

## 29614 - Electric Circuits: Analysis

### Syllabus Information

**Academic Year:** 2020/21

**Subject:** 29614 - Electric Circuits: Analysis

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 430 - Bachelor's Degree in Electrical Engineering

**ECTS:** 6.0

**Year:** 2

**Semester:** 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 learning process designed for this course is as follows**

The learning process will be developed on three levels: lectures, problem-solving classes and laboratory sessions, including student participation in a growing level. Lectures will be used to teach Circuit Theory fundamentals providing a high number of practical examples. Students will be assigned personal work to be completed and corrected in the problem-solving classes. Finally, reduced groups will assist in the lab sessions where the students will have the possibility of applying acquired knowledge.

#### 4.2.Learning tasks

**The course program, offered for helping the student to fulfill the foreseen results, includes the next activities.**

##### **Lectures (30 in-class hours).**

Fundamental concepts of Circuit Theory will be presented to the students. They will be completed and explained with real examples. Student participation will be favored with questions and short discussions.

##### **Problem solving classes (15 in-class hours).**

Problems will be assigned to the students for their solution. They will be aligned with the theoretical contents of the course. Student homework previous to in-class solving all the problems will be favored.

**Laboratory sessions (15 lab hours).**

The student will design, simulate, assemble and verify how the proposed circuits work in the lab. A guide will be provided for that, with a previous part consisting of some theoretical calculations that should be done as homework.

**Other activities**

Some other activities with a mix of in-class and homework could be assigned to the student.

**Evaluation (3 in-class hours).**

The evaluation is used not only for grading the students but also to provide them with some feedback about their progress in the course.

**Tutorial sessions.**

The students will meet with their teacher to have direct attention, detect learning problems, guiding, problems and homework supervision ...

**Homework (18 homework hours).**

Problems, exercises and practical cases will be presented to the students periodically for their solution. These could be downloaded from the course web page (<http://moodle2.unizar.es>). Lab sessions preparation and extraordinary activities are also included in this category.

**Individual study (70 hours).**

Students' continuous work will be favored with a homogeneous distribution of the learning activities during the semester.

### 4.3.Syllabus

**The course program is divided in four sections**

- Sinusoidal steady-state power calculations
- Three-phase circuits
- Two port circuits
- Transients

### 4.4.Course planning and calendar

**In-class sessions schedule**

Lectures, problem-solving sessions, and laboratory sessions are scheduled following the timetable fixed by the faculty and published prior to the course beginning (<http://eina.unizar.es>)

Each teacher will inform about his or her tutory timetable

Other activities will be planned taking into account the students number and they will be published in advance in the course webpage <http://moodle2.unizar.es>

### 4.5.Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=29614&Identificador=13317>