

## 30206 - Physics and electronics

### Información del Plan Docente

<b>Academic Year</b>	2017/18
<b>Faculty / School</b>	110 - Escuela de Ingeniería y Arquitectura 326 - Escuela Universitaria Politécnica de Teruel
<b>Degree</b>	439 - Bachelor's Degree in Informatics Engineering 443 - Bachelor's Degree in Informatics Engineering
<b>ECTS</b>	6.0
<b>Year</b>	1
<b>Semester</b>	Second semester
<b>Subject Type</b>	Basic Education
<b>Module</b>	---

### **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 designed for this subject is based on three main aspects: theoretical concepts, problem solving and practical lab sessions.

Classroom sessions consist of a combination of theory and practice for a better understanding. Theoretical lessons are displayed in the form of master classes in which student participation is encouraged. During problem solving, students

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play an active role in the discussion and resolution of these problems.

Practical lab sessions, are designed so that students can apply and understand concepts and techniques learned during classroom lessons. Besides, different devices and measurement equipment are introduced and used during lab session to a better understanding of physical phenomena on which computer technology is based.

Practical lab sessions and other potential assignments will be developed in group, encouraging team-work.

### 5.2.Learning tasks

The learning activities consist of:

- Classroom sessions with a combination theory and problems
- Practical lab sessions
- Other possible activities such as tutored problem solving, assignments, etc.

### 5.3.Syllabus

This subject is offered in EINA and EUPT.

In EINA, the program is structured in three parts:

Part I: Electromagnetism

1: Electrostatics. electric field and potential

2: The electric current

3: Magnetism

Part II: Theory of circuits

4: Circuits DC

Part III: Electronics

5: Analog Electronics

6: Digital Electronics

In the EUPT the contents to be developed in the course are:

Electric field

Electrical properties of matter. Resistors and capacitors

Magnetic field

Magnetic properties of matter. Coils

Electromagnetic waves. Signals and information transmission

Electrical circuits: Fundamentals. Voltage and current laws

Techniques for analysis of resistive circuits

Basic circuits with capacitors and inductors

Resistive circuits with sinusoidal sources

Fundamentals of electrical installations

Fundamentals of electronics: Diode and transistor

Logic families: TTL and CMOS

### 5.4.Course planning and calendar

The course is divided into 3 parts, which are distributed as follows:

5 weeks dedicated to electromagnetism and oscillations

5 weeks dedicated to electrical circuits

5 weeks dedicated to electronic devices

Weekly teaching organization of the course is as follows:

Classroom sessions (3 hours per week) designed as a combination of theoretical concepts, analysis and problem solving.

Practical lab sessions (6 sessions of 2 hours every 2 weeks)

**5.5. Bibliography and recommended resources**