To introduce the student into a new way to analyze different systems taking into consideration the energetic point of view. Public buildings, transport and industries examples will be analyzed in order to reach improvements in their energetic costs.

### Teaching staff

**Coordinator:** Joan Carles Fernández Vallés

### Learning objectives of the subject

To introduce the student into a new way to analyze different systems taking into consideration the energetic point of view. Public buildings, transport and industries examples will be analyzed in order to reach improvements in their energetic costs.
## Study load

<table>
<thead>
<tr>
<th>Total learning time: 75h</th>
<th>Hours large group:</th>
<th>30h</th>
<th>40.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study:</td>
<td>45h</td>
<td></td>
<td>60.00%</td>
</tr>
</tbody>
</table>
## 220128 - Energy Efficiency Systems

### Content

<table>
<thead>
<tr>
<th>Module 1: Energy Audits</th>
<th>Learning time: 14h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 6h</td>
</tr>
<tr>
<td></td>
<td>Self study: 8h</td>
</tr>
</tbody>
</table>

**Description:**
1. Definitions
2. Basic Energy concepts
3. Units
4. Introduction to the bills comprehension
5. Energy audits (Steps, scope)

<table>
<thead>
<tr>
<th>Module 2: Building Energy Audit</th>
<th>Learning time: 14h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 6h</td>
</tr>
<tr>
<td></td>
<td>Self study: 8h</td>
</tr>
</tbody>
</table>

**Description:**
1. Introduction
2. Building concepts
3. Lighting concepts
4. Heating and cooling
5. First exercise definition

<table>
<thead>
<tr>
<th>Module 3: Energetic improvements in Transport.</th>
<th>Learning time: 14h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 6h</td>
</tr>
<tr>
<td></td>
<td>Self study: 8h</td>
</tr>
</tbody>
</table>

**Description:**
1. First exercise presentation
2. Introduction to the energetic consumption in the transport
3. Aeronautics energetic improvements
4. Railway energetic improvements
5. Automotive energetic improvements
Module 4: Industrial energetic assessment  

**Description:**  
1. Introduction  
2. Electrical energy management  
3. Energetic improvements in the industry  
4. Second exercise definition  

**Learning time:** 14h  
- Theory classes: 6h  
- Self study: 8h

Module 5: Second exercise presentation  

**Description:**  
1. Presentations  

**Learning time:** 19h  
- Theory classes: 6h  
- Self study: 13h

### Qualification system

The final grade will be calculated based on:

\[ NT = 0.4 \times N_1 + 0.5 \times N_2 + 0.1 \times NC \]

**Being:**  
- NT: Final Grade  
- N1: First Exercise qualification  
- N2: Second Exercise qualification  
- NC: Contribution to the meetings

### Bibliography

**Basic:**  

**Complementary:**  

**Others resources:**  
Class notes