mechatronics engineering profession and how its members practice it in society; become a public figure in providing guidance and advice to the younger engineers.

3. Have a track record in making presentations to large audiences in a convincing manner as well as engaging in industrial negotiations; have a track record in conceiving and implementing suitable organization structures for modern institutions in order to make them more effective and efficient.

4. Become cutting edge researchers in academia participating and leading research and development teams to produce original research that contributes to solving the problems in society and bridging the gap between academia and industry

21. Course Intended Learning Outcomes: (Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

1. 1- Identify the basic components of fluid power systems, their operational principles and performance characteristics.
2. Design and construct fluid power circuits to satisfy certain functions, taking into consideration the aspects of efficiency, economy, safety and noise.
3. Select fluid power circuit components and size them to satisfy given operational, safety and reliability constraints.
4. Analyze fluid power circuits, and to predict their performance, efficiency and safety.

Course ILOs	The learning levels to be achieved					
	Remembering	Understanding	Applying	Analysing	evaluating	Creating
1	*	*	*			*
2	*	*	*	*		*
3	*	*		*	*	
4	*	*		*	*	

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program:

Program ILOs / Course ILOs	ILO (1)	ILO (2)	ILO (3)	ILO (4)	ILO (5)
1	*				
2	*	*			
3	*			*	

4	*					
5						
6						
7						
8						

23. Topic Outline and Schedule:

Week	Lecture	Topic	ILO/s Linked to the Topic	Learning Types (Face to Face/ Blended/ Fully Online)	Platform Used	Synchronous / Asynchronous Lecturing	Evaluation Methods	Learning Resources
1	1.1	Introduction to FluidSIM	1	Face to face		synchronous	-	Data show
	1.2							
	1.3							
2	2.1	Pneumatic Control of a Double-acting Cylinder	1	Face to face	Special plat form contains th parts of the Exp.	synchronous	In lab evaluation	The lab kit and components
	2.2		1	Face to face		synchronous		
	2.3							
3	3.1	Electro pneumatics Control Technology	2	Face to face	Special plat form contains th parts of the Exp.	synchronous	In lab evaluation	The lab kit and components

	3.2							
	3.3							
4	4.1	Introduction to Hydraulic Trainer	2	Face to face	Special plat form contains th parts of the Exp.	synchronous	Report	The lab kit and components
	4.2							
	4.3							
5	5.1	Sequential control of a 2 double acting cylinder	1 and 2	Face to face	Special plat form contains th parts of the Exp.	synchronous	In lab evaluation	The lab kit and components
	5.2							
	5.3							
6	6.1	Electro pneumatics Sequential control of a 2 double acting cylinder	2	Face to face	Special plat form contains th parts of the Exp.	synchronous	In lab evaluation	The lab kit and components
	6.2							
	6.3							
7	7.1	Regenerative and Parallel Circuits	2	Face to face	Special plat form contains th parts of the Exp	synchronous	Report	The lab kit and components
	7.2							
	7.3							

8	8.1	Pneumatic sequential control of a 3 double acting cylinder	1 and 2	Face to face	Special plat form contains th parts of the Exp	synchro nous	In lab evaluation	The lab kit and components
	8.2							
	8.3							
9	9.1	Electro pneumatic sequential control of a 3 double.	1 and 2	Face to face	Special plat form contains th parts of the Exp	synchro nous	In lab evaluation	The lab kit and components
	9.2							
	9.3							
10	10.1		3					
	10.2							
	10.3							
11	11.1							
	11.2							
	11.3							
12	12.1							
	12.2							

	1 2. 3							
1 3	1 3. 1							
	1 3. 2							
	1 3. 3							
1 4	1 4. 1							
	1 4. 2							
	1 4. 3							
1 5	1 5. 1							
	1 5. 2							
	1 5. 3							

24. Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	ILO/s Linked to the Evaluation activity	Period (Week)	Platform
Pre lab	10	All experiments		14 weeks	

In lab evaluations and reports	10	All experiments		14 weeks	
Mid exam	30	1-5 experiments		Week 8	
Practical exam	10			2 weeks	
Final exam	40	All experiments		Week 15	

25. Course Requirements:

students should have a computer, a specific software and hardware components specials for the lab)

26. Course Policies:

A- Attendance policies: Students are expected to attend EVERY CLASS SESSION and they are responsible for all material, announcements, schedule changes, etc., discussed in class. The university policy regarding the attendance will be strictly adhered to.

B- Absences from exams and submitting assignments on time: There will be no makeup exams for any exam that will be taken during the course.

exceptions to this rule is restricted only to the following cases:-

1.	Death of only first order relatives (father, mother, sister, or brother).

2.	Hospital entry (in-patient) during thr time of the examination.

Any other cases will be given the zero mark in the corresponding exam.

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course:

27. References:

A- **Notes and slides on the ELearning JU website .**

B- Lab sheet on e-learning

28. Additional information:

Name of the Instructor or the Course Coordinator:	Signature:	Date:
Eng.Safaa Alwreadat	…………...……………	21/3/2024
Name of the Head of Quality Assurance Committee/ Department	Signature:	Date:
Dr.Adham Sharkawi.	…………...……………	…….…………
Name of the Head of Department	Signature:	Date:
……………………………………………….	…………...……………	…….…………
Name of the Head of Quality Assurance Committee/ School or Center	Signature:	Date:
……………………………………………….	…………...……………	…….…………
Name of the Dean or the Director	Signature:	Date:
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