



1. General information

Course: DIGITAL ELECTRONICS I**Type:** CORE COURSE**Degree:** 418 - UNDERGRAD. IN INDUSTRIAL ELECTRONICS AND AUTOMAT. ENGINEERING**Center:** 303 - E.DE INGENIERÍA INDUSTRIAL Y AEROSPOACIAL DE TOLEDO**Year:** 3**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 56504**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 40**Duration:** First semester**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** JOSE MANUEL GILPEREZ AGUILAR - Group(s): 40

Building/Office	Department	Phone number	Email	Office hours
Sabatini 1.57	INGENIERÍA ELÉCTRICA, ELECTRÓNICA, AUTOMÁTICA Y COMUNICACIONES	5721	josemanuel.gilperez@uclm.es	Available at https://www.uclm.es/es/toledo/EIIA/Informacion_academica¿

2. Pre-Requisites

In order to take this course to the best advantage, the student must have acquired the knowledge derived from obtaining the skills related to the use and programming of computers, operating systems, databases and computer programs with application in engineering, as well as as with the fundamentals of electronics and the principles of circuit theory.

3. Justification in the curriculum, relation to other subjects and to the profession

The Digital Electronics I subject allows the student to obtain a basic level of knowledge in digital circuits, providing the necessary skills to face and solve problems related to the analysis and design of digital systems of small and medium complexity. Likewise, it is the foundation of other subjects that will be taught later throughout the degree, such as Digital Electronics II, Industrial Computing, Electronic Instrumentation and Industrial Automation, as well as optional subjects.

4. Degree competences achieved in this course

Course competences

Code	Description
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
CEE03	Knowledge of the fundamentals and applications of digital electronics and microprocessors.
CEE06	Ability to design analogue, digital and power electronic systems.
CEE07	Knowledge and capacity for systems modeling and simulation.
CG03	Knowledge of basic and technological subjects to facilitate learning of new methods and theories, and provide versatility to adapt to new situations.
CG04	Ability to solve problems with initiative, decision-making, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of industrial engineering.
CT02	Knowledge and application of information and communication technology.
CT03	Ability to communicate correctly in both spoken and written form.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Capacity to analyse, design, model and simulate combinational and sequential digital circuits, using basic elements, functional blocks and hardware description languages (HDL).

6. Units / Contents

Unit 1: INTRODUCTION TO DIGITAL SYSTEMS**Unit 2: NUMBERING SYSTEMS AND INFORMATION CODING****Unit 3: LOGICAL FAMILIES****Unit 4: COMBINATIONAL LOGIC****Unit 5: SEQUENTIAL LOGIC**

Unit 6: PROGRAMMABLE LOGIC DEVICES
Unit 7: MEMORIES
7. Activities, Units/Modules and Methodology

Training Activities, Outcomes and Methodology							
Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	CEE03 CEE06 CEE07 CG03 CT02	1.2	30	N	-	Lectures in the classroom according to the contents of the program.
Class Attendance (practical) [ON-SITE]	Problem solving and exercises	CB02 CB03 CB05 CEE03 CEE06 CEE07 CG03 CG04 CT02	0.4	10	N	-	Exercise classes and problems in the classroom.
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	CB02 CB03 CB04 CB05 CEE03 CEE06 CEE07 CG03 CG04 CT02 CT03	0.6	15	Y	Y	Laboratory practices.
Formative Assessment [ON-SITE]	Assessment tests	CB02 CB03 CB04 CB05 CEE03 CEE06 CEE07 CG03 CG04 CT02 CT03	0.2	5	Y	N	Tests of the assimilation of concepts and procedures.
Study and Exam Preparation [OFF-SITE]	Self-study	CB02 CB03 CB04 CB05 CEE03 CEE06 CEE07 CG03 CG04 CT02 CT03	3.6	90	N	-	Autonomous work of the student
Total:			6	150			
Total credits of in-class work: 2.4			Total class time hours: 60				
Total credits of out of class work: 3.6			Total hours of out of class work: 90				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Mid-term tests	60.00%	0.00%	Compulsory tests within the continuous assessment to facilitate passing the subject, where in each test a block of subject content is evaluated. Failure to do so causes the student to go to non-continuous mode.
Assessment of problem solving and/or case studies	15.00%	15.00%	Resolution of problems and proposed cases to be delivered on the date indicated within the continuous evaluation.
Laboratory sessions	25.00%	25.00%	The laboratory practices must be delivered in the calendar established with the corresponding report.
Final test	0.00%	60.00%	Assessment of the assimilation of concepts and procedures through the final test within the non-continuous assessment. It includes both the evaluation of the subject blocks of the continuous evaluation and the resolution of problems and cases in the same test.
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:
Continuous assessment:

It will correspond to the weighted average of the qualifications obtained in the partial tests, resolution of problems or cases and realization of laboratory practices.

Non-continuous evaluation:

It will correspond to the weighted average of the qualifications obtained in the final test, resolution of problems or cases and realization of laboratory practices.

Specifications for the resit/retake exam:

The evaluation criteria in the extraordinary call are the same as those used in the non-continuous evaluation of the ordinary call.

Specifications for the second resit / retake exam:

No evaluation criteria have been introduced.

9. Assignments, course calendar and important dates

Not related to the syllabus/contents	
Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	30
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	10
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	15
Formative Assessment [PRESENCIAL][Assessment tests]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Global activity	
Activities	hours
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	15

Class Attendance (theory) [PRESENCIAL][Lectures]	30
Formative Assessment [PRESENCIAL][Assessment tests]	5
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	10
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Taub, H. y D. Schilling	Electrónica Digital Integrada	Marcombo Boixareu Editores		9788426703859	1984	
Nelson, V. P., H. T. Nagle, B. D. Carroll y J. D. Irwin	Análisis y diseño de circuitos lógicos digitales	Prentice Hall		9688807060	1996	
Mandado, E. y Martín, J.L.	Sistemas electrónicos digitales	Marcombo		9788426721983	2015	
Floyd, Thomas L.	Fundamentos de sistemas digitales	Prentice Hall		9788490353004	2016	
Wakerly, J. F.	Diseño digital. Principios y Prácticas	Prentice Hall		9701704045	2001	