Course guide
220019 - CE - Electrical Circuits

Last modified: 19/04/2023

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 709 - DEE - Department of Electrical Engineering.

Degree: BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Compulsory subject).
BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: SANTIAGO BOGARRA RODRIGUEZ

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE17-GRETA. GrETA/GrEVA - An adequate understanding of the following, as applied to engineering: fundamental elements of the various types of aircraft; functional elements of air navigation systems and related electrical and electronic installations; the basics of the design and construction of airports and their various elements
CE13-GRETA. GrETA/GrEVA - An understanding of the uniqueness of airports in terms of infrastructure, structures and operation
CE17-GREVA. (ENG) Coneixement adequat i aplicat a l'enginyeria de: els elements fonamentals dels diversos tipus d'aeronaus; els elements funcionals del sistema de navegació aèria i les instal·lacions elèctriques i electròniques associades; els fonaments del disseny i construcció d'aeroports i els seus diversos elements.

Basic:
CB05. That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

TEACHING METHODOLOGY

b

LEARNING OBJECTIVES OF THE SUBJECT

e

STUDY LOAD

Type	Hours	Percentage
Hours small group	14,0	9.33
Self study	90,0	60.00
Hours medium group	14,0	9.33
Hours large group	32,0	21.33

Total learning time: 150 h

CONTENTS

(ENG) 1. Anàlisi de circuits en règim permanent

Description:
(ENG) 1.1. Introducció als circuits elèctrics.
1.2. Corrent altern.
1.3. Elements pasius i actius.
1.4. Corrent no sinusoïdal.
1.5. Aplicacions.

Specific objectives:
(ENG) Els conceptes que es desenvolupen són bàsics i han de capacitar l'alumne per:
- Conèixer i saber utilitzar les magnituds elèctriques.
- Conèixer i saber utilitzar els elements ideals dels circuits elèctrics.
- Conèixer i saber utilitzar les lleis fonamentals que permeten analitzar un circuit elèctric.

Related activities:
(ENG) 1, 2, 3, 4, 5

Full-or-part-time: 44h
Theory classes: 10h
Practical classes: 4h
Laboratory classes: 4h
Self study : 26h

(ENG) 2, Tècniques d'anàlisi de circuits elèctrics

Full-or-part-time: 32h
Theory classes: 6h
Practical classes: 3h
Laboratory classes: 2h
Self study : 21h

(ENG) 3. Sistemas trifásicos

Full-or-part-time: 38h
Theory classes: 8h
Practical classes: 4h
Laboratory classes: 4h
Self study : 22h

(ENG) 4. Anàlisi transitori de circuits elèctrics

Full-or-part-time: 36h
Theory classes: 8h
Practical classes: 3h
Laboratory classes: 4h
Self study : 21h

ACTIVITIES

(ENG) ACTIVITAT 1. SESSIONS DE TEORIA

Full-or-part-time: 60h
Theory classes: 28h
Self study: 32h

(ENG) ACTIVITAT 2. SESSIONS DE PRÀCTIQUES

Full-or-part-time: 42h
Practical classes: 14h
Self study: 28h

(ENG) ACTIVITAT 3. EXERCICI PRÀCTIC

Full-or-part-time: 8h
Self study: 8h

(ENG) ACTIVITAT 3. SESSIONS DE LABORATORI

Full-or-part-time: 28h
Laboratory classes: 14h
Self study: 14h

(ENG) ACTIVITAT 4. QÜESTIONARIS D'AUTOAVALUACIÓ

Full-or-part-time: 8h
Self study: 8h

(ENG) ACTIVITAT 6. EXAMEN PARCIAL

Full-or-part-time: 2h
Theory classes: 2h

(ENG) ACTIVITAT 7. EXAMEN FINAL

Full-or-part-time: 2h
Theory classes: 2h

GRADING SYSTEM

The subject evaluation will be weighted in the following way:
- 20% Exercises, problems and self-assessment questionnaires
- 10% Laboratory practices
- 30% Partial exam
- 40% Final exam.

The unsatisfactory results of the partial exam may be redirected through written at day of the final exam.
However, the exercises will be carried out by all students enrolled in the course.
The qualification obtained (between 0 and 10) will replace the initial qualification as long as it is superior.

EXAMINATION RULES.

b

BIBLIOGRAPHY

Basic:

- Irwin, J. David. Análisis básico de circuitos en ingeniería. 6a ed. México: Limusa Wiley, 2003. ISBN 9681862953.
- Dorf, Richard C. [et al.]. Circuitos eléctricos: introducción al análisis y diseño. 3a ed. México: Alfaomega, 2000. ISBN 9701505174.
- Alabern, X. [et al.]. Circuitos eléctricos: problemas. Barcelona: Edicions UPC, 2006. ISBN 8483018594.
- Alabern, X. [et al.]. Electrotecnia: problemas [on line]. 2a ed. Barcelona: Edicions UPC, 2006 [Consultation: 19/05/2020]. Available on: http://hdl.handle.net/2099.3/36760. ISBN 8483018691.

Complementary:

- Sanjurjo Navarro, Rafael [et al.]. Teoría de circuitos eléctricos. Madrid: McGraw-Hill, 1997. ISBN 8448111338.
- Sánchez, Paulino [et al.]. Teoría de circuitos: problemas y pruebas objetivas orientadas al aprendizaje. Madrid: Pearson Educación, 2007. ISBN 9788483223871.