



COMILLAS

UNIVERSIDAD PONTIFICIA

ICAI

ICADE

CIHS

Syllabus
2025 - 2026

GENERAL INFORMATION

Data of the subject	
Subject name	Electronic Circuits
Subject code	DEA-GITT-211
Main program	Bachelor's Degree in Engineering in Telecommunication Technologies
Involved programs	Grado en Ingeniería en Tecnologías de Telecomunicación [Second year] Grado en Ingeniería en Tecnologías de Telecom. y Grado en Análisis de Negocios/Business Analytics [Second year]
Quarter	Semestral
Credits	6,0 ECTS
Type	Obligatoria (Grado)
Department	Department of Electronics, Control and Communications
Coordinator	Juan Carlos Maroto Carro
Office hours	By appointment

Teacher Information	
Teacher	
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DESCRIPTION OF THE SUBJECT

Contextualization of the subject



Prerequisites

Basic knowledge of electric circuits: resistive circuits, first-order circuits, and AC steady-state analysis of circuits.

Course contents

Contents

Theory:

Fifty minute lectures, three times per week. The following topics will be discussed in class.

1. **Form and Function.** Block diagrams. Signal spectrum. Sensors and transducers. Basic electronic subsystems: amplifiers, filters, detectors, comparators.
2. **Operational Amplifiers and their applications.** Voltage and current amplifiers, comparators.
3. **Filters.** Low-pass and high-pass RC filters. Frequency response: Bode plots.
4. **Diodes.** Rectifiers and detectors.
5. **Design of an Electronic System.**

Laboratory:

Lab meets two hours every other week to explore the design, construction, and debugging of an analog electronic system. Students will use resistors, capacitors, diodes, and operational amplifiers to design a low-power electronic system to process a physical signal (light, temperature,...).

EVALUATION AND CRITERIA

The use of AI to produce full assignments or substantial parts thereof, without proper citation of the source or tool used, or without explicit permission in the assignment instructions, will be considered plagiarism and therefore subject to the University's General Regulations.

Grading

There will be two midterm exams, a final exam and lab work. Final exam will be cumulative, although the bulk of the exam will cover material from the last ten weeks of class. The overall grade is obtained as follows:

- Midterm I will be during the 4th week: 10% of the final grade.
- Midterm II will be during the 8th week: 25% of the final grade.
- Final exam will be taken during the finals period: 40% of the final grade.
- Lab work: 25% of the final grade.

Students who do not pass this course will take a make-up exam. In this case, the final grade will be obtained as follows:

- Make-up exam will account for 50% of the final grade, midterms, for 25%, and lab work, for 25%.

BIBLIOGRAPHY AND RESOURCES



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Basic References

Theory

Sedra, Smith. Microelectronic Circuits, 7th edition, Oxford University Press, 2015.

Laboratory

A lab manual will be made available to all students. We also recommend: **Hayes, Horowitz.** Student Manual for the Art of Electronics. Cambridge Univ. Press. 1989.

In compliance with current regulations on the **protection of personal data**, we would like to inform you that you may consult the aspects related to privacy and data that you have accepted on your registration form by entering this website and clicking on "download"

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