Pneumatics and Oleohydraulics

Academic Year: (2022 / 2023) **Review date: 26/01/2023 10:00:09**

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: FUENTES DEL TORO, SERGIO

Type: Electives ECTS Credits : 3.0

Year : 4 Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Machine Mechanics

OBJECTIVES

By the end of this subject, students will be able to have:
1. A systematic understanding of the key aspects and concepts of pneumatics and oleohydraulics.
2. The ability to apply their knowledge and understanding to identify, formulate and solve problems of pneumatics and oleohydraulics using established methods.
3. The ability to apply their knowledge and understanding to develop and realise designs of pneumatics and oleohydraulics to meet defined and specified requirements.
4. The ability to design and conduct appropriate experiments in pneumatics and oleohydraulics, interpret the data and draw conclusions.
5. Workshop and laboratory skills in pneumatics and oleohydraulics.
6. The ability to select and use appropriate equipment, tools and methods to solve problems of pneumatics and oleohydraulics.
7. the ability to combine theory and practice to solve problems of pneumatics and oleohydraulics.

DESCRIPTION OF CONTENTS: PROGRAMME

Fundamentals and concepts of pneumatic.
Elements of pneumatic systems: Compressors, tanks, etc
Pneumatic cilinders and motors.
Pneumatic valves.
Design of pneumatic circuits.
Fundamentals and concepts of hydraulic.
Elements of hydraulic systems: Pumps, tanks, filters, hydraulic fluids, etc
Hydraulic cilinders and motors.
Hydraulic Valves.
Design of hydraulic machines.

LEARNING ACTIVITIES AND METHODOLOGY

Lectures will be explained in big groups, exercises for understanding the lectures will be solved, labs will be carried out and a project in groups will also be done. In addition, 2 labs will be carried out:

Lab 1: Design and calculation of pneumatic circuits by means of panel construction
Lab 2: Disassembly, assembly and analysis of hydraulic elements

ASSESSMENT SYSTEM

% end-of-term-examination/test:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

The work done by the student will be evaluated by following the Bologna criteria. The continuous evaluation will consist of a written test of half of the subject.

% end-of-term-examination/test:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

The final evaluation of the ordinary call will consist in taking a written test of the part of the subject not evaluated in the continuous assessment.

The laboratory sessions are obligatory. Do not pass the laboratory sessions will imply to fail the subject.