# 820126 - IEBAT2EE - Low and High Voltage Electrical Installations II

## 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.

## Teaching staff

**Coordinator:** JUAN MORÓN ROMERA

**Others:** Primer quadrimestre:
- EDORTA LÓPEZ URZAINQUI - T11, T12, T13
- JUAN MORÓN ROMERA - T11, T12, T13

## Requirements

INSTAL·LACIONS ELÈCTRIQUES DE BAIXA I ALTA TENSIÓ I - Prerequisite

## Teaching unit:

<table>
<thead>
<tr>
<th>Teaching unit:</th>
<th>709 - EE - Department of Electrical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic year:</td>
<td>2019</td>
</tr>
<tr>
<td>Degree:</td>
<td>BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)</td>
</tr>
<tr>
<td>ECTS credits:</td>
<td>6</td>
</tr>
<tr>
<td>Teaching languages:</td>
<td>Spanish</td>
</tr>
</tbody>
</table>

## Opening hours

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

---

**INSTAL·LACIONS ELÈCTRIQUES DE BAIXA I ALTA TENSIÓ I - Prerequisite**
### Study load

<table>
<thead>
<tr>
<th><strong>Total learning time</strong>: 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>
</tr>
<tr>
<td></td>
<td>Hours small group: 15h</td>
<td>10.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 0h</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
</tr>
<tr>
<td>Unit</td>
<td>Learning time:</td>
<td>Theory classes:</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Unit 1. Electrical Installation for High Voltage: Generalities.</td>
<td>12h</td>
<td>3h</td>
</tr>
<tr>
<td>Unit 2. Electrical Calculations Techniques.</td>
<td>35h</td>
<td>12h</td>
</tr>
<tr>
<td>Unit 3. Main elements for HV installations</td>
<td>21h</td>
<td>9h</td>
</tr>
<tr>
<td>Unit 4. Protective Relays</td>
<td>15h</td>
<td>6h</td>
</tr>
<tr>
<td>Unit 5. Ground installation</td>
<td>19h</td>
<td>4h 30m</td>
</tr>
<tr>
<td>Unit 6. Distribution Installation</td>
<td>25h</td>
<td>4h 30m</td>
</tr>
</tbody>
</table>
Unit 7. Substation Installation

Learning time: 23h
- Theory classes: 6h
- Laboratory classes: 4h
- Self study: 13h

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: