Universidad Zaragoza

Year : 2019/20

29822 - Power Electronics

Syllabus Information

Academic Year: 2019/20
Subject: 29822 - Power Electronics
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel
Degree: 440 - Bachelor's Degree in Electronic and Automatic Engineering
444 - Bachelor's Degree in Electronic and Automatic Engineering
330 - Complementos de formación Máster/Doctorado
ECTS: 6.0
Year: XX
Semester: 330 - First semester
440 - First semester
444 - First semester
Subject Type: 440 - Compulsory
444 - Compulsory
330 - ENG/Complementos de Formación
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as:

- Lectures, in which the theoretical contents are explained.

- Practice sessions, in which representative problems and cases are solved.

- Laboratory sessions and related homework, where computer simulations and experimental setups are performed, and the results are reported.

4.2.Learning tasks

The course includes the following learning tasks:

1) Lectures (about 30 hours)

2) Practice sessions (about 15 hours)

3) Laboratory sessions (about 15 hours)

4) Autonomous work (about 15 hours, including 2 tutorial hours)

5) Study (about 71 hours)

6) Evaluation tests (about 4 hours)

4.3.Syllabus

The course will address the following topics:

- **INTRODUCTION:**

  1. Introduction to power electronics.

- **POWER ELECTRONIC CONVERTERS:**

  2. AC-DC converters (rectifiers).
  3. DC-DC converters.
  4. DC-AC converters (inverters) and AC-AC converters.
  5. Resonant converters: overview.

- **POWER ELECTRONIC DEVICES:**

  6. Power diodes and thyristors.
  7. Power transistors.
  8. Other devices and integrated power circuits.

4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website.

4.5.Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=29822&year=2019