

29635 - Fundamentals of Electrical Engineering

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	1
Semester	Second 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 is based on:

The learning process is developed in three main levels: theoretical lectures, practical lectures and lab practices. Theoretical lectures are devoted to present the basis of Circuit Analysis, showing examples. Practical lectures are dedicated to show type problems, so the student can analyze similar situations. The lab practices are taken place in small groups, so the student can implement the knowledge acquired in lectures.

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5.2.Learning tasks

The course offered to the student includes these activities:

Theoretical lectures (30 presential hours)

Basis and concepts of electrical circuit analysis are presented, showing real examples. The student participation is encouraged through small questions and discussions. The contents to develop are detailed in the program.

Practical lectures(15 presential hours)

Type problems are presented, promoting the student participation, and coordinated with the theoretical lectures. Some of these lectures can be intended for the assessment of learning activities.

Lab practices (15 presential hours)

The student estimates, simulates, mounts and checks the operation of electrical circuits in the laboratory. The student has to prepare previously the script practice. Some of these hours can be intended for the assessment of learning activities.

Other evaluable activities

These activities consist of personal student work as well as presential hours (included in previous sections).

Assessment (3 presential hours)

Its main purpose is to obtain a mark, but it is also a learning tool, so the student can check his comprehension and assimilation level.

Tutorials

They are devoted to direct care to the student, to identify learning problems, to guide throughout the subject, to attend and solve exercises and assignments...

Supervised works (18 non presential hours).

The student has to analyze exercises and problems on his own or in groups. These hours include the preparation of lab practices and additional activities.

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Personal study (70 non presential hours).

Continuous study is encouraged by a uniform distribution of learning activities throughout the semester.

5.3.Syllabus

CHAPTER 1: FUNDAMENTAL QUANTITIES AND CIRCUIT ELEMENTS

CHAPTER 2: CIRCUIT ANALYSIS METHODS. APPLICATION IN RESISTIVE NETWORKS

CHAPTER 3: STEADY STATE IN AC CIRCUITS

CHAPTER 4: MAGNETIC COUPLING BETWEEN COILS

CHAPTER 5: POWER IN AC CIRCUITS

5.4.Course planning and calendar

Scheduling of presential lectures and presentation of assignments

Theoretical and practical lectures, as well as laboratory practices, are held according to the timetable set by the Faculty, and they are published before the start date of the course (<http://eina.unizar.es>).

The lecturer will report about his tutorial timetable.

Other activities will be planned according to the number of students and they will be announced with sufficient time. They will be available in <http://moodle.unizar.es>

5.5.Bibliography and recommended resources

[BB: Bibliografía básica / BC: Bibliografía complementaria]

- [BB] Circuitos eléctricos para la ingeniería / Antonio J. Conejo ... [et al.] . Madrid [etc.] : McGraw-Hill, D.L. 2004
- [BB] Nilsson, James W.. Circuitos eléctricos / James W. Nilsson, Susan A. Riedel . 7ª ed. Madrid : Pearson Educación, 2005
- [BC] Edminister, Joseph A.. Circuitos eléctricos / Joseph A. Edminister, Mahmood Nahvi ; traducción, Rafael Sanjurjo Navarro, Eduardo Lázaro Sánchez, Pablo de Miguel Rodríguez . 3ª ed. Madrid [etc.] : McGraw-Hill, D.L. 2001

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- [BC] Hayt, William Hart, Jr. : Análisis de circuitos en ingeniería / William H. Hayt, Jr., Jack E. Kemmerly, Steven M. Durbín ; revisión técnica , Gloria Mata Hernández, Nathan Witemberg Wudka, Alejandro Vega Salinas . - 8ª ed. México [etc.] : McGraw Hill, cop. 2012
- [BC] Teoría de circuitos / preparada por Valentín M. Parra Prieto ... [et al.] . 7ª ed., 9ª reimp. Madrid : Universidad Nacional de Educación a Distancia, imp. 2002