

## 30327 - Power Electronics

### Información del Plan Docente

<b>Academic Year</b>	2016/17
<b>Academic center</b>	110 - Escuela de Ingeniería y Arquitectura
<b>Degree</b>	438 - Bachelor's Degree in Telecommunications Technology and Services Engineering
<b>ECTS</b>	6.0
<b>Course</b>	3
<b>Period</b>	First semester
<b>Subject Type</b>	Compulsory
<b>Module</b>	---

### **1.Basic info**

#### **1.1.Recommendations to take this course**

#### **1.2.Activities and key dates for the course**

### **2.Initiation**

#### **2.1.Learning outcomes that define the subject**

#### **2.2.Introduction**

### **3.Context and competences**

#### **3.1.Goals**

#### **3.2.Context and meaning of the subject in the degree**

#### **3.3.Competences**

#### **3.4.Importance of learning outcomes**

### **4.Evaluation**

### **5.Activities and resources**

#### **5.1.General methodological presentation**

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 .

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

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### 5.2.Learning activities

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.Program

### 5.4.Planning and scheduling

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.