Course guide
340124 - ELAN-K5O10 - Analogue Electronics

Last modified: 31/03/2025

Unit in charge:	Vilanova i la Geltrú School of Engineering
Teaching unit:	710 - EEL - Department of Electronic Engineering.

Degree:	BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).
	BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Compulsory subject).
	BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).

Academic year: 2025   **ECTS Credits:** 6.0   **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: 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 he course, the student should be able to:

- determine the normal behaviour of an analog circuit.
- design the components of an electronic system so that it developes 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

Type	Hours	Percentage
Hours large group	45,0	30.00
Hours small group	15,0	10.00
Self study	90,0	60.00

Total learning time: 150 h

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Description:

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Full-or-part-time: 60h
Theory classes: 18h
Laboratory classes: 6h
Self study : 36h

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Description:

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Full-or-part-time: 51h
Theory classes: 15h
Laboratory classes: 6h
Self study : 30h

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Description:

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Full-or-part-time: 39h
Theory classes: 12h
Self study : 27h

GRADING 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

EXAMINATION RULES.

The exams will be individualy developed by the student.
All the lab activities must be done to pass the course. A follow-up will be taken into acount as part of the student evaluation in his lab activities.

BIBLIOGRAPHY

Basic:

- Sedra, Adel S. Microelectronic circuits. 7th. New York: Oxford University Press, 2016. ISBN 9780199339143.
- 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.

BIBLIOGRAPHY