

## 67223 - Electronic System Design

### Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	527 - Master's in Electronic Engineering
ECTS	6.0
Course	1
Period	Second semester
Subject Type	Compulsory
Module	---

### 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 designed for this subject is based on the following:

Student learning will be focused in one of two similar lines of work:

- If the student is enrolled for making their Final Project, this subject will provide support with tools and activities for the

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development of each specific project, in the framework of project management and system simulation.

- If the student is not enrolled for making their Final Project, he will develop all or part of a course assignment consisting in modeling an electronic load, followed by a simulation and, from the results obtained, the use of machine learning techniques for performing an identification of the load simulated.

Additionally, there will be various general activities for all students, such as simulation problems, several seminars and some project management activities. All of them will be evaluated.

### 5.2.Learning activities

**The activities related to this subject are:**

#### **Classroom activities (2.4 ECTS, 60 hours):**

A01 Lectures (15 hours)

The main concepts of this subject will be explained, illustrated with examples. The main contents will be seminars and some important points related to project management. These activities will take place in the classroom teaching.

A03 Laboratory sessions (41 hours)

Develop of all assignments, such as list of problems, reports, modeling exercises associated with seminars, ... all in-person laboratory.

A06 Tracking (2 hours)

Personalized tracking of student's work.

A08 Tests (2 hours)

It is included reviewing of students' work and the grades.

#### **Non in-person activities (3.6 ECTS, 90 hours):**

A06 Assignments (70 hours)

Work related to the seminars, problems proposed and the main course work.

A07 study (20 hours)

This activity involves personal study necessary follow the course, preparation of activities and general study.

### 5.3.Program

**The contents of the course will be:**

1. Project management and reporting tasks (proposal of a Final Project, state of the art, planning, drafting a report / work

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memory realized,...)

2. Basic usage of modeling tools and general simulation.
3. Modeling and simulation of continuous and discrete systems through computer tools.
4. Electronic simulation using non specific simulation tools.
5. Generation of graphical user interfaces using simulation tools.
6. Automatic code generation from simulated models.

Depending on the specific profile of the students involved and the Final Project to be developed, the contents of the lectures will be adjusted.

### 5.4.Planning and scheduling

Lectures and sessions in the laboratory are held according to the schedule established by the center, available on its website. The other activities will be planned according to the number of students and will be announced in class.

### 5.5.Bibliography and recommended resources

- Horowitz, Paul. The art of electronics / Paul Horowitz, Winfield Hill . - 2nd ed., reimp. 1997 Cambridge : Cambridge University Press, 1989 (imp. 1997
- Pease, Robert A.. Troubleshooting analog circuits / Robert A. Pease Boston [etc.] : Butterworth-Heinemann, cop. 1993
- Derenzo, S.E. Practical interfacing in the laboratory : using a PC for instrumentation, data analysis and control / S.E. Derenzo Cambridge University Press, 2003