220114 - Environmental Science and Technology

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: BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
ECTS credits: 6  Teaching languages: Catalan, Spanish, English

Teaching staff

Coordinator: Gangolells Solanellas, Marta
Lopez Grimau, Victor

Others: Gangolells Solanellas, Marta
Lopez Grimau, Victor
Sedo Beneyto, Elena

Degree competences to which the subject contributes

Specific:
1. A basic understanding of, and ability to apply, environmental technologies and sustainability principles

Transversal:
2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.

Teaching methodology

The course is organized as follows:
- Presencial sessions of contents exhibition (theory)
- Presencial sessions of practical work (practices)
- Autonomous work of study

Learning objectives of the subject

Provide students with necessary theoretical and practical knowledge:
- To be able of detecting, proposing, analysing, modelling, taking decisions and solving problems in social areas, economic and environmental.
- To know and use tools and technologies to act in the direction of the sustainability.
- To know and use tools and more sustainable technologies.
- To be able of developing a respectful technology with the environment.
- To know different environmental technologies and their applications in the engineering.
### Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 32h</th>
<th>21.33%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours small group: 28h</td>
<td>18.67%</td>
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<tr>
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<td>Self study: 90h</td>
<td>60.00%</td>
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## Content

<table>
<thead>
<tr>
<th>Module</th>
<th>Title</th>
<th>Learning time</th>
<th>Theory classes</th>
<th>Laboratory classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1</td>
<td>Introduction to environmental problems associate with the industry</td>
<td>13h 30m</td>
<td>4h</td>
<td>2h</td>
<td>7h 30m</td>
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<tr>
<td>Module 2</td>
<td>Sustainability concept and indicators</td>
<td>11h 30m</td>
<td>2h</td>
<td>2h</td>
<td>7h 30m</td>
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<tr>
<td>Module 3</td>
<td>Lifecycle analysis</td>
<td>11h 30m</td>
<td>2h</td>
<td>2h</td>
<td>7h 30m</td>
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<tr>
<td>Module 4</td>
<td>Environmental management systems in industry</td>
<td>11h 30m</td>
<td>2h</td>
<td>2h</td>
<td>7h 30m</td>
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<tr>
<td>Module 5</td>
<td>Prevention and control of industrial activities</td>
<td>11h 30m</td>
<td>2h</td>
<td>2h</td>
<td>7h 30m</td>
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<tr>
<td>Module 6</td>
<td>Atmospheric pollution: climatic change</td>
<td>15h 30m</td>
<td>4h</td>
<td>4h</td>
<td>7h 30m</td>
</tr>
<tr>
<td>Module</td>
<td>Description</td>
<td>Learning time</td>
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| Module 7: Atmospheric pollution: air quality | | **Learning time:** 13h 30m  
Theory classes: 4h  
Laboratory classes: 2h  
Self study: 7h 30m |
| Module 8: Energy and environment | | **Learning time:** 11h 30m  
Theory classes: 2h  
Laboratory classes: 2h  
Self study: 7h 30m |
| Module 9: Industrial residues management | | **Learning time:** 11h 30m  
Theory classes: 2h  
Laboratory classes: 2h  
Self study: 7h 30m |
| Module 10: Water management | | **Learning time:** 11h 30m  
Theory classes: 2h  
Laboratory classes: 2h  
Self study: 7h 30m |
| Module 11: Acoustic pollution | | **Learning time:** 11h 30m  
Theory classes: 2h  
Laboratory classes: 2h  
Self study: 7h 30m |
| Module 12: Environmental impact evaluation | | **Learning time:** 15h 30m  
Theory classes: 4h  
Laboratory classes: 4h  
Self study: 7h 30m |
Qualification system

Evaluation system consists of 4 evaluable tests:
- Theory 1st part of course: 35%
- Practices 1st part of course: 15%
- Theory 2nd part of course: 35%
- Practices 2nd part of course: 15%

Non-satisfactory results in the exam of the first part or in the exam of the second part will be able to be redirected by means of a written test that will take place the day of the final exam. This reset exam will cover, in any case, concepts related to theory and practices of the first and the second parts of the subject. All the students can take this exam. Marks in the reset exam can range from 0 to 10. Only the best mark between the reset exam and the first attempt (exam for the first part + exam for the second part) will be taken into account.

Bibliography