Last update: 23-04-2019

220019 - Electrical Circuits

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering

Teaching unit: 709 - EE - Department of Electrical Engineering

Academic year: 2019

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

ECTS credits: 6 Teaching languages: Spanish

Teaching staff

Coordinator: Antoni Font

Others: Bogarra Rodriguez, Santiago

Degree competences to which the subject contributes

Specific:

1. 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

Teaching methodology

b

Learning objectives of the subject

e

Study load

Total learning time: 150h	Hours large group:	32h	21.33%
	Hours medium group:	14h	9.33%
	Hours small group:	14h	9.33%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

(ENG) 1. Anàlisi de circuits en règim permanent

Learning time: 44h

Theory classes: 10h
Practical classes: 4h
Laboratory classes: 4h
Self study : 26h

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.

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

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.

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

Learning time: 32h

Theory classes: 6h
Practical classes: 3h
Laboratory classes: 2h
Self study : 21h

(ENG) 3. Sistemas trifásicos

Learning time: 38h

Theory classes: 8h
Practical classes: 4h
Laboratory classes: 4h
Self study : 22h

(ENG) 4. Anàlisi transitori de circuits elèctrics

Learning time: 36h

Theory classes: 8h
Practical classes: 3h
Laboratory classes: 4h
Self study : 21h

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Planning of activities

(ENG) ACTIVITAT 1. SESSIONS DE TEORIA	Hours: 60h Theory classes: 28h Self study: 32h
(ENG) ACTIVITAT 2. SESSIONS DE PRÀCTIQUES	Hours: 42h Practical classes: 14h Self study: 28h
(ENG) ACTIVITAT 3. EXERCICI PRÀCTIC	Hours: 8h Self study: 8h
(ENG) ACTIVITAT 3. SESSIONS DE LABORATORI	Hours: 28h Laboratory classes: 14h Self study: 14h
(ENG) ACTIVITAT 4. QÜESTIONARIS D'AUTOAVALUACIÓ	Hours: 8h Self study: 8h
(ENG) ACTIVITAT 6. EXAMEN PARCIAL	Hours: 2h Theory classes: 2h
(ENG) ACTIVITAT 7. EXAMEN FINAL	Hours: 2h Theory classes: 2h

Qualification 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.

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Regulations for carrying out activities

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: 08/01/2016]. 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.