

## Course guide

# 220205 - 220205 - Design and Construction on Industrial Plants and Related Facilities

Last modified: 11/04/2025

**Unit in charge:** Terrassa School of Industrial, Aerospace and Audiovisual Engineering  
**Teaching unit:** 758 - EPC - Department of Project and Construction Engineering.

**Degree:** MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Compulsory subject).

**Academic year:** 2025    **ECTS Credits:** 5.0    **Languages:** Catalan, Spanish

## LECTURER

**Coordinating lecturer:** MIQUEL CASALS CASANOVA

**Others:** SERGIO VILLALBA HERRERO

## DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

### Specific:

1. Ability to design, build and operate industrial plants.
2. Knowledge of construction, building, facilities, infrastructure and urban development in the field of industrial engineering.
3. Plan, calculate and design products, processes, facilities and plants.
4. Understanding and ability to apply the necessary legislation in the exercise of the profession of Industrial Engineering.

## TEACHING METHODOLOGY

Methodology is divided in three main parts:

- Lectures for theoretical issues.
- Working sessions (exercises and problem solving).
- Self-study, exercises and activities.

Theoretical sessions will be used to present and develop the theoretical foundations of the subject, also the concepts and methods, and finally appropriate examples to facilitate understanding.

Practical sessions in the classroom will provide students the ability to apply theoretical concepts to problem solving, always based on critical thinking. Coursework will promote the contact and use of the basic tools needed to solve problems.

Students will work in autonomous way on material provided by the teachers and also on the results of the working sessions to definitively fix the theoretical concepts. Teachers will provide a study guide through ATENEA.

## LEARNING OBJECTIVES OF THE SUBJECT

The course aims to give students the skills to design, build and operate industrial plants and define their relationships with the built and industrial environment.

The course gives to students the ability to apply knowledge of construction, building, plants & services, infrastructure and urban planning to the projects of industrial plants and other buildings belonging to the field of industrial engineering.

## STUDY LOAD

Type	Hours	Percentage
Self study	80,0	64.00
Hours small group	15,0	12.00
Hours large group	30,0	24.00

Total learning time: 125 h

## CONTENTS

### Module 1: Industrial plants design

**Description:**

- Industrial Building programming.
- Layout.
- Design criteria of Industrial Buildings.
- Rules and Standards devoted to design of Industrial Buildings.
- Relationships of Industrial Buildings with their Built and Industrial Environment.

**Related activities:**

Coursework and examination

**Full-or-part-time:** 58h

Theory classes: 14h

Laboratory classes: 8h

Self study : 36h

### Module 2: Industrial Buildings erection

**Description:**

- Systems, procedures and materials for construction.
- Construction systems for Industrial Buildings.
- Building Codes and Standards.
- The construction process for Industrial Buildings.

**Related activities:**

Coursework and examination

**Full-or-part-time:** 55h

Theory classes: 12h

Laboratory classes: 7h

Self study : 36h

### Module 3: Urban planning and urban services

**Description:**

- Urban services and infrastructure.
- Urban planning.
- Location.

**Related activities:**

Coursework and examination

**Full-or-part-time:** 12h

Theory classes: 4h

Self study : 8h



## GRADING SYSTEM

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The final mark is based on the following activities:

Class attendance (minimum 80% theory sessions and practical sessions 100%), weight: 10 %

Coursework, weight: 50 %

Examination, weight: 40 %

Due the course structure and the coursework monitoring, there is the option to improve eventual poor results obtained in the initial parts of the subject.

## BIBLIOGRAPHY

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### Basic:

- Casals, Miquel; Roca, Xavier. Construcció industrial: introducció i conceptes bàsics [on line]. Barcelona: Edicions UPC, 2003 [Consultation: 06/07/2017]. Available on: <http://hdl.handle.net/2099.3/36747>. ISBN 8483016818.