

30327 - Power Electronics

Información del Plan Docente

Academic Year	2017/18
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	438 - Bachelor's Degree in Telecommunications Technology and Services Engineering
ECTS	6.0
Year	3
Semester	First semester
Subject Type	Compulsory
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

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

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The learning process that is designed for this subject is based on the following:

The teaching process will involve three main levels : lectures , laboratory problems and , with increasing student participation.

- In the lectures the theoretical bases of power electronic systems will be presented.

- In the classes of problems and issues such cases involving students they will be developed .

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- Laboratory practices will be developed in small groups where students perform computer simulations and assembly of power electronic circuits .

5.2.Learning tasks

The program that the student is offered to help you achieve the expected results includes the following activities ...

Class work: 2.4 ECTS (60 hours)

1) Theoretical classes (30 hours).

keynote sessions presentation of theoretical contents. the concepts and fundamentals of electronic power systems, illustrating them with examples will be presented . student participation through questions will be encouraged.

2) problem solving classes (15 hours).

problems and cases involving students , coordinated at all times with the theoretical contents will be developed . Students are encouraged to work the problems previously .

3) Laboratory practices (15 hours).

It will consist of assembly or computer simulation of power electronic circuits . The student will have a script for each practice.

Non-contact work : 3.6 ECTS (90 hours)

5.3.Syllabus

5.4.Course planning and calendar

Lectures and problem classes and practice sessions are held in the laboratory according to schedule set by the center (schedules available on their website) . The other activities will be planned depending on the number of students and will be announced in good time .

5.5.Bibliography and recommended resources

- A. Barrado y otros, *Problemas de Electrónica de Potencia* . Pearson Prentice-Hall, 2007.
- N. Mohan, T. M. Undeland, W. P. Robbins, *Power Electronics: Converters, Applications and Design* . John Wiley and Sons, 2003.
- N. Mohan, *Power Electronics: A First Course* . John Wiley and Sons, 2012.
- J. G. Kassakian, M. F. Schlecht, G. C. Verghese, *Principles of Power Electronics* . Addison-Wesley, 1991.
- P. T. Krein, *Elements of Power Electronics* . Oxford University Press, 1998.
- R. W. Erickson, D. Maksimovik, *Fundamentals of Power Electronics* . Kluwer Academic Publishers, 2011.
- M. H. Rashid, *Electrónica de Potencia: Circuitos, Dispositivos y Aplicaciones* . Pearson Prentice-Hall, 2004.
- E. Ballester, R. Piqué, *Electrónica de potencia. Principios fundamentales y estructuras básicas* . Marcombo, 2011.
- S. Martínez, J.A. Gualda, *Electrónica de potencia. Componentes, topologías y equipos*. Thomson, 2006.