

## 29622 - Low Tension Electrical Installations

### Información del Plan Docente

<b>Academic Year</b>	2016/17
<b>Academic center</b>	110 - Escuela de Ingeniería y Arquitectura
<b>Degree</b>	430 - Bachelor's Degree in Electrical Engineering
<b>ECTS</b>	6.0
<b>Course</b>	3
<b>Period</b>	First semester
<b>Subject Type</b>	Compulsory
<b>Module</b>	---

### **1.Basic info**

#### **1.1.Recommendations to take this course**

#### **1.2.Activities and key dates for the course**

### **2.Initiation**

#### **2.1.Learning outcomes that define the subject**

#### **2.2.Introduction**

### **3.Context and competences**

#### **3.1.Goals**

#### **3.2.Context and meaning of the subject in the degree**

#### **3.3.Competences**

#### **3.4.Importance of learning outcomes**

### **4.Evaluation**

### **5.Activities and resources**

#### **5.1.General methodological presentation**

The learning process that has been designed for this subject is based on the continued student work and focuses on the theoretical aspects to understand, analyze and apply this knowledge to solving real problems.

For the development of the subject, on the one hand theoretical sessions will be held with the whole group, in which the theoretical foundations of the subject will be presented in the form of lectures and supplemented by solving type-problem.

On the other hand there will be sessions of laboratory, in which each student will work as a member of a small group of

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students, putting into practice the knowledge acquired in the theoretical sessions.

In parallel, during the teaching period of the semester, the student will perform a work under the tutelage of the professor.

### 5.2.Learning activities

The program that is offered to the student to help him achieve the intended results comprises the following activities:

- **Lectures (45 presential hours)**. Sessions of exhibition and explanation of contents, along with problems and cases of practical application of such contents. The student's participation will be encouraged through questions and brief discussions.

- **Laboratory practices (15 presential hours)**. The student will have a practice script, previously provided at the beginning of the session of practices, which will be accompanied with explanations and details required for the accomplishment of the practices, in the own session of laboratory, and given by the corresponding Professor.

- **Tutored work (18 non-presential hours)** . During the first weeks of the course, the professor will pose a tutored work of subject, which apply in a practical way the contents of the subject developed in the different topics of the course students.

- **Individual study (68 non-presential hours)**, spread over the 15-week of the semester. The continued working of the student will be promoted by the various learning activities evenly distributed along the semester.

- **Evaluation Test (4 presential hours)**. The Evaluation tests as well as having a rating function, are also a learning tool for the student to check the degree of understanding and assimilation of knowledge and skills achieved. The evaluation of the subject will be held in a single session and will consist of two tests. In the first test, lasting half an hour, the degree of assimilation of the theoretical contents of the subject will be checked. In the second test, lasting 3 hours and half, the degree of assimilation of the practical application of the contents of the subject will be checked.

- **Tutoring**. The direct attention to the student, identification of learning disabilities, guidance on the subject and help to the raised exercises and works.

### 5.3.Program

The contents to be developed will be the following:

- 1.- Three-phase circuits.
- 2.- Description of a power system.
- 3.- Calculation of conductor cross-sections in low voltage.
- 4.- Calculation of short circuit currents in low voltage.
- 5.- Electrical switchgear in low voltage.

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6.- Grounding in low voltage electrical installations.

7.- Protection against electric shock in low voltage.

### 5.4.Planning and scheduling

The lectures and practical laboratory sessions are taught according to the schedule established by the centre and published prior to the start date of the course.

Each professor will inform his hours of tutoring.

The other activities will be planned according to the number of students and will be announced in advance.

### 5.5.Bibliography and recommended resources

*Bibliography* can be found in <http://psfunizar7.unizar.es/br13/eGrados.php?id=220>