

29846 - Electronic Design

Syllabus Information

Academic year: 2023/24

Subject: 29846 - Electronic Design

Faculty / School: 326 - Escuela Universitaria Politécnica de Teruel

Degree: 444 - Bachelor's Degree in Electronic and Automatic Engineering

ECTS: 6.0

Year: 4

Semester: Second semester

Subject type: Optional

Module:

1. General information

The objective of the subject is to train the student in the use of electronic circuit simulation tools and CAD tools for the correct design of printed circuit boards. An important part of the subject is dedicated to the design taking into account electromagnetic noise problems.

In order to take this subject, the student must have sufficient knowledge of Fundamentals of Electronics, Digital Electronics and Analog Electronics.

These approaches are aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 <https://www.un.org/sustainabledevelopment/es/> contributing to Objectives 8.2 (Goal 8) and 9.5 (Goal 9).

2. Learning results

- Know and know how to use circuit simulation tools.
- Knowledge of printed circuit board manufacturing technologies.
- Know and know how to use CAD tools for printed circuit board design
- Choosing the most suitable components for a printed circuit board
- Know how to design the board to minimize electromagnetic noise problems
- Know the Electromagnetic Compatibility regulations

3. Syllabus

- Circuit simulation.
- Printed circuit board technology.
- CAD tools for printed circuit board design.
- Design against electromagnetic interference (EMI).
- Introduction to EMC regulations.

4. Academic activities

- Master classes: 33 hours. Theoretical-practical sessions in which the contents of the subject will be explained.
- Problems and cases: 10 hours.
- Practical classes: 8 hours.
- Personal study. 96 hours.
- Assessment tests. 3 hours.

The subject is taught in two different modalities: face-to-face and blended learning. All the aforementioned information applies to the face-to-face modality. For the blended learning modality, all face-to-face activities will be replaced by adapted materials through the online training platform and virtual tutorials. The assessment tests will be face-to-face.

5. Assessment system

During the teaching period, a practical work will be proposed to integrate the knowledge acquired in the subject, as well as those acquired throughout the degree. The work will consist of the realization of a printed circuit board according to EMI's criteria. For the assessment of the test, aspects such as: complexity of the design, execution in terms of implementation of the design decisions and practical aspects (weld quality) will be taken into account.

In the case of not passing the evaluation during the teaching period, a global test will be held, which may include a theoretical and a practical part.

In both cases a minimum grade of 5 points out of a possible 10 is required to pass the subject.