

## 28827 - Electronic Instrumentation

### Syllabus Information

**Academic year:** 2024/25

**Subject:** 28827 - Electronic Instrumentation

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

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

**ECTS:** 6.0

**Year:** 3

**Semester:** Second semester

**Subject type:** Compulsory

**Module:**

### 1. General information

Electronic instrumentation creates the knowledge base for the measurement and monitoring systems that are a fundamental part of mechatronic systems.

The objective of the Electronic Instrumentation subject is to train the student in the theoretical and practical concepts of all the blocks that make up the measurement chain of a physical variable, integrated as part of a measurement system.

### 2. Learning results

1. To know sensor and transducer typologies.
2. Master simulation tools and basic laboratory instruments.
3. Understand and interpret commercial equipment documentation.
4. Drawing and interpreting planes and diagrams according to the appropriate standards and symbology.

### 3. Syllabus

**Topic I** Introduction to instrumentation systems

**Topic II** Signal conditioning circuits

**Topic III** Temperature Measurement

**Topic IV** Measurement of Position, Displacement and Velocity

**Topic V** Measurement of deformation, force, weight and torque

**Topic VI** Measurement of Acceleration, Vibration and Shock

**Topic VII** Measurement of flow, level and pressure of fluids

### 4. Academic activities

**Lectures:** 32 hours The contents of the course will be presented, with a practical orientation towards the design and programming of electronic systems.

**Laboratory practices:** 26 hours During these practices the systems studied in the lectures will be seen in real operation for a better understanding of the subject.

**Study and personal work:** 90 hours This non-attendance part is valued at about 90 hours, necessary for the study of theory, problem solving and work development.

**Assessment tests.** 2 hours

### 5. Assessment system

The subject will be evaluated by the continuous assessment system by means of the following activities:

- **Laboratory practices** (50% of the grade, minimum 4 out of 10) In each of the practices the results obtained and the process followed will be evaluated. Once the practice has been completed, a report of the practice is handed in.

- **Written assessment tests and proposed assignments** (50% of the grade, minimum 4 out of 10) The evaluation test may consist of theoretical questions, problems to be solved and theoretical-practical questions. The proposed works may replace the exam of a part of the subject in the continuous assessment method.

To be eligible for the Continuous Assessment system, students must attend at least 80% of the face-to-face classes (practicals, technical visits, lectures, etc.)

**Global assessment test.**

Following the regulations of the University of Zaragoza in this regard, if the student has not passed any of these activities during the semester, they will have the opportunity to pass the subject by means of a global test in two official calls.

## **6. Sustainable Development Goals**

- 4 - Quality Education
- 5 - Gender Equality