



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 [Segundo Curso] Grado en Ingeniería en Tecnologías de Telecom. y Grado en Análisis de Negocios/Business Analytics [Segundo Curso] Grado en Ingeniería en Tecnologías de Telecom. y Grado en Análisis de Negocios/Business Analytics [Segundo Curso]
Level	Intercambio
Quarter	Semestral
Credits	6,0 ECTS
Type	Obligatoria (Grado)
Department	Department of Electronics, Control and Communications
Coordinator	José Luis Rodríguez Marrero
Office hours	By appointment

Teacher Information	
Teacher	
Name	José Luis Rodríguez Marrero
Department	Department of Electronics, Control and Communications
Office	Alberto Aguilera 25 [D-305]
E-Mail	marrero@icai.comillas.edu
Phone	2419
Teacher	
Name	Juan Carlos Maroto Carro
Department	Department of Electronics, Control and Communications
E-Mail	jcmaroto@icai.comillas.edu
Profesores de laboratorio	
Teacher	
Name	Luis Ángel Pérez Sanz
Department	Department of Electronics, Control and Communications
E-Mail	lperez@icai.comillas.edu
Teacher	
Name	Raúl Velasco Valencia
Department	Department of Electronics, Control and Communications

EEmail

raul.velasco@icai.comillas.edu

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

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

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"

<https://servicios.upcomillas.es/sedelectronica/inicio.aspx?csv=02E4557CAA66F4A81663AD10CED66792>