

## 29628 - Medium and High Voltage Electrical Installations

### Syllabus Information

**Academic Year:** 2019/20

**Subject:** 29628 - Medium and High 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:** Second semester

**Subject Type:** Compulsory

**Module:** ---

### 1.General information

#### 1.1.Aims of the course

#### 1.2.Context and importance of this course in the degree

#### 1.3.Recommendations to take this course

### 2.Learning goals

#### 2.1.Competences

#### 2.2.Learning goals

#### 2.3.Importance of learning goals

### 3.Assessment (1st and 2nd call)

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

### 4.Methodology, learning tasks, syllabus and resources

#### 4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. It is based on participation and the active role of the student favors the development of communication and decision-making skills. A wide range of teaching and learning tasks are implemented, such as lectures, guided assignments, laboratory sessions, autonomous work, and tutorials.

Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials.

Further information regarding the course will be provided on the first day of class.

#### 4.2.Learning tasks

**The program offered to the student to help him to achieve the expected results includes the following activities.**

The 6 ECTS course includes the following topics:

- **Lectures** (45 hours). Whole group sessions. Presentation of the main theoretical contents combined with problem-solving tasks. Student participation is encouraged through questions and brief discussions.
- **Laboratory sessions** (15 hours). Students will work in small groups to practice the contents learned in lectures. They will have task instructions provided at the beginning of the session, which will be accompanied by the

necessary teacher's explanations.

- **Assessment** (3 hours). Assessment tests have a grading function, but they also work as a learning tool to check the student's progress, understanding of the course contents and acquisition of skills.
- **Tutorials**. Teacher's office hours for students to review and discuss course contents, solve doubts, follow-up of assignments, etc.
- **Assignments** (34 hours). During the course, students will solve sets of problems and cases, do course work, or practical assignments.
- **Autonomous work and study** (53 hours). The continuous work of the student will be encouraged by the evenly distributed tasks throughout the semester.

### 4.3.Syllabus

The course will address the following topics:

#### Theory sessions

Topic 1. Fundamentals of Electrical Power System

Topic 2. Voltages, overvoltages, and insulation

Topic 3. High voltage electrical equipment

Topic 4. Surge arresters and line shielding

Topic 5. Instrument transformers

Topic 6. Grounding systems

Topic 7. H.V. and M.V substations design

Topic 8. Fundamentals of protection practice

Topic 9. Insulation coordination

### 4.4.Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course, please refer to the Escuela de Ingeniería y Arquitectura de la Universidad de Zaragoza, website, <https://eina.unizar.es/>.

### 4.5.Bibliography and recommended resources

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?id=7784>