

## 29923 - Fluid Technics

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 29923 - Fluid Technics

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 435 - Bachelor's Degree in Chemical Engineering

**ECTS:** 6.0

**Year:** 3

**Semester:** First semester

**Subject Type:** Compulsory

**Module:**

### 1. General information

### 2. Learning goals

### 3. Assessment (1st and 2nd call)

### 4. Methodology, learning tasks, syllabus and resources

#### 4.1. Methodological overview

The learning process for this subject is based on the following activities:

- Lectures, in which the teacher explains the main principles and proposes application examples involving numerical calculations as a means to consolidate the concepts. The involvement of the students in these activities will be fostered by means of open discussion in the classroom on some of the concepts and their practical implications and promoting their participation in the processes of reasoning and solution strategies for the proposed exercises.
- Computer sessions, with the double objective of becoming familiar with numerical codes and their use for the analysis of different case studies of practical relevance in the field of fluid technology.
- Autonomous work, aimed at studying the theoretical concepts and applying them to solve practical exercises. Given the nature of this subject, the development of strategies for the application of the concepts in the solution of exercises is an essential component of the learning process. With this purpose, the students will be provided with a complete collection of exercises, including their respective solutions, and the teacher will help to guide the work of the student by proposing selected problems for the different parts of the subject.
- Tutoring hours. The hours allocated by the teacher for individualized assistance also provide excellent opportunities to clarify any doubt on theoretical concepts or problem-solving procedures.

#### 4.2. Learning tasks

The course includes the following learning tasks:

- Lectures
- Problem-solving sessions
- Computer sessions
- Proposal of questions and practical cases to be solved individually or in small groups, as a means to consolidate the theoretical concepts and to promote critical thinking

### **4.3. Syllabus**

The course will address the following topics:

- Introduction to pipe flow and pumping systems
- Energy conservation in fluid systems
- Pressure losses
- Fundamentals of turbomachinery
- Turbomachines: Pumps and fans
- Positive displacement pumps
- Analysis of incompressible liquid and gas pipe flow and pumping systems
- Regulation of pipe flow and pumping systems

### **4.4. Course planning and calendar**

Classroom lectures and problem-solving sessions are organized according to the schedule defined by the EINA for the academic year. The hours in which the teacher will be available for individual tutoring will be specified at the beginning of the term.

### **4.5. Bibliography and recommended resources**

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=29923>