Universidad Zaragoza

**Year : 2019/20**

# 60800 - High and low voltage electrical installations

## Syllabus Information

**Academic Year:** 2019/20
**Subject:** 60800 - High and low voltage electrical installations
**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura
**Degree:** 532 - Master's in Industrial Engineering
**ECTS:** 6.0
**Year:** 1
**Semester:** 532-First semester o Second semester
266-First semester o Second semester
107-First 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 achievement of the learning objectives. It encourages continuous work, understanding, analysis and application of theoretical knowledge to real problems. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions, problem-solving, laboratory sessions, and assignments.

## 4.2.Learning tasks

The course includes the following learning tasks:

- **Lecture** (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 with 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:

1. Fundamentals of Electrical Power System
2. LV systems:
    1. Planning and design of electrical distribution systems and LV installations.
    2. Calculating short-circuit current in three-phase systems: calculation variables to IEC 60909.
    3. Electrical installation equipment.
    4. Grounding systems.
    5. Reactive power compensation equipments.
    6. Earthing schemes: TT, TN and IT systems
3. HV systems:
    1. Design of high and médium voltage installations.
    2. HV equipment.
    3. Grounding systems.
    4. Fundamentals of insulation coordination.

## 4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website and the Moodle platform https://moodle.unizar.es

## 4.5.Bibliography and recommended resources