Course guide
820064 - PI - Facilities Projects

Last modified: 02/10/2025

Unit in charge: Barcelona East School of Engineering
Teaching unit: 717 - DEGD - Department of Engineering Graphics and Design.

Degree: BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN ENERGY ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2025 **ECTS Credits:** 6.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: JOSÉ LUIS RODRÍGUEZ ESPANTOSO

Others: Primer quadrimestre:
JOSÉ LUIS RODRÍGUEZ ESPANTOSO - Grup: T11

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Study the feasibility of a proposed project.

Transversal:
2. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
3. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

TEACHING METHODOLOGY

The subject uses the expository methodology in 25%, individual work in 25% and project-based learning in groups in 50%.

LEARNING OBJECTIVES OF THE SUBJECT

Upon completion of the course, the student will be able to:

- Identify technical installation projects that can be developed professionally, based on their degree
- Locate, organize and apply legislation and technical regulations
- Make use of minimal content scripts for the preparation of installation projects
- Define the main characteristics of the facilities studied
- Use the main calculation methods used in the facilities covered in the course

STUDY LOAD

Type	Hours	Percentage
Hours small group	30,0	20.00
Hours large group	30,0	20.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

(ENG) -Chapter 1. INTRODUCTION A LEGAL AND REGULATORY BASIC INDUSTRIAL

Description:
Review of the professional attributions of engineering graduates of the industrial branch.
Professional civil liability.
Life cycle of industrial safety technical projects.
Legislative hierarchy and normalization
Maintenance of the installations
CE marking

Specific objectives:
- Identify technical installation projects that can be developed professionally, based on their degree

Related activities:
Theoretical explanations, visualization of web pages, resolution of practical cases.

Full-or-part-time: 4h
Theory classes: 2h
Self study : 2h

(ENG) -Chapter 2. LIGHTING PROJECTS

Description:
Basic concepts of lighting technology. Types of lamps and luminaires. Regulations on light levels. Typical electrical diagrams for lighting lights. Lighting projects using the DIALUX computer application.
Emergency lighting.

Specific objectives:
- Locate, organize and apply legislation and technical regulations
- Define the main characteristics of the facilities studied
- Use the main calculation methods used in the facilities covered in the course

Related activities:
. Realization of theoretical explanations, resolution of practical cases, visualization of images and / or videos, consult catalogs and information from manufacturers.
. A team work will be carried out, which will be based on designing, calculating and justifying the regulatory compliance of an installation defined in the statement. The calculations will be done using the Dialux EVO software.

Full-or-part-time: 19h
Theory classes: 5h
Guided activities: 10h
Self study : 4h

(ENG) -Chapter 3. LOW VOLTAGE ELECTRIFICATION PROJECTS

Description:
General scheme of transport and distribution of electrical energy. The low voltage receiving installations: classification and essential electrical parts. Types of electrical conductors. Basic electrical protections. Calculation of: Load forecast, conductor sections and grounding. Scripts of minimum contents of electrical projects. Scripts of minimum contents of professional electrical projects.

Specific objectives:
- Locate, organize and apply legislation and technical regulations
- Define the main characteristics of the facilities studied
- Use the main calculation methods used in the facilities covered in the course

Related activities:
Realization of theoretical explanations, resolution of practical cases, visualization of images and / or videos, consult catalogs and information from manufacturers.

Full-or-part-time: 21h
Theory classes: 5h
Self study : 16h

(ENG) -Chapter 4. VENTILATION PROJECTS

Description:
Know the regulations that regulate the ventilation of spaces for health. Dimension networks of ducts and necessary fans, and know the typical auxiliary elements of a ventilation installation (gates, terminal elements, filters, etc.).

Specific objectives:
- Locate, organize and apply legislation and technical regulations
- Define the main characteristics of the facilities studied
- Use the main calculation methods used in the facilities covered in the course

Related activities:
. Realization of theoretical explanations, resolution of practical cases, visualization of images and / or videos, consult catalogs and information from manufacturers.
. A team work will be carried out, which will be based on designing, calculating and justifying the regulatory compliance of an installation defined in the statement.

Full-or-part-time: 23h
Theory classes: 5h
Guided activities: 11h
Self study : 7h

(ENG) -Chapter 5. PROJECTS OF DHW INSTALLATIONS BY SOLAR ENERGY

Description:
Core items. Hydraulic diagrams Calculations of demand for domestic hot water and dimensioning of the solar installation required. Scripts of minimum contents of this type of projects.

Specific objectives:
- Locate, organize and apply legislation and technical regulations
- Define the main characteristics of the facilities studied
- Use the main calculation methods used in the facilities covered in the course

Related activities:
. Realization of theoretical explanations, resolution of practical cases, visualization of images and / or videos, consult catalogs and information from manufacturers.

Full-or-part-time: 12h
Theory classes: 4h
Self study : 8h

ACTIVITIES

Installation technical project

Description:
Through teamwork, a technical project of an installation must be developed. This installation will be chosen among the students of the team, and must be accepted by the teacher, both the type (electrical, air conditioning, APQ, etc.) and its scope.

Specific objectives:
- Locate, organize and apply legislation and technical regulations
- Make use of minimal content scripts for the preparation of installation projects

Full-or-part-time: 46h
Guided activities: 46h

GRADING SYSTEM

Continuous evaluation of the student's work.
The study and autonomous work of the student is evaluated, as well as in a group, both face-to-face and non-face-to-face, applied to all training activities:
· Two partial exams: 15% + 15%
. Lighting work: 15%
. Ventilation work: 15%
. Team project: 40%

The note of the specific competition will be the weighted result of the previous ones.

The subject does not have a re-evaluation test.

RESOURCES

Other resources:
Industrial Safety Regulations:
https://industria.gob.es/Calidad-Industrial/seguridadindustrial/instalacionesindustriales/Paginas/index.aspx />Technical building Code:

https://www.codigotecnico.org/ />Notes in ATENEA