

39639 - Advanced Instrumentation

Syllabus Information

Academic year: 2024/25

Subject: 39639 - Advanced Instrumentation

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

Degree: 608 -

ECTS: 6.0

Year: 4

Semester: Second semester

Subject type: Optional

Module:

1. General information

The Advanced Instrumentation subject is the continuation of the Electronic Instrumentation subject of the 3rd year, extending the contents in data acquisition, digital signal processing, communications between digital instruments, and the use of digital instruments 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.

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 plans 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 master classes 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.

Evaluation 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 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.) technical visits, classes, 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