

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

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering  
Teaching unit: 758 - EPC - Department of Project and Construction Engineering  
Academic year: 2019  
Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Teaching unit Compulsory)  
ECTS credits: 5 Teaching languages: Catalan, Spanish

### Teaching staff

Coordinator: 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.

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### Study load

Total learning time: 125h	Hours large group:	30h	24.00%
	Hours medium group:	0h	0.00%
	Hours small group:	15h	12.00%
	Guided activities:	0h	0.00%
	Self study:	80h	64.00%

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### Content

<p>Module 1: Industrial plants design</p>	<p>Learning time: 58h Theory classes: 14h Laboratory classes: 8h Self study : 36h</p>
<p>Description:</p> <ul style="list-style-type: none"> <li>· Industrial Building programming.</li> <li>· Layout.</li> <li>· Design criteria of Industrial Buildings.</li> <li>· Rules and Standards devoted to design of Industrial Buildings.</li> <li>· Relationships of Industrial Buildings with their Built and Industrial Environment.</li> </ul> <p>Related activities: Coursework and examination</p>	
<p>Module 2: Industrial Buildings erection</p>	<p>Learning time: 55h Theory classes: 12h Laboratory classes: 7h Self study : 36h</p>
<p>Description:</p> <ul style="list-style-type: none"> <li>· Systems, procedures and materials for construction.</li> <li>· Construction systems for Industrial Buildings.</li> <li>· Building Codes and Standards.</li> <li>· The construction process for Industrial Buildings.</li> </ul> <p>Related activities: Coursework and examination</p>	
<p>Module 3: Urban planning and urban services</p>	<p>Learning time: 12h Theory classes: 4h Self study : 8h</p>
<p>Description:</p> <ul style="list-style-type: none"> <li>· Urban services and infrastructure.</li> <li>· Urban planning.</li> <li>· Location.</li> </ul> <p>Related activities: Coursework and examination</p>	

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### Qualification system

The final mark is based on the following activities:

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

Coursework, weight: 40 %

Examination (in a date fixed by the Faculty board), weight: 50 %

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

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.