Course guide
310766 - 310766 - Advanced Facilities Management

Last modified: 19/10/2023

Unit in charge: Barcelona School of Building Construction
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

Degree: BACHELOR'S DEGREE IN ARCHITECTURAL TECHNOLOGY AND BUILDING CONSTRUCTION (Syllabus 2019). (Optional subject).

Academic year: 2023 **ECTS Credits:** 3.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: JOAN TARRAGONA ROIG

Others: BLANCA TEJEDOR HERRAN

TEACHING METHODOLOGY

The teaching methodology includes:

- Participatory lecture classes
- Face-to-face practical work sessions
- Self-study work

In the theory classes, the teaching staff will introduce the theoretical bases of the concepts, methods and results and will illustrate them with suitable examples to facilitate their understanding.

In practical classes (in the classroom), teachers guide students in the application of theoretical concepts to solve problems, always using critical reasoning. The teachers propose that students solve exercises inside and outside the classroom, to favor contact and use the basic tools necessary to solve problems.

The students, autonomously, must work on the materials provided by the teachers and the results of the exercises/problems sessions, to establish and assimilate the concepts. The teachers carry out the study plan and follow up on the activities.

LEARNING OBJECTIVES OF THE SUBJECT

The aim of the subject is to provide to the students the basic knowledge about the advanced management of facilities in buildings. Special emphasis will be placed on the ability to intelligently manage and optimize the different active elements of energy generation in the building and strategies will be presented to improve their operation, always taking into account demand.

STUDY LOAD

Type	Hours	Percentage
Self study	45,0	60.00
Hours large group	30,0	40.00

Total learning time: 75 h

CONTENTS

Block 1: Introduction to intelligent systems in buildings

Description:
• Introduction to the problem of energy efficiency in the stock of built buildings
• Identification of the need for intelligent management to achieve a building with zero net emissions

Full-or-part-time: 10h
Theory classes: 4h
Self study : 6h

Block 2: Management, monitoring and control of the building

Description:
• Definition of the smart building concept
• Integration of building management and control systems (Building Management Systems)
• Sensors and actuators for the lighting, heating, ventilation, cooling, water, security subsystem, etc.

Full-or-part-time: 10h
Theory classes: 4h
Self study : 6h

Block 3: Incorporation of infrastructure for self-consumption in smart buildings

Description:
• Characterization of local energy demand
• Integration of renewable energies in buildings for self-consumption
• Tour in an intelligent building

Related activities:
The final work of the subject will be developed in small groups and the topic will revolve around transforming a conventional building in order to incorporate an intelligent management system. Each group will choose the building to be studied (it may be the one used in the GATE Installations subjects). During the course of the subject, there will be two work monitoring sessions. To promote the achievement of the concepts, exercises will also be carried out in class individually or in groups. Finally, one of the class days will be a face-to-face visit to an existing renovated building in the city of Barcelona that is characterized by incorporating intelligent systems. In this way, the student is shown a case study in the real built and local environment.

Full-or-part-time: 55h
Theory classes: 22h
Self study : 33h

GRADING SYSTEM

The evaluation system consists of:

• Activities in class (20%)
• Practices (30%)
• Final subject work (50%)

The unsatisfactory results of the final work of the subject can be redirected by improving the project individually, after the teacher has highlighted to the student what the weak points are. All students have the right to improve their work. The improved work must be turned in on the day scheduled by the school within the period of final exams. The grades of the improved project can go from 0 to 10. Only the best grade will be taken into account.

RESOURCES

Other resources:
Notes given in class and material provided through ATENEA.