

## 29729 - Fluid Machines and Installations

### Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	434 - Bachelor's Degree in Mechanical Engineering
ECTS	6.0
Course	3
Period	First semester
Subject Type	Compulsory
Module	---

### 1. Basic info

#### 1.1. Recommendations to take this course

#### 1.2. Activities and key dates for the course

### 2. Initiation

#### 2.1. Learning outcomes that define the subject

#### 2.2. Introduction

### 3. Context and competences

#### 3.1. Goals

#### 3.2. Context and meaning of the subject in the degree

#### 3.3. Competences

#### 3.4. Importance of learning outcomes

### 4. Evaluation

### 5. Activities and resources

#### 5.1. General methodological presentation

#### 5.2. Learning activities

#### 5.3. Program

Module 0. Introduction. Types and operation of fluid machines. Classification of fluid machines.

Module 1. Review of principles. Energy exchange in turbomachinery. Powers, losses and efficiencies.

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Module 2. Fundamental Theory of turbomachinery. Geometric and kinematic aspects of flow impeller.

Module 3. Theory 1-D of radial turbomachinery. Characteristic curves. Aerodynamic theory of axial machines and turbines.

Module 4. Dimensional analysis on turbomachinery. Modeling. Scale effects.

Module 5. Specific parameters.

Module 6. Operation of pumping and ventilation lines. Fluid distribution networks.

Module 7. Flow control in lines pumping and ventilation.

Module 8. Cavitation. Effects of cavitation in turbomachinery. Dimensional analysis on cavitation.

### **5.4.Planning and scheduling**

### **5.5.Bibliography and recomended resources**