

60806 - Factories and industrial facilities

Syllabus Information

Academic Year: 2020/21

Subject: 60806 - Factories and industrial facilities

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 532 - Master's in Industrial Engineering

ECTS: 4.5

Year: 1

Semester: 532-First semester o Second semester

107-First semester

Subject Type: Compulsory

Module: ---

1.General information

1.1.Aims of the course

The aim of the course is learning general aspects relating to the design and management of industrial zones, focusing on the plant layout and organization of its related services, considering its spatial arrangement and functional operation. All this should meet the activity requirements, as well as current normative regulations.

For this, the competencies and responsibilities of the industrial engineer in this subject are defined, as well as the certifications, verifications and project management documents required for the industrial plants. The urban planning parameters that influence the layout of industrial plants are described, and the most representative types of industrial zones (detailing its main characteristics and design criteria).

It delves into the parameters to consider for the plant layout, providing the necessary tools for its heuristic and scientific design based on functional and productive criteria. In addition, the normative regulations to be considered for the plant construction are presented. The course ends with the study of supplementary facilities for the industrial activity, by analysing its integration into industrial zones.

1.2.Context and importance of this course in the degree

The obligatory module of the "*Máster en Ingeniería Industrial*" consists on several courses with a total of 60 ECTS, which aim to provide the skills associated with the industrial engineer practice. Within this obligatory module, the course "*Plantas y Servicios Industriales*", has 4.5 ECTS and represents one of the twelve courses to be taken.

This course, with the course "*Construcciones Industriales y Teoría de Estructuras*" also obligatory and imparted in the next four months, is the only possibility within the module to learn the design and arrangement of industrial zones, the implementation of industrial activities, and the integration of its normative requirements.

The course is designed as a complement to the skills associated with the course "*Construcciones Industriales y Teoría de Estructuras*", focusing its content to the field of design, planning and implementation of industrial plants and related services. The course approach is eminently practical and oriented to the professional practice.

1.3.Recommendations to take this course

This subject has no prerequisites.

2.Learning goals

2.1.Competences

- Design, construction and management of industrial plants.
- Use of specific and integrated knowledge for the construction of industrial buildings and application of planning and construction regulations.
- Design and integration of these installations in industrial plants.
- Check and control the construction works and the facilities operation.
- Perform certifications, tests and reports related to the industrial construction activity.

2.2.Learning goals

1. Knowledge of urban parameters and its planning characteristics and development.
2. Knowledge of different types of industrial zones and ability to integrate the industrial plant in them.
3. Ability to design and manage industrial plants adapted to different factory processes.
4. Knowledge and ability to design and integrate into the industrial plant and into the urban infrastructure, the services and facilities required for the industrial activity.
5. Knowledge and ability to perform the verification and control of facilities and infrastructures of an industrial plant.
6. Knowledge and ability to perform certifications, audits, verifications, tests and reports in the above subjects.

2.3.Importance of learning goals

The professional who has completed the "*Máster de Ingeniería Industrial*" must have a versatile and general training to resolve the challenges of the professional practice. Within this professional practice, the building sector has a significant weight. Therefore, it is necessary to provide a general knowledge related to industrial buildings, enabling the proper performance of their duties.

This course presents contents that analyze the plant layout and arrangement of industrial zones (including its complementary services), with emphasis on the plant construction within the plot. It delves into the Spanish normative regulations and knowledge are provided for certifications, audits, verifications testing and management reports related to the project and construction of industrial plants.

3.Assessment (1st and 2nd call)

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

The student will be assessed by a single test at the end of the course, consisting of a theoretical and practical exam to be performed on the date established by the academic calendar of the EINA. 50% of this exam corresponds to theoretical subjects and the remaining 50% will refer to practical exercises.

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 focuses on the key aspects of industrial plants. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions, case studies, and tutorials.

Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials.

4.2.Learning tasks

The course includes the following learning tasks:

- **Lectures.** Presentation of the main theoretical contents illustrated with examples.
- **Laboratory practice sessions.** Knowledge application coordinated with the lecture contents and supervised by teachers of the course. These sessions take place in smaller groups to enhance student learning, and develop various technical case studies.
- **Tutorials.** Teacher's office hours for students to review both the acquisition of theoretical knowledge and their practical assignments.

4.3.Syllabus

The course will address the following topics:

1. Industrial architecture.
2. Competences and responsibilities of the industrial engineer.
3. Endorsements, licenses and normative requirements applicable to the design and construction of industrial plants.
4. Planning regulations and urban management in industrial zones.
5. Arrangement of industrial zones.
6. Plant layout.
7. Integration of services and facilities in industrial zones and buildings.

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 and the Moodle platform.

The student must check the dates for conducting the practices. It shall be informed of these dates at the beginning of the course and by the *Anillo Digital Docente* application.

The exams will be held on the dates established by the EINA.

4.5. Bibliography and recommended resources