Universidad Zaragoza

Academic Year/course: 2023/24

28839 - Advanced Electronic Instrumentation

Syllabus Information

Academic year: 2023/24
Subject: 28839 - Advanced Electronic Instrumentation
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 subject Instrumentation for the smart industry is the continuation of the subject Electronics Instrumentation of the first term, expanding the contents in data acquisition, Instrumentation software, communication buses and intelligent instrumentation.

The objective of the subject is to train the student in the theoretical and practical concepts of data acquisition systems, digital processing and virtual instrumentation.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda of United Nations (https://www.un.org/sustainabledevelopment/es/), in such a way that the acquisition of the subject's learning results provides training and competence to contribute to some extent to the achievement of targets 4.3 and 4.4 of Goal 4, and target 5.1 of Goal 5.

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 interpretating planes and diagrams according to the appropriate standards and symbology.

3. Syllabus

Topic 1 Data acquisition systems.

Topic 2 Digital Signal Processing.

Topic 3 Instrumentation Software.

Topic 4 Communications and Instrumentation Buses.

Topic 5 Intelligent instrumentation.

4. Academic activities

Lectures: 32 hours The contents of the subject 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 lectureswill 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 internship has been completed, a report of the internship is handed in.

- **Written assessment tests and proposed assignments** (50% of the grade, minimum 4 out of 10) The assessment 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.