

29622 - Low Voltage Electrical Installations

Información del Plan Docente

Academic Year	2017/18
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

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

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.

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

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 subjet, 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.Syllabus

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.

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5.- Electrical switchgear in low voltage.

6.- Grounding in low voltage electrical installations.

7.- Protection against electric shock in low voltage.

5.4.Course planning and calendar

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

[BB: Bibliografía básica / BC: Bibliografía complementaria]

- [BB] 1. Sanz Serrano, José Luis. Instalaciones eléctricas : resumen del Reglamento Electrotécnico de Baja Tensión (BOE 2002) : esquemas, aplicaciones y ejercicios resueltos de acuerdo con el R.E.B.T. / José Luis Sanz Serrano. - 2ª ed. corr. y act. Madrid : Learning Paraninfo, 2008
- [BB] 2. Colmenar Santos, Antonio. Instalaciones eléctricas en baja tensión : diseño, cálculo, dirección, seguridad y montaje / Antonio Colmenar Santos, Juan Luis Hernández Martín Paracuellos de Jarama (Madrid) : RA-MA, D. L. 2007
- [BB] 3. Roger Folch, José. Tecnología eléctrica / José Roger Folch, Martín Riera Guasp, Carlos Roldán Porta . - 2a. ed. Madrid : Síntesis, 2002
- [BB] 4. García Trasancos, José. Instalaciones eléctricas en media y baja tensión / José García Trasancos . - 6ª ed., act. Madrid [etc.] : Paraninfo, D. L. 2011
- [BB] 5. Martínez Requena, Juan José. Puesta a tierra en edificios y en instalaciones eléctricas : adaptado al nuevo RBT (BOE 2002) / Juan José Martínez Requena, José Carlos Toledano Gasca . - 4a. ed., 2a reimpr. [actual.] Madrid [etc.] : Paraninfo Thomson Learning, D.L. 2004
- [BB] 6. Torres González, José Luis. Sobreintensidades en baja tensión. Riesgos, protecciones y apartamentas / José Luis Torres González . - [1a. ed.] Madrid : AENOR, cop. 2001
- [BB] 7. Torres González, José Luis. Choques eléctricos en baja tensión. Riesgos y protecciones / José Luis Torres González Madrid : AENOR, D.L. 1999