820122 - CEEREE - Power Plants and Renewable Energies

Degree competences to which the subject contributes

Specific:
2. Design power stations.

5. Understand the applications of renewable energies.

Transversal:
3. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

Teaching methodology

The teaching methodology used is a mixed methodology based on the application of PBL methodology together with a theoretical introduction. This structure allows students contextualizing the work to be developed.

Learning objectives of the subject

The aim of the course is to provide the basic knowledge regarding the power generation activity in the Spanish electricity sector.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 45h</th>
<th>30.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Hours small group: 15h</td>
<td>10.00%</td>
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<td></td>
<td>Guided activities: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
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<tr>
<td>Topic</td>
<td>Learning time: 7h 30m</td>
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<tr>
<td>(ENG) Introduction to the electricity production activity</td>
<td>Theory classes: 3h 30m</td>
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<td></td>
<td>Self study : 4h</td>
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**Description:**

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**Specific objectives:**

The European framework
The main figures of the electricity generation in Spain
The Spanish framework. The evolution of energy prices and their implications

<table>
<thead>
<tr>
<th>Topic</th>
<th>Learning time: 7h 30m</th>
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<tbody>
<tr>
<td>(ENG) Electricity production. Technical aspects</td>
<td>Theory classes: 3h 30m</td>
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<td>Self study : 4h</td>
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**Description:**

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**Specific objectives:**

Types and classification of power plants in the Ordinary Regime
Types and classification of power plants in the Special Regime
Operating principles
Control and regulation

<table>
<thead>
<tr>
<th>Topic</th>
<th>Learning time: 40h</th>
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<tbody>
<tr>
<td>(ENG) Management and control of power plants.</td>
<td>Theory classes: 10h</td>
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<td></td>
<td>Laboratory classes: 15h</td>
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<td>Self study : 15h</td>
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**Description:**

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**Specific objectives:**

The electricity market and the management of power plants
Simplified models for the management and control of power plants
Conception and design of the control mechanisms associated to the power plants management
Introduction to renewable power plants control
**820122 - CEEREE - Power Plants and Renewable Energies**

### (ENG) Introduction to the feasibility study of a renewable power plant

**Learning time:** 95h  
- **Theory classes:** 28h  
- **Self study:** 67h

**Description:**
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**Specific objectives:**
- Market study and implementation
- Technical feasibility study of the various options identified by means of the market study and implementation
- Economic feasibility study of the various options identified by means of the market study and implementation
- Evaluation of the projects. Selection and justification of the proposed solution

### Qualification system

The evaluation will be conducted by carrying out different projects (and/or tests) related to the contents of the subject. These projects (or tests) include the activity carried out in the laboratory. Within these associated activities one can find the generic skill that will have a weight of 10% from the total grade. The subject does not possess a reassessment process.

### Bibliography

**Basic:**