220602 - Advanced Electronic Systems and Integration of Electrical Energy Sources

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 710 - EEL - Department of Electronic Engineering

Academic year: 2019

Degree: MASTER'S DEGREE IN AUTOMATIC SYSTEMS AND INDUSTRIAL ELECTRONICS (Syllabus 2012). (Teaching unit Compulsory)

ECTS credits: 5

Teaching languages: Catalan

Teaching staff

Coordinator: JORDI ZARAGOZA BERTOMEU

Others: Josep Pou
        David González

Degree competences to which the subject contributes

Specific:
1. Use power electronics systems as electric power sources.
2. Use and analysis of microcontrollers and microprocessors in digitally programmable electronic systems.
3. Capacity to use different Power electronics systems to achieve a more complex one.
4. Use and know the different analogic electronics building blogs.
5. Improve technical communication of results.

Transversal:
6. ENTREPRENEURSHIP AND INNOVATION: Knowing about and understanding how businesses are run and the sciences that govern their activity. Having the ability to understand labor laws and how planning, industrial and marketing strategies, quality and profits relate to each other.
7. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
8. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.

Teaching methodology

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Learning objectives of the subject

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# 220602 - Advanced Electronic Systems and Integration of Electrical Energy Sources

## Study load

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group:</th>
<th>31h</th>
<th>24.80%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours small group:</td>
<td>14h</td>
<td>11.20%</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>80h</td>
<td>64.00%</td>
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</tbody>
</table>
## Content

| ENG) 1- Introducció a la Integració de Fonts | Learning time: 6h  
Theory classes: 3h  
Self study: 3h |
| ENG) 2- Models Matemàtics i Econòmics que intervenen en la Integració | Learning time: 18h  
Theory classes: 2h  
Laboratory classes: 4h  
Self study: 12h |
| ENG) 3- Plantes de Generació Convencionals | Learning time: 9h  
Theory classes: 3h  
Self study: 6h |
| ENG) 4- Generació Fotovoltaica | Learning time: 20h  
Theory classes: 5h  
Laboratory classes: 2h  
Self study: 13h |
| ENG) 5- Generació Eólica | Learning time: 20h  
Theory classes: 5h  
Laboratory classes: 2h  
Self study: 13h |
| ENG) 6- Acumuladors d'Energia per a Sistemes Elèctrics | Learning time: 15h  
Theory classes: 5h  
Self study: 10h |
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## Planning of activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(ENG) ACTIVITAT 1</strong></td>
<td></td>
<td>55h</td>
</tr>
<tr>
<td><strong>(ENG) ACTIVITAT 2</strong></td>
<td></td>
<td>30h</td>
</tr>
<tr>
<td><strong>(ENG) ACTIVITAT 3</strong></td>
<td></td>
<td>22h</td>
</tr>
<tr>
<td><strong>(ENG) ACTIVITAT 4</strong></td>
<td></td>
<td>6h</td>
</tr>
<tr>
<td><strong>(ENG) ACTIVITAT 5</strong></td>
<td></td>
<td>12h</td>
</tr>
</tbody>
</table>

### (ENG) ACTIVITAT 1

- **Learning time**: 23h
- **Theory classes**: 5h
- **Laboratory classes**: 4h
- **Self study**: 14h

### (ENG) ACTIVITAT 2

- **Learning time**: 14h
- **Theory classes**: 3h
- **Laboratory classes**: 2h
- **Self study**: 9h

### (ENG) ACTIVITAT 3

- **Hours**: 22h
- **Laboratory classes**: 4h
- **Self study**: 18h

### (ENG) ACTIVITAT 4

- **Hours**: 6h
- **Theory classes**: 1h
- **Self study**: 5h

### (ENG) ACTIVITAT 5

- **Hours**: 12h
- **Theory classes**: 2h
- **Self study**: 10h
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**Qualification system**


**Regulations for carrying out activities**


**Bibliography**

**Basic:**


**Complementary:**