Course guides
820444 - TCIIM - Building Technology and Industrial Facilities

Unit in charge: Barcelona East School of Engineering
Teaching unit: 737 - RMEE - Department of Strength of Materials and Structural Engineering.

Degree:
- BACHELOR’S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).
- BACHELOR’S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2020
ECTS Credits: 6.0
Languages: Catalan

LECTURER

Coordinating lecturer: JUAN DANIEL GARCÍA RUEDA

Others:
- Primer quadrimestre: JUAN DANIEL GARCÍA RUEDA - T11

PRIOR SKILLS

Use of CAD programms.
Use of office applications (Word and Excel).

REQUIREMENTS

Fluid Mechanics.
Electrical Systems.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:
1. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
2. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.
3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

TEACHING METHODOLOGY

Methodology applied consists in theoretical exposition and problem solving in large groups, and use of tools for problem solving in the field of Building Constructions and Installations at Practice groups.

Using knowledges and tools acquired during the sessions will be taken as the basis for the Non-presential work. (40%).

Directed activities related to each item will establish guidelines for non-presential work.
LEARNING OBJECTIVES OF THE SUBJECT

1 - Acquire knowledge in the field of engineering projects aimed at buildings and industrial facilities.
2 - Acquire ability to manage specifications, regulations and mandatory standards.
3 - Representing simple industrial processes.
4 - Distinguish constraints involved in industrial buildings.
5 - Designing industrial buildings and establishing location of industrial plants.
6 - Analyze and design elements of basic industrial facilities.
7 - Establish construction systems involved in industrial building.
8 - Design Implementation alternatives.
9 - Distinguish between different instruments of urban planning and its functions.
10 - Select the most appropriate structural system in industrial building.
11 - Select the most appropriate building systems in industrial building.
12 - Analyze and assess the environmental impact of proposed solutions.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Hours small group</td>
<td>30,0</td>
<td>20.00</td>
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<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
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Total learning time: 150 h

CONTENTS

1. Introduction to industrial building and facilities projects.

Description:

Full-or-part-time: 6h
Theory classes: 2h
Self study: 4h

2. Engineer's competences in industrial building.

Description:

Full-or-part-time: 4h
Theory classes: 2h
Self study: 2h
### 3. Relation between architecture and industry.

**Description:**
Function and objectives of architecture. General Introduction to architectural design. Industrial architecture: characteristics and solutions. Type structural in industrial building: evolution since classic times to nowadays. Sizing of spaces: modular construction.

**Full-or-part-time:** 9h  
Theory classes: 3h  
Self study: 6h

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### 4. Common services in industrial buildings.

**Description:**

**Full-or-part-time:** 15h  
Theory classes: 3h  
Practical classes: 2h  
Self study: 10h

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### 5. Plant layout: Systematic Layout Planning

**Description:**

**Full-or-part-time:** 7h  
Theory classes: 2h  
Self study: 5h

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### 6. Auxiliary services in manufacturing processes

**Description:**

**Full-or-part-time:** 28h  
Theory classes: 9h  
Practical classes: 5h  
Self study: 14h

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### 7. Essential characteristics in industrial building.

**Description:**

**Full-or-part-time:** 16h  
Theory classes: 4h  
Practical classes: 2h  
Self study: 10h
<table>
<thead>
<tr>
<th><strong>8. Basics of industrial location.</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Description:</strong> Regional policies and location. Classical theories and new trends. Industrial districts. Delocalization.</td>
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<tr>
<td><strong>Full-or-part-time:</strong> 7h</td>
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<td>Theory classes: 2h</td>
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<td>Self study : 5h</td>
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<tr>
<th><strong>9. Introduction to soil planning</strong></th>
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<tbody>
<tr>
<td><strong>Description:</strong> Purpose of soil planning. Soil planning and land classification. Basic urban services. Urban systems. Land use. General planning. Special Plans.</td>
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<tr>
<td><strong>Full-or-part-time:</strong> 7h</td>
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<tr>
<td>Theory classes: 2h</td>
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<tr>
<td>Self study : 5h</td>
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<tr>
<th><strong>10. Introduction to industrial soil planning.</strong></th>
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<tbody>
<tr>
<td><strong>Description:</strong> Planning for industrial land. Current trends in industrial soil planning. Characteristics of great industrial areas. Location of activities.</td>
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<tr>
<td><strong>Full-or-part-time:</strong> 7h</td>
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<tr>
<td>Theory classes: 2h</td>
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<tr>
<td>Self study : 5h</td>
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<th><strong>11. Systems and subsystems in building.</strong></th>
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<tr>
<td><strong>Full-or-part-time:</strong> 29h</td>
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<tr>
<td>Theory classes: 10h</td>
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<td>Practical classes: 4h</td>
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<td>Self study : 15h</td>
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<th><strong>12. Environment and industry.</strong></th>
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<td><strong>Full-or-part-time:</strong> 15h</td>
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<td>Theory classes: 4h</td>
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<td>Practical classes: 2h</td>
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<td>Self study : 9h</td>
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GRADING SYSTEM
Non-presential work 40%
Final exam 35%
Practices 15%
Generic competencies 10%

EXAMINATION RULES.
To carry out the exams is allowed the use of any documentation.

BIBLIOGRAPHY

Basic:

RESOURCES

Other resources:
Information downloaded from ATENEA