820770 - GEDAE - Energy Management, Diagnostics and Energy Audit

<table>
<thead>
<tr>
<th>Coordinating unit:</th>
<th>240 - ETSEIB - Barcelona School of Industrial Engineering</th>
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<tbody>
<tr>
<td>Teaching unit:</td>
<td>709 - EE - Department of Electrical Engineering</td>
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<tr>
<td>Academic year:</td>
<td>2019</td>
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<tr>
<td>Degree:</td>
<td>MASTER’S DEGREE IN ENERGY ENGINEERING (Syllabus 2013). (Teaching unit Optional)</td>
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<tr>
<td>ECTS credits:</td>
<td>5</td>
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<tr>
<td>Teaching languages:</td>
<td>Catalan, Spanish</td>
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**Teaching staff**

- **Coordinator:** RICARDO BOSCH TOUS
- **Others:** First semester: RICARDO BOSCH TOUS - T10, T30

**Prior skills**

Knowledge of energy equipment material
Objectives
Understand and be able to develop diagnostics and energy audits in processes and facilities for optimal energy management.

Learning outcomes
Upon completing the course, the student should:
- Understand the role of tools for managing the demand in context of the global and regional energy system and regional connotations in their economic, social and environmental impact and associated technologies in a local and global context.
- Know the relevant organisations and their main projects at the international level, the main sources of information and regulations related with the tools for managing demand.
- Have the elements of analysis and knowledge necessary to carry out projects related with the tools for managing demand.
- Be able to propose transferable results - the application of tools for managing demand - through the development of innovative ideas.
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**Study load**

<table>
<thead>
<tr>
<th>Total learning time: 120h</th>
<th>Hours small group: 30h (25.00%)</th>
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<tbody>
<tr>
<td></td>
<td>Guided activities: 10h (8.33%)</td>
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<tr>
<td></td>
<td>Self study: 80h (66.67%)</td>
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**Content**

### Introduction

**Learning time: 6h**
- Theory classes: 2h
- Self study: 4h

**Description:**
- Energy accounting
- Statistics on energy

**Specific objectives:**
Introduce the link between economics and energy.

### Diagnosis and energy audit

**Learning time: 119h**
- Theory classes: 18h
- Practical classes: 10h
- Guided activities: 15h
- Self study: 76h

**Description:**
- Energy diagnosis
- Energy audit
- Tools for energy management
- Modelling and simulation of energy resources
- Evaluation of technical feasibility

**Related activities:**
Diagnosis and energy audit: case study

**Specific objectives:**
Learn the tools to perform an optimal energy management.
### Planning of activities

<table>
<thead>
<tr>
<th>Diagnosis and energy audit: case study</th>
<th>Hours: 119h</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 12h</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 15h</td>
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<tr>
<td></td>
<td>Practical classes: 16h</td>
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<td>Self study: 76h</td>
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**Description:**
Activity carried out in groups to make a case study of a diagnosis and energy audit.

**Support materials:**
Class notes, references.

**Descriptions of the assignments due and their relation to the assessment:**
Report with the tasks performed.

**Specific objectives:**
Realisation of a practical case study.

### Qualification system

Written test (PE). 60%
Work performed individually or in groups (TR). 40%

### Bibliography