

## 220212 - Architecture of Industrial Plants and Building Services

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: NURIA FORCADA MATHEU

Others: DAVID DOLCET BUTSEMS

### Degree competences to which the subject contributes

Specific:

1. Knowledge and skills to plan and design electrical and fluid, lighting, air conditioning and ventilation, energy saving and efficiency, acoustics, communications, home automation, intelligent buildings and facilities security.
2. Understanding and ability to apply the necessary legislation in the exercise of the profession of Industrial Engineering.
3. Plan, calculate and design products, processes, facilities and plants.

### Teaching methodology

The teaching methodology is divided into three parts:

- Lectures for content presentation
- Practical work in class (exercises and problems)
- Autonomous work to study and develop exercises and activities

During lectures, lecturers will introduce the theoretical foundations of the subject, concepts, methods and results illustrated with suitable examples to facilitate understanding.

During practical sessions, lecturers will guide the student in the use of theoretical concepts to problem solving, encouraging all the time critical thinking. Exercises to solve during the session and at home will be proposed to promote the use of the basic tools needed for problem solving.

Autonomously, students will process the material provided by lecturers and the problems of the practical sessions so as to assimilate and fix concepts. Lecturers will provide a learning plan and the monitoring of activities (ATENA).

### Learning objectives of the subject

The course aims to give students skills to:

- perform verifications and control of facilities, processes and products
- design facilities considering its interaction with the building or the urban system
- design intelligent and energy efficient buildings
- make use of the knowledge about building and construction, facilities and complementary services, for industrial engineering projects.



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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</p>	<p>Learning time: 106h Theory classes: 12h Practical classes: 24h Self study : 70h</p>
<p>Description: Module 1: Facilities Design and its interrelation with the Architecture and Building Construction</p> <p>Related activities: Exercises and exam.</p> <p>Specific objectives:</p> <ul style="list-style-type: none"> <li>· Global Project of building facilities</li> <li>· Energy supply in buildings</li> <li>· Interrelation between facilities and the building architecture</li> <li>· Interrelation between urban facilities and services</li> <li>· Electrical and fluid systems in buildings and/or urban environments. Lighting systems. Acoustics</li> <li>· Air conditioning and ventilation systems in buildings</li> <li>· Communications systems. Automation systems and security installations. Fire protection facilities.</li> </ul>	
<p>Module 2</p>	<p>Learning time: 19h Theory classes: 3h Practical classes: 6h Self study : 10h</p>
<p>Description: Module 2: Buildings and energy efficiency</p> <p>Related activities: Exam</p> <p>Specific objectives:</p> <ul style="list-style-type: none"> <li>· Intelligent buildings. Management and control systems in buildings and their facilities.</li> <li>· Energy efficient buildings. Savings and energy efficiency in buildings and facilities</li> <li>· Verification and control of facilities, processes and products.</li> </ul> <p>· Verificació i control d'instal·lacions, processos i productes</p>	

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### Qualification system

The final mark is divided into:

- Theory Midterm exam                      weight: 20 %
- Practicum Midterm exam                  weight: 20 %
- Theory Final exam                         weight: 20 %
- Practicum Final exam                      weight: 20 %
- Practicum                                      weight: 20 %

Students with a grade less than 5 in the theory midterm exam will be able to do a resit exam the day of the final exam. The rating of the resit exam will be between 0 and 10. The highest mark will be the final mark.

### Regulations for carrying out activities

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### Bibliography