

## 60835 - Domotic and intelligent electric facilities

### Información del Plan Docente

<b>Academic Year</b>	2016/17
<b>Academic center</b>	110 - Escuela de Ingeniería y Arquitectura
<b>Degree</b>	532 - Master's in Industrial Engineering
<b>ECTS</b>	6.0
<b>Course</b>	2
<b>Period</b>	First semester
<b>Subject Type</b>	Optional
<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 promotes continuous student work in order to the understanding and application of knowledge to solving real problems.

The course is based on teaching methodologies like PBL (Project Based Learning), making the student becomes an active subject in the learning process.

Laboratory sessions are organized in small groups where students work individually in some cases and as a member of a

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group of two or three students in others. In lab sessions students know the elements of home automation installations, acquire manual skills, and also develop their skills in managing professional software. Visits to facilities and buildings complement the practical training of students.

### 5.2.Learning activities

#### **Lectures (30 hours).**

Sessions for explanation of contents. The concepts and fundamentals related to the contents of the course will be presented, illustrating them with real examples. Student participation through questions and brief discussions will be encouraged. The contents are grouped into two broad thematic blocks, home automation and lighting.

#### **Laboratory Sessions (30 hours).**

The student will select, schedule and perform the assembly of different automation systems and checking their operation. Dialux software will be used for the design and calculation of several lighting projects.

#### **Assessment (3 hours).**

In addition to the qualifying function, assessment is also a learning tool with which the student checks the degree of understanding and assimilation they have reached.

#### **Tutoring.**

Direct interaction between teacher and students, identification of learning problems, orientation in the subject.

#### **Guided works (27 hours).**

Several exercises and case studies will be proposed to the students. These may be obtained from the online learning system <https://moodle2.unizar.es>

#### **Personal study time (60 hours) .**

The ongoing work of the students will be encouraged by various learning activities throughout the semester.

### 5.3.Program

#### **1. Home Automation.**

Elements of home automation installations.

Home automation systems architecture.

Physical transmission media.

Home automation systems classification according to REBT ITC-51.

Description of commercial systems based on standards KNX and LON.

Description of commercial systems with proprietary protocols.

Criteria for choosing a home automation system based on control requirements and the characteristics of the building.

#### **2. Lighting**

Light and vision.

Basic figures.

Lamps and auxiliary equipment.

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Luminaires.  
Interior lighting.  
Emergency lighting.  
Outdoor lighting: road and projection.  
Control systems.

### 5.4.Planning and scheduling

Lectures and practical sessions in the laboratory are taught according to schedule established by the faculty and published prior to the start date of the course (<http://eina.unizar.es>).

The teacher will inform its tutoring schedule.

The other activities will be planned depending on the number of students and will be announced in advance. They will be available on <http://moodle2.unizar.es>

### 5.5.Bibliography and recomended resources