820126 - IEBAT2EE - Low and High Voltage Electrical Installations II

Coordinating unit: 295 - EE - Barcelona East School of Engineering
Teaching unit: 709 - EE - Department of Electrical Engineering
Academic year: 2017
Degree: BACHELOR’S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR’S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits: 6
Teaching languages: Spanish

Teaching staff
Coordinator: JUAN MORÓN ROMERA
Others: JUAN MORÓN ROMERA

Opening hours
Timetable: Hours published on the bulletin board.
Make an interview by e-mail

Degree competences to which the subject contributes

Specific:
1. Carry out calculations for the design of high voltage electrical installations.
2. Carry out calculations for the design of low and medium voltage electrical installations.

Transversal:
4. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

Teaching methodology
Magistral classes for theory sessions, individual and group work, and project based learning.

Learning objectives of the subject

- To show how design high voltage electrical installations.
- To show the use of Standards and Regulations for electrical installations.
- To show the main elements of an installation (functionality, characteristics of operation, main applications)
- To show how draw an electrical diagram and its symbols.
- To analyze the causes of faults, its effects and protection methods.
- To show methodology for design, sizing and optimization the elements for a high voltage electrical installation.
### Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 45h</th>
<th>30.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Hours small group: 15h</td>
<td>10.00%</td>
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<tr>
<td></td>
<td>Guided activities: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
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</tbody>
</table>
## Content

<table>
<thead>
<tr>
<th>Unit</th>
<th>Learning time</th>
<th>Theory classes</th>
<th>Laboratory classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit 1. Electrical Installation for High Voltage: Generalities.</strong></td>
<td>12h</td>
<td>3h</td>
<td></td>
<td>9h</td>
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<tr>
<td><strong>Unit 2. Electrical Calculations Techniques.</strong></td>
<td>35h</td>
<td>12h</td>
<td>4h</td>
<td>19h</td>
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<tr>
<td><strong>Unit 3. Main elements for HV installations</strong></td>
<td>21h</td>
<td>9h</td>
<td></td>
<td>12h</td>
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<tr>
<td><strong>Unit 4. Protective Relays</strong></td>
<td>15h</td>
<td>6h</td>
<td></td>
<td>9h</td>
</tr>
<tr>
<td><strong>Unit 5. Ground installation</strong></td>
<td>19h</td>
<td>4h 30m</td>
<td>4h</td>
<td>10h 30m</td>
</tr>
<tr>
<td><strong>Unit 6. Distribution Installation</strong></td>
<td>25h</td>
<td>4h 30m</td>
<td>3h</td>
<td>17h 30m</td>
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</tbody>
</table>
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<table>
<thead>
<tr>
<th>Unit 7. Substation Installation</th>
<th>Learning time: 23h</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 6h</td>
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<tr>
<td></td>
<td>Laboratory classes: 4h</td>
</tr>
<tr>
<td></td>
<td>Self study: 13h</td>
</tr>
</tbody>
</table>

**Qualification system**

Middle term exam: 20%
Class exercises: 10%
Homework: 10%
Laboratory work: 20%
Self Study: 10%
Final test: 30%
No proof of reassessment.

**Regulations for carrying out activities**

Timetable established by school

**Bibliography**

**Basic:**


**Others resources:**