

60835 - Domotics and smart electric installations

Syllabus Information

Academic year: 2023/24

Subject: 60835 - Domotics and smart electric installations

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 532 - Master's in Industrial Engineering

ECTS: 6.0

Year: 2

Semester: First semester

Subject type: Optional

Module:

1. General information

This subject aims to provide professional training in lighting engineering and home automation. In order to achieve this, students will have professional design and calculation tools at their disposal, so that they become familiar with the concepts of selection and real sizing of this type of installations.

These objectives are aligned with some of the Sustainable Development Goals, SDGs, of the 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>) and certain specific targets, so that the acquisition of the learning results of the subject provides training and competence to the student to contribute to some extent to their achievement:

- Goal 7: Ensure Access to Affordable, Secure, Sustainable and Modern Energy for All.
 - Objective 7.3 By 2030, double the global rate of improvement in energy efficiency.

2. Learning results

1. To know the types of lighting installations, energy saving and efficiency, and home automation.
2. To select the components of home automation installations and project their construction.
3. To size home automation and lighting installations according to their intended use.
4. To interpret and apply the specific legislation and regulations in lighting installations, energy saving and efficiency as well as home automation.

3. Syllabus

1.- Home automation.

Elements of home automation installations.

Architecture of home automation systems.

Physical transmission media.

Classification of home automation systems according to ITC-51 (Complementary Technical Instructions) of the REBT (Low Voltage Electrotechnical Guidelines).

Description of commercial systems based on KNX and LON standards.

Description of proprietary commercial systems.

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

2.- Lighting

Light and vision.

Basic magnitudes.

Lamps and auxiliary equipment.

Lanterns.

Interior lighting.

Emergency lighting.

Outdoor lighting: road and projection.

Control systems.

4. Academic activities

Content presentation sessions . The concepts and fundamentals related to the subject content will be presented and illustrated with real examples. Student participation will be encouraged through questions and brief discussions. The contents

will be grouped into two major thematic blocks: home automation and lighting.

Laboratory practices. The student will select, program, and assemble different home automation systems, verifying their operation. They will perform lighting practices with Dialux for the design and calculation of real lighting projects.

5. Assessment system

The evaluation of the subject will be continuous and will include the following activities:

1. Laboratory practices (50%)

Laboratory practices will be evaluated based on the results achieved by the students in these practical sessions.

The grade for this activity will be from 0 to 10 points and will represent 50% of the overall grade. The student who does not attend a session, except for a justified reason, will receive a grade of 0 for that session. However, there will be a second opportunity to complete the outstanding practices at a date scheduled at the end of the subject.

2. Evaluable work and activities (50%)

In order to encourage the student's continuous work, there will be other assessable activities carried out throughout the semester in addition to the laboratory practices. These activities may consist of deliverable problems, practical works or other activities.

The grade of these tasks and activities will represent 50% of the final grade.

The deadlines for deliveries will be set during the subject's teaching period.

Students who do not opt for continuous assessment, do not pass the subject according to this system or would like to improve their grade are entitled to take a global test. In any case the best of the grades obtained will prevail. The global test will consist of a written exam (50% of the final grade) and a laboratory practices exam (50% of the final grade).

On the other hand, the second call for exams will be carried out through a comprehensive test conducted in the period established for this purpose in the academic calendar.