Degree competences to which the subject contributes

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

CEELE-22. Carry out calculations for the design of high voltage electrical installations.

Transversal:
1. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.

2. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

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

Learning objectives of the subject
- To show how design low 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 low voltage electrical installation.
## Study load

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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title</th>
<th>Learning time</th>
<th>Theory classes</th>
<th>Laboratory classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low Voltage Electrical Installations: Generalities</td>
<td>6h</td>
<td>3h</td>
<td></td>
<td>3h</td>
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<tr>
<td>2</td>
<td>Interior installations for houses</td>
<td>22h</td>
<td>3h</td>
<td>2h</td>
<td>17h</td>
</tr>
<tr>
<td>3</td>
<td>Industrial Automation: Fundamentals</td>
<td>17h</td>
<td>4h 30m</td>
<td>4h</td>
<td>8h 30m</td>
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<tr>
<td>4</td>
<td>Electrical power and Energy</td>
<td>14h</td>
<td>3h</td>
<td>1h</td>
<td>10h</td>
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<tr>
<td>5</td>
<td>Grid connection: Regulations.</td>
<td>21h</td>
<td>4h 30m</td>
<td></td>
<td>16h 30m</td>
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<tr>
<td>6</td>
<td>Conductor Sizing</td>
<td>9h</td>
<td>4h 30m</td>
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<td>4h 30m</td>
</tr>
</tbody>
</table>
## Unit 7. Power Quality

**Learning time:** 3h  
Theory classes: 1h 30m  
Self study: 1h 30m

## Unit 8. Protection elements

**Learning time:** 16h  
Theory classes: 6h  
Laboratory classes: 2h  
Self study: 8h

## Unit 9. Ground connection

**Learning time:** 13h  
Theory classes: 4h 30m  
Laboratory classes: 2h  
Self study: 6h 30m

## Unit 10. Interior or Load installations

**Learning time:** 20h  
Theory classes: 6h  
Laboratory classes: 4h  
Self study: 10h

## Unit 11. Shortcircuit analysis

**Learning time:** 9h  
Theory classes: 4h 30m  
Self study: 4h 30m

### Qualification system

- Middle term exam: 20%
- Class exercises: 10%
- Homework: 15%
- Laboratory work: 15%
- No proof of reassessment.
- Self Study: 10%
- Final test: 30%
Regulations for carrying out activities

Timetable established by school

Bibliography

Basic:


Others resources:

Audiovisual material

Atenea