



# COMILLAS

UNIVERSIDAD PONTIFICIA

ICAI

ICADE

CIHS

**Syllabus**  
**2025 - 2026**

## GENERAL INFORMATION

### Data of the subject

Subject name	Oil hydraulics and pneumatics
Subject code	DIM-MII-632
Main program	<a href="#">Official Master's Degree in Industrial Engineering</a>
Involved programs	Máster Universitario en Ingeniería Industrial [Second year]
Level	Postgrado Oficial Master
Credits	6,0 ECTS
Type	Obligatoria
Department	Department of Mechanical Engineering
Coordinator	Luis Mochón Castro

### Teacher Information

#### Teacher

Name	Luis Manuel Mochón Castro
Department	Department of Mechanical Engineering
Office	Alberto Aguilera 25 [D-308]
E-Mail	lmochon@icai.comillas.edu
Phone	2365

#### Teacher

Name	Diego Capell Osorio
Department	Department of Mechanical Engineering
E-Mail	dcapell@icai.comillas.edu

#### Teacher

Name	José María Menéndez Sánchez
Department	Department of Mechanical Engineering
E-Mail	josemaria@icai.comillas.edu

## DESCRIPTION OF THE SUBJECT

### Contextualization of the subject

#### Prerequisites

Basic knowledge of thermodynamics, fluid mechanics and heat transfer.

## Course contents



## Contents

### **THEORY:**

- Rotary and linear volumetric hydraulic machines
- Hydraulic pressure, flow and direction control valves
- Other elements: accumulators, tanks, heaters, cooler, pressure switches, etc.
- Open and closed hydraulic circuits
- Proportional hydraulics and hydraulic servo systems
- Production and distribution of compressed air
- Pneumatic actuator
- Pneumatic valves
- Pneumatic circuits

### **LABORATORY:**

- Descriptive analysis of volumetric hydraulic machines
- Hydrostatic transmission test
- Oleohydraulic circuits
- Proportional hydraulics
- Variable speed volumetric compressor test
- Two-stage volumetric compressor test
- Descriptive analysis of volumetric compressor
- Pneumatic circuits

## EVALUATION AND CRITERIA

The use of AI to produce full assignments or substantial parts thereof, without proper citation of the source or tool used, or without explicit permission in the assignment instructions, will be considered plagiarism and therefore subject to the University's General Regulations.

Evaluation activities	Evaluation criteria	Weight
Mid-term and final exams	Mid-term exam (20%) Final exam (40%)	60
Labs and others	Problems (5%), labs (15%), work, individual or group (15%), class participation (5%)	40

## Grading

The following conditions must be accomplished to pass the course:



# COMILLAS

UNIVERSIDAD PONTIFICIA

ICAI

ICADE

CIHS

## Syllabus 2025 - 2026

- A minimum overall grade of at least 5 over 10.
- A minimum grade in the final exam of 5 over 10.

The overall grade is obtained as follows:

- Mid-term exam 20%
- Final exam 40%
- Individual exercises 5%
- Labs 15%
- Individual or in group work 15%
- Performance in class and during the lab sessions 5%

## BIBLIOGRAPHY AND RESOURCES

### Basic References

Notes in Moodle

In compliance with current regulations on the **protection of personal data**, we would like to inform you that you may consult the aspects related to privacy and data that you have accepted on your registration form by entering this website and clicking on "download"

<https://servicios.upcomillas.es/sedelectronica/inicio.aspx?csv=02E4557CAA66F4A81663AD10CED66792>