Universidad Zaragoza

Academic Year/course: 2024/25

30397 - Electronic Design Workshop

Syllabus Information

Academic year: 2024/25
Subject: 30397 - Electronic Design Workshop
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 581 - Bachelor's Degree in Telecommunications Technology and Services Engineering
ECTS: 6.0
Year: 4
Semester: First semester
Subject type: Optional
Module:

1. General information

In this subject, everything learned in the electronic subjects is put into practice through the realization of an electronic project (project-based learning methodology).

It focuses on three fundamental aspects for the electronic engineering professional, such as the study of technologies, the research of real electronic components and their selection, the design of printed circuit boards and the assembly and debugging of prototypes in the laboratory.

On the other hand, and as explained in several points of this guide, the methodology used makes the students acquire transversal professional competences of great value for an engineer and that are otherwise difficult to achieve.

2. Learning results

In order to pass this subject, the students shall demonstrate they has acquired the following results:

- Design electronic circuits and systems using computer-aided design tools
- Properly select electronic components, including the most suitable packaging
- Design printed circuit boards

Build and debug electronic prototypes in the laboratory.

3. Syllabus

The syllabus will contain:

- Presentation of the work methodology of the subject and planning of the activities to be carried out.
- Search and selection of components and other electronic resources.
- Previous studies: Components; Electronic systems.
- Conception and specification of the project.
- Laboratory assembly of circuit modules.
- Electronic development: Basic design.
- Electronic development: Schematic input.
- Electronic development: PCB design.
- Assembly and tuning of the prototype.
- Presentation of papers.

When the circumstances of teaching organization allow it, a collaboration with the degree in Engineering of Industrial Design and Product Development is proposed, so that the team work is developed by a group of students from the subject and design students.

4. Academic activities

The program offered to the student to help them achieve the expected results includes the following activities:

FACE-TO-FACE WORK: 2.4 ECTS (60 hours)

- Practical work in the laboratory (type T3) (60 hours). Given the nature of the teaching methodology, the program takes the form of a calendar of activities that will be developed at the same time as the groups advance in the design. In some cases this involves presentations by the teacher, but the majority of the time is spent on practical activities to be carried out by students.

NON-ATTENDANCE WORK: 3.6 ECTS (90 hours)

- Teaching assignments (type T6) (20 hours). Activities that the student will perform alone or in groups and that the teacher will be proposing.

- Student's personal work-study (type T7) (64 hours). Estimated time dedicated to the development of the project individually or in groups through creative sessions or other dynamics.

- Assessment tests (type T8) (6 hours). In addition to the grading function, the evaluation is also a learning tool with which the student checks the degree of understanding and assimilation achieved.

5. Assessment system

Given the 100% practical nature of the course, a continuous assessment is proposed, the result of which will be the final grade in the first call (in accordance with the exceptional condition set out in article 9.4 of the Learning Assessment Standards, which was authorized for this subject by the UZ).

The subject is based on the teaching methodology of project-based learning, which will be materialized in the conception, development and assembly of an electronic project of complexity and size appropriate to the length of the subject. A series of evaluable activities can be found:

CONTINUOUS ASSESSMENT DURING THE TEACHING PERIOD

- Express project (30%). In the first weeks of the subject, as a preparation for the subject project and to articulate the work teams, a small electronic project of limited extension will be carried out.
- Laboratory work (10%). A project will be developed continuously throughout the semester.
- Subject project (60%). This item evaluates the work done for the achievement of the project of the subject as follows: the quality of the solution, the degree of finishing and the success in the operation; a report reflecting all the work done for the project; and the oral presentation to the teachers and classmates of the subject, being able to use computer tools dedicated to presentations.

IN THE 2ND OFFICIAL CALL

- Subject work 60%. Consisting of an electronic design with real components, its corresponding simulation, printed circuit board design and final configuration.
- Written exam 40%. Carried out in a computer classroom. Theoretical-practical exam in which the learning results will be evaluated.

6. Sustainable Development Goals

7 - Affordable and Clean Energy
9 - Industry, Innovation and Infrastructure
13 - Climate Action