Degree competences to which the subject contributes

Specific:
CEENE-40. Tackle energy saving problems systematically by integrating processes and technologies.

Transversal:
05 TEQ N3. 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.
06 URI N3. 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.
07 AAT N3. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

Teaching methodology
The teaching methodology will be project based learning.

Learning objectives of the subject

? Review and model the main electricity and heat generation and storage integrated technologies.
? Learning systematic methods of thermal systems analysis and design of heat exchanger networks.
? Learning systematic analysis methods of combined thermal and electrical systems.
? Employ tools and systematic identification procedures of opportunities for energy savings and reuse.
Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 45h 30.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h 0.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group: 15h 10.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 0h 0.00%</td>
</tr>
<tr>
<td></td>
<td>Self study: 90h 60.00%</td>
</tr>
</tbody>
</table>

Content

**Integrated technologies.**

**Description:**
Description and modeling of the main generation and storage technologies that will be part of the integrated energy systems.

**Systematic methods for the analysis of thermal systems and design of heat exchangers networks.**

**Description:**
Exposition of methods for the analysis and design of thermal systems and heat exchangers networks.

**Systematic analysis methods of combined thermal and electrical systems.**

**Description:**
Exhibition of systematic methods to perform analysis of combined systems of thermal and electric type.

**Distributed systems.**

**Description:**
Determination of the optimal management of distributed systems.
Qualification system

The final grade will be obtained from the following equation:
NF = 0.25 * 0.25 * P1 + P2 + P3 + 0.25 * 0.25 * PR

P1, P2, P3 : Projects 1, 2 and 3
PR : Practices

50% of the mark of each project will result from its oral defense and the remaining 50% of the valuation of the written report.
This course will not have a re-evaluation exam.

Bibliography

Basic:


Others resources:

Hyperlink

Revistes electròniques Elsevier, IEEENew tab
Electronic journals Elsevier, IEEENew tab