

60835 - Domotics and smart electric installations

Syllabus Information

Academic Year: 2019/20

Subject: 60835 - Domotics and smart electric installations

Faculty / School: 110 -

Degree: 532 - Master's in Industrial Engineering

ECTS: 6.0

Year: 2

Semester: First semester

Subject Type: Optional

Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

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

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. It promotes continuous work and problem-solving skills. It is based on teaching methodologies like PBL (Project Based Learning), making the student an active subject in the learning process. A wide range of teaching and learning tasks are implemented, such as laboratory sessions, case studies, group work, and visits to facilities and buildings.

4.2.Learning tasks

The course includes the following learning tasks:

- **Lectures (30 hours).** Sessions for the explanation of the course contents, illustrated with real examples. Student participation through questions and brief discussions will be encouraged. The contents are grouped into two sections: home automation and lighting.
- **Laboratory sessions (30 hours).** Laboratory sessions are organized in small groups where students work individually in some cases, and as a member of a group of two or three students in others. In lab sessions students learn the elements of home automation installations, acquire manual skills, and also develop their skills in managing

professional software. In particular, students will select, schedule and elaborate the assembly of different automation systems and check their operation. Dialux software will be used for the design and calculation of several lighting projects.

- **Assessment (3 hours).** In addition to the grading function, assessment is also a learning tool the student can use to check the degree of understanding and assimilation acquired.
- **Tutorials.** Direct interaction between teacher and students, identification of learning problems, orientation in the course, etc.
- **Guided assignments (27 hours).** Several exercises and case studies will be proposed to the students. These may be obtained from the virtual platform Moodle <https://moodle2.unizar.es>
- **Autonomous work and study (60 hours).** The continuous work of the students will be encouraged by various learning activities throughout the semester.

4.3.Syllabus

The course will address the following topics:

Section 1. Home Automation

1. Elements of home automation installations.
2. Home automation systems architecture.
3. Physical transmission media.
4. Home automation system classification according to REBT ITC-51.
5. Description of commercial systems based on standards KNX and LON.
6. Description of commercial systems with proprietary protocols.
7. Criteria for choosing a home automation system based on control requirements and the characteristics of the building.

Section 2. Lighting

1. Light and vision.
2. Basic figures.
3. Lamps and auxiliary equipment.
4. Luminaires.
5. Interior lighting.
6. Emergency lighting.
7. Outdoor lighting: road and projection.
8. Control systems.

4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website (<http://eina.unizar.es>) and Moodle (<http://moodle2.unizar.es>)

4.5.Bibliography and recommended resources