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.

Coordinator: Joan Carles Fernández Vallés

Teaching staff

Coordinator: Joan Carles Fernández Vallés

Teaching methodology

The course is divided into parts:
- Theory classes
- Practical classes
- Self-study for doing exercises and activities.

In the theory classes, teachers will introduce the theoretical basis of the concepts, methods and results and illustrate them with examples appropriate to facilitate their understanding.

In the practical classes (in the classroom), teachers guide students in applying theoretical concepts to solve problems, always using critical reasoning. We propose that students solve exercises in and outside the classroom, to promote contact and use the basic tools needed to solve problems.

Students, independently, need to work on the materials provided by teachers and the outcomes of the sessions of exercises/problems, in order to fix and assimilate the concepts.

The teachers provide the syllabus and monitoring of activities (by ATENEA).

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>
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</tbody>
</table>

Last update: 23-04-2019
# Module 1: Energy Audits

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

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

---

# Module 2: Building Energy Audit

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

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

---

# Module 3: Energetic improvements in Transport.

**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

**Learning time:** 14h  
**Theory classes:** 6h  
**Self study:** 8h
### 220128 - Energy Efficiency Systems

**Module 4: Industrial energetic assessment**

<table>
<thead>
<tr>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
</tr>
<tr>
<td>2. Electrical energy management</td>
</tr>
<tr>
<td>3. Energetic improvements in the industry</td>
</tr>
<tr>
<td>4. Second exercise definition</td>
</tr>
</tbody>
</table>

| Learning time: 14h |
| Theory classes: 6h |
| Self study: 8h |

**Module 5: Second exercise presentation**

<table>
<thead>
<tr>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Presentations</td>
</tr>
</tbody>
</table>

| Learning time: 19h |
| Theory classes: 6h |
| Self study: 13h |

### Qualification system

The final grade will be calculated based on:

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

**Bibliography**

**Basic:**


**Complementary:**


**Others resources:**

Class notes