

Jordan University of Science and Technology
Faculty of Engineering
Department of Product Design and Development Engineering (PDDE)

PDDE 342-Introduction to Hydraulic and Pneumatic Systems

Credits

3 Credit hours

Contact hours

3 hrs. lectures

Room no.

Room no.

Instructor's name

Instructor's/coordinator's name

Email

email@just.edu.jo

Office hours

office hours

Textbook

Fluid Power with Applications

Anthony Esposito,

Pearson Education Limited, 2014.

Other supplemental materials.

1. Fluid Power Hydraulics by Johnson, Robert Kresses 1982.
2. Power Hydraulics by J. Ashby, Prentice Hall 3rd Edition 2000.

Specific course information

Catalog Description:

This course is an introduction to the basic hydraulic and pneumatic systems and devices used in industrial products. Underlying scientific principles and their practical applications are covered. Students will learn about hydraulic pumps, fluid conductors, connectors, means of transmission system, control valves, reservoirs, seals, filters, accumulators, coolers and accessories, and control of fluid power.

Prerequisite course(s):

IE 214 Fluid and Thermal Sciences

Co-requisite course(s):

Co-requisite course(s).

Course type

required course

Specific goals for the course

Outcomes:

Provide students with a comprehensive overview of hydraulic and pneumatic power control systems, encompassing a range of theoretical foundations, key components, and practical applications.

ABET SLO's:

1- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

JNQF Level 7 Descriptors: 7S1

2- An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

JNQF Level 7 Descriptors: 7S3

Course schedule/topics to be covered:

Week	Subject	Chapter no.
Week 1	Introduction of fluid power	1
Week 2, 3	Physical Properties of Hydraulic Fluids	2
Weeks 4, 5	Energy and Power in Hydraulic Systems	3
Weeks 6,7, 8	Frictional Losses in Hydraulic Pipelines	4
Weeks 9, 10, 11, 12	Hydraulic Pumps; Hydraulic Motors; Hydraulic Valves and Seals.	5, 7, 8
Weeks 13, 14	Maintenance of Hydraulic Systems	12

Exam/Assessment schedule

The academic workload for the semester, including subject matter and examination guidelines, will be disseminated in accordance with the university's scheduled examination dates. The assessment structure will be allocated as follows: 30% for the First Exam, 30% for the Second Exam, and 40% for the Final Exam.

Policies

Homework Policy: It is the individual responsibility of each student to uphold the principles of academic integrity and refrain from any form of cheating. The university takes academic dishonesty seriously, and any instances of cheating will be thoroughly investigated and addressed in accordance with established university regulations, which may result in disciplinary action.

Attendance Policy: Regular attendance and punctuality are expected of all students. Attendance will be recorded at the commencement of each class, and the university's attendance policies will be strictly enforced, as outlined in the institution's regulations.

Additional Information

This course syllabus outlines the anticipated curriculum and schedule for the semester. However, the instructor reserves the right to make adjustments as necessary to ensure the optimal learning experience, and any deviations from the planned course of study will be communicated to students promptly.