

## 29622 - Low Voltage Electrical Installations

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 29622 - Low Voltage Electrical Installations

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 430 - Bachelor's Degree in Electrical Engineering

**ECTS:** 6.0

**Year:** 3

**Semester:** First semester

**Subject type:** Compulsory

**Module:**

### 1. General information

The objectives of this subject are that the student learns to calculate and design LV electrical installations, using their specific regulations and legislation, and to acquire a set of functional fundamentals that will allow him/her to advance in matters of an electrical nature.

These approaches and objectives are aligned with some of the Sustainable Development Goals, SDGs, of the Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>) and certain specific targets, so that the acquisition of the learning results of the subject provides training and competence to the student to contribute to some extent to the achievement of target 7.2 of goal 7 and target 9.1 of goal 9.

### 2. Learning results

- Identify, classify and describe LV electrical installations.
- Calculate and design LV electrical installations.
- Know and select the characteristics of materials, cables, switchgear and measuring equipment used in LV electrical installations.
- Understand, select and properly use electrical protection techniques.
- Select and use appropriate tools for the design of LV electrical installations.
- Know and use the specific legislation and regulations for LV electrical installations.

### 3. Syllabus

Unit 1. Three-phase circuits.

Unit 2. Description of an electrical power system.

Unit 3. Calculation of low voltage conductor cross-sections.

Unit 4. Calculation of short-circuit currents in low voltage.

Unit 5. Low voltage electrical switchgear.

Unit 6. Grounding in low voltage electrical installations.

Unit 7. Protection against electric shocks in low voltage

### 4. Academic activities

- **Theoretical and practical classes (45 hours).** Sessions of exposition and explanation of contents, together with problems and cases of practical application of such contents.

- **Laboratory Practices (15 hours).** In each session, the student will have a script of the practice to be carried out, which will be accompanied by explanations and necessary indications for its realization.

- **Supervised work (18 hours).** Completion of a course work, in which the contents of the subject developed in the different topics of the term are applied in a practical way.

- **Individual study (68 hours).**

- **Evaluation tests (4 hours).**

- **Tutoring.** Individualized attention to the student to solve doubts.

### 5. Assessment system

The subject will be assessed in the global assessment modality by means of the following activities:

#### ASSESSMENT PROCEDURE 1

The assessment activities of a **student who has passed the practices** in the teaching period will be:

- **Laboratory Practices (10% of the grade, with a minimum of 5 out of 10).** In order to pass the subject the student must have attended all the practical sessions.

- **Tutorial work (10% of the grade).**

- **Written tests (80% of the grade, with a minimum of 4 out of 10 in each written test).**

#### **ASSESSMENT PROCEDURE 2**

The evaluation activities of a **student who has not passed the practices** in the teaching period will be: - **Laboratory practice exam (Pass or Fail grade)**

- **Tutorial Work (10% of the grade)**

- **Written tests (90% of the grade, minimum 4 out of 10 in each written test).**

In order to pass the subject following the assessment procedure 2, it will be necessary to obtain a grade of PASS in the practical exam and a minimum grade of 6 out of 10.