Last update: 03-07-2019

330103 - AC - Circuit Analysis

Coordinating unit: 330 - EPSEM - Manresa School of Engineering

Teaching unit: 750 - EMIT - Department of Mining, Industrial and ICT Engineering

Academic year: 2019

Degree: BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)

ECTS credits: 6 Teaching languages: Catalan

Teaching staff

Coordinator: JOSEP FONT TEIXIDO

Degree competences to which the subject contributes

Specific:

1. (ENG) Adquirir els conceptes bàsics per a la resolució de circuits eléctrics i electrònics.

2. (ENG) Dissenyar i simular circuits electrònics.

Transversal:

3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
4. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
5. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
6. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
7. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

Learning objectives of the subject

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Study load

Total learning time: 150h	Hours large group:	45h	30.00%
	Hours medium group:	0h	0.00%
	Hours small group:	15h	10.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

(ENG) Contingut 1: FONAMENT I/O REVISIÓ DE CONCEPTES	Learning time: 15h Theory classes: 4h Laboratory classes: 2h Self study : 9h
(ENG) Contingut 2: AMPLIFICADOR OPERACIONAL	Learning time: 15h Theory classes: 4h Laboratory classes: 2h Self study : 9h
(ENG) Contingut 3: ELEMENTS REACTIUS PASSIUS (CONDENSADOR - INDUCTOR)	Learning time: 5h Theory classes: 2h Self study : 3h
(ENG) Contingut 4: CIRCUITS RC I RL AMB GENERADOR CONSTANT (ANÀLISI AMB EQUACIONS DIFERENCIALS)	Learning time: 15h Theory classes: 4h Laboratory classes: 2h Self study : 9h
(ENG) Contingut 5: ANÀLISI DE CIRCUITS AMB TRANSFORMADA DE LAPLACE	Learning time: 40h Theory classes: 12h Laboratory classes: 4h Self study : 24h
(ENG) Contingut 6: ANÀLISI EN RÈGIM PERMANENT SENOIDAL	Learning time: 20h Theory classes: 6h Laboratory classes: 2h Self study : 12h

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(ENG) Contingut 7: CIRCUITS AMB GENERADORS PERIÒDICS NO SENOIDALS	Learning time: 15h Theory classes: 5h Laboratory classes: 1h Self study : 9h

(ENG) Contingut 8: RESPOSTA EN FREQÜÈNCIA. DIAGRAMES DE BODE	Learning time: 25h Theory classes: 8h Laboratory classes: 2h Self study : 15h

Planning of activities

(ENG) ACTIVITAT 1: RESOLUCIÓ DE PROBLEMES, EN GRUP DE 2 ESTUDIANTS	Hours: 65h Laboratory classes: 15h Self study: 50h

(ENG) ACTIVITAT 2: PROVA ESCRITA	Hours: 22h Theory classes: 2h Self study: 20h

(ENG) ACTIVITAT 3: PROVA ESCRITA	Hours: 22h Theory classes: 2h Self study: 20h

Bibliography

Basic:

Thomas, R. E.; Rosa, A. J. Circuitos y señales: una introducción a los circuitos lineales y de acoplamiento. Barcelona: Reverté, 2002. ISBN 8429134581.

Complementary:

Irwin, J. David. Análisis básico de circuitos en ingeniería. 6ª ed. México: Limusa Wiley, 2003. ISBN 9681862953.

Others resources: