1. BASIC INFORMATION

Course	Fundamentals of Electronics
Degree program	Bachelor's Degree in Industrial Systems Engineering
School	School of Architecture, Engineering, Science and Computing
Year	2
ECTS	6
Credit type	Mandatory
Language(s)	English
Delivery mode	Face to face
Semester	S2
Academic year	25-26
Coordinating professor	Verónica Egido

2. PRESENTATION

In this subject, the basic principles of electronics, both analogue and digital, are acquired. The aim is to understand the basic concepts of semiconductors applied to electronics (a topic previously seen in Materials Science), and to consolidate the knowledge acquired in "Circuit Theory".
The objective is for the student to know the different procedures, tools and methodology of this discipline in order to solve real problems.

3. LEARNING OUTCOMES

Knowledge

KNO8: Knowledge of the fundamentals of electronics

- Describe the operation of analog electronics components
- Identify the applications of digital electronics
- Identify Converter Operation

Skills

SK17: Ability to apply the fundamentals and applications of electronics

- Solve analog circuits problems
- Simulate the operation of electronic circuits
- Solve practical applications of combined and sequential circuits

Competences

CP14: Integrate analysis with critical thinking in a process of evaluating different ideas or professional possibilities and their potential for error, based on evidence and objective data that lead to effective and valid decision-making.

4. CONTENT

- Semiconductors: basic properties and diodes
- Direct current transistors
- Basic principles of op-amps
- Introduction to digital electronics
- Combined and sequential circuits
- A/D & D/A converters

5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- Master class
- Problem based learning
- Workshop-based learning
- Simulation environments

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Campus-based mode:

Learning activity	Number of hours
Master classes	10
Practical seminars	20
Problem solving	34
Written reports and essays	6
Workshop and/or laboratories activities	10
Autonomous study	60
Debates and panel discussions	5
Face-to-face assessment test	5
TOTAL	**150**

7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Campus-based mode:

Assessment system	Weight min. %	Weight max.%
Face-to-face assessment test	50	60
Written reports and essays	0	10
Case/problem	15	40
Performance evaluation	5	5
Laboratory/workshop notebook	5	10

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Campus-based mode:

Assessable activities	Deadline
Carrying out different work, problems and application exercises, reports of laboratory practices, reports of visits, conferences and workshops carried out and, work Collaborative	Weeks 1-15
Active participation (issues and problems proposed and discussed in the classroom or in the subject forum)	Weeks 1-15
Intermediate Written Tests	Week 8-9
Final project of the subject	Week 13-15
Final exam of the subject	Week 16

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. BIBLIOGRAPHY

- Robert L. Boylestad. Louis Nashelsky, "Electrónica: teoría e circuitos y dispositivos electrónicos" Pearson Educación, 2003

- T. L. FLOYD. "Digital Fundamentals", 11th Edition. Harlow (England):Pearson Education, cop. 2015

- Natarajan, Dhanasekharan. “Fundamentals of Digital Electronics”, Cham:Springer International Publishing, 2020

- Albert Paul Malvino “Principios de Electrónica” McGraw-Hill 1994

- Tools manuals and chip datasheets used in the course

10. EDUCATIONAL GUIDANCE, DIVERSITY AND INCLUSION UNIT

From the Educational Guidance, Diversity and Inclusion Unit we offer support to our students throughout their university life to help them reach their academic achievements. Other main actions are the students inclusions with specific educational needs, universal accessibility on the different campuses of the university and equal opportunities.

From this unit we offer to our students:

1. Accompaniment and follow-up by means of counselling and personalized plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made in terms of methodology and assessment for those students with specific educational needs, pursuing an equal opportunities for all students.
3. We offer students different extracurricular resources to develop different competences that will encourage their personal and professional development.
4. Vocational guidance through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of degree.

Students in need of educational support can write to us at:

orientacioneducativa@universidadeuropea.es

11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.