

Academic Year/course: 2021/22

30014 - Basic principles of electrical technology

Syllabus Information

Academic Year: 2021/22

Subject: 30014 - Fundamentos de electrotecnia

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 436 - Bachelor's Degree in Industrial Engineering Technology

ECTS: 6.0

Year: 2

Semester: First semester

Subject Type: Compulsory

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology of the course has been designed on the basis that the course is at the beginning of the syllabus set of electrical/electronic courses and hence it will be followed by a wide range of students. The number of credits assigned by the syllabus to the course imposes optimize the quantity and quality of knowledge that students should acquire with it.

Theoretical concepts and practical problems will be taught in the 3 hours a week's lectures. Several laboratory sessions will serve to link theory with practice and a way to learn the use of basics measurement instruments.

However, to encourage student's continuous work, as well as to gain feedback about the learning outcomes acquired by them, several assessment tasks and activities will be scheduled throughout the semester.

4.2. Learning tasks

There are several types of activities along the semester

- Master classes with theoretical content as well as resolution of exercises
- Seminars devoted to exercises resolution in a collaborative manner
- Sets of exercises to be solved and corrected by the students on their own
- Test exams
- Five lab sessions with the following contents
 - Session 1: DC circuits (I)
 - Session 2: DC circuits (II)
 - Session 3: AC circuits (I)
 - Session 4: AC circuits (II)
 - Session 5: Three phase circuits

4.3. Syllabus

The course will address the following topics:

- 1.- Fundamental quantities and elements of the circuit
- 2.- Direct current circuits. Analysis methods
- 3.- Steady-state in AC circuits
- 4.- Introduction to three-phase systems
- 5.- Power in AC circuits
- 6.- Ideal magnetic coupling

4.4. Course planning and calendar

Masterclasses: 3 hours a week

Lab sessions: 5 sessions, 3 hours each

The time the student is expected to employ in the subject is as follows:

- Masterclasses: 45 hours
- Lab sessions and lab exams: 17 hours
- Exams and test: 5 hours
- Exercise resolution on their own: 40 hours
- Personal study: 43 hours

4.5. Bibliography and recommended resources

Link:

http://biblos.unizar.es/br/br_citas.php?codigo=30014&year=2019