Course guide 220602 - 220602 - Advanced Electronic Systems and Integration of Electrical Energy Sources

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 710 - EEL - Department of Electronic Engineering.
Degree: MASTER'S DEGREE IN AUTOMATIC SYSTEMS AND INDUSTRIAL ELECTRONICS (Syllabus 2012). (Compulsory subject).
Academic year: 2022  ECTS Credits: 5.0  Languages: Catalan

LECTURER

Coordinating lecturer: 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.

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.

Basic:
5. Improve technical communication of results.

TEACHING METHODOLOGY

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LEARNING OBJECTIVES OF THE SUBJECT

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STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours small group</td>
<td>14,0</td>
<td>11.20</td>
</tr>
<tr>
<td>Self study</td>
<td>80,0</td>
<td>64.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>31,0</td>
<td>24.80</td>
</tr>
</tbody>
</table>

Total learning time: 125 h

CONTENTS

(ENG) 1- Introducció a la Integració de Fonts

Full-or-part-time: 6h
Theory classes: 3h
Self study: 3h

(ENG) 2- Models Matemàtics i Econòmics que intervenen en la Integració

Full-or-part-time: 18h
Theory classes: 2h
Laboratory classes: 4h
Self study: 12h

(ENG) 3- Plantes de Generació Convencionals

Full-or-part-time: 9h
Theory classes: 3h
Self study: 6h

(ENG) 4- Generació Fotovoltaica

Full-or-part-time: 20h
Theory classes: 5h
Laboratory classes: 2h
Self study: 13h

(ENG) 5- Generació Eólica

Full-or-part-time: 20h
Theory classes: 5h
Laboratory classes: 2h
Self study: 13h
(ENG) 6- Acumuladors d’Energia per a Sistemes Elèctrics

**Full-or-part-time:** 15h
- Theory classes: 5h
- Self study : 10h

(ENG) 7- Integració i Connexió a Xarxa

**Full-or-part-time:** 23h
- Theory classes: 5h
- Laboratory classes: 4h
- Self study : 14h

(ENG) 8- Exemples d’Integració

**Full-or-part-time:** 14h
- Theory classes: 3h
- Laboratory classes: 2h
- Self study : 9h

**ACTIVITIES**

(ENG) ACTIVITAT 1

**Full-or-part-time:** 55h
- Theory classes: 28h
- Self study: 27h

(ENG) ACTIVITAT 2

**Full-or-part-time:** 30h
- Laboratory classes: 10h
- Self study: 20h

(ENG) ACTIVITAT 3

**Full-or-part-time:** 22h
- Laboratory classes: 4h
- Self study: 18h

(ENG) ACTIVITAT 4

**Full-or-part-time:** 6h
- Theory classes: 1h
- Self study: 5h
(ENG) ACTIVITAT 5

**Full-or-part-time:** 12h
Theory classes: 2h
Self study: 10h

**GRADING SYSTEM**

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**EXAMINATION RULES.**

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**BIBLIOGRAPHY**

**Basic:**

**Complementary:**