

## 28837 - Computer Aided Design in Mechatronics

### Syllabus Information

**Academic year:** 2024/25

**Subject:** 28837 - Computer Aided Design in Mechatronics

**Faculty / School:** 175 - Escuela Universitaria Politécnica de La Almunia

**Degree:** 424 - Bachelor's Degree in Mechatronic Engineering

**ECTS:** 6.0

**Year:** 4

**Semester:** Second semester

**Subject type:** Optional

**Module:**

### 1. General information

The main objectives of the subject are, on the one hand, to achieve the knowledge and application of CAD/CAM/CAE programs and their use as a representation tool in 2 and 3D, and on the other hand, to deepen in design techniques, simulation, and analysis of the proposed developments. The realization and printing of drawings will be worked according to the current standards referring to Industrial Drawing as well as the development of autonomous work and decision making based on technical criteria applied by means of graphic solution.

### 2. Learning results

Capacity for :

Model or solve elements/machines based on technical and functional specifications. Understand, order and transmit information obtained from different sources. Design or analyze, using computer tools, the behavior of parts, subassemblies or systems-processes, in the face of stresses or operating requirements established. Analyze the design for efficient material flow, machine use and energy consumption. Motivation and self-learning capacity Drawing and interpretation of plans and diagrams according to regulations and appropriate symbology.

### 3. Syllabus

#### INTRODUCTION

Program and Presentation of the Subject

Design and manufacturing tools.

Digital Prototypes

CAD modeling

Generation of drawings

#### MODELING OF COMPONENTS AND ASSEMBLIES

Assembly restrictions

Special Mechanical Elements

Sheet Metal and Sheet Metal Generator

Documentation

#### ANALYSIS

Model pre-processing

Boundary conditions

Load assumptions

Calculation and post-processing of the solution.

Documentation

### 4. Academic activities

Theoretical-practical classes (60h): The theoretical concepts of the subject will be explained and practical examples will be developed to support the theory when necessary. Concepts and procedures of computer tools will be applied, especially CAD-CAE tools.

Tutored practical work -Tutorials-: Tutored practical work, work and exercise follow-up, which includes attendance and individual or group attention, as appropriate, during tutorial hours (schedule published on the EUPLA website).

## **5. Assessment system**

Continuous assessment system:

Participation (20%) - Activities and work proposed in class; Attitude and direct observation of skills and abilities of the subject. Ability to work in a group. Individual work (80%): Completion of a final project type work of subject individually.

Global final assessment.

Following the regulations of the University of Zaragoza in this regard, in the subjects that have continuous or gradual assessment systems, a global assessment test will be scheduled for those students who decide to opt for this second type of assessment.

## **6. Sustainable Development Goals**

4 - Quality Education

5 - Gender Equality