

340124 - ELAN-K5010 - Analogue Electronics

Coordinating unit:	340 - EPSEVG - Vilanova i la Geltrú School of Engineering
Teaching unit:	710 - EEL - Department of Electronic Engineering
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
ECTS credits:	6
Teaching languages:	Catalan, Spanish

Teaching staff

Coordinator:	PEDRO FRANCISCO GAYA SUÑER
Others:	- PEDRO FRANCISCO GAYA SUÑER

Prior skills

It is necessary to have a certain knowledge about both discrete and integrated analog devices (diodes, transistors and operational amplifiers).

It is also recommended to have advanced skills on electrical circuits analysis and the use of circuit simulation software.

Requirements

Sistemes Electrònics (SIEK)

Degree competences to which the subject contributes

Specific:

1. CE20. Fundamental knowledge and application of analogue electronics.
2. CE24. Ability to design electronical, analog, digital and power systems.
3. CE25. Knowledge and ability of systems modeling and simulation.

Transversal:

4. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
5. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

Teaching methodology

The methodology is structured in both theory classes and laboratory classes, which include lectures and laboratory activities.

Learning objectives of the subject

At the end of the course, the student should be able to:

340124 - ELAN-K5010 - Analogue Electronics

- determine the normal behaviour of an analog circuit.
- design the components of an electronic system so that it develops an analog function to accomplish some specifications.
- use electronic simulation software to understand the behaviour of analog circuits and design component values.
- mount, verify and test analog circuits.

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%

Content

	Learning time: 60h Theory classes: 18h Laboratory classes: 6h Self study : 36h
Description:	
	Learning time: 51h Theory classes: 15h Laboratory classes: 6h Self study : 30h
Description:	
	Learning time: 39h Theory classes: 12h Self study : 27h
Description:	

340124 - ELAN-K5010 - Analogue Electronics

Qualification system

The course includes regular assignments consisting in activities in the laboratory (NLab), and two exams (NEx1 and NEx2).

The final grade (NF) is calculated by means of the following expression:

$$NF=0,4*NEx1+0,4*NEx2+0,2*NLab$$

Regulations for carrying out activities

The exams will be individually developed by the student.

All the lab activities must be done to pass the course. A follow-up will be taken into account as part of the student evaluation in his lab activities.

Bibliography

Basic:

Sedra, Adel S. Microelectronic circuits. New York ; Oxford: Oxford University Press, 2011. ISBN 9780199738519.

Horowitz, Paul. The Art of electronics. 3rd ed. New York: Cambridge University Press, 2015. ISBN 9780521809269.

Rashid, Muhammad H. Circuitos microelectrónicos : análisis y diseño. Madrid: International Thomson, 2002. ISBN 8497320573.