

**1. General information****Course:** COMPUTER ARCHITECTURE**Type:** ELECTIVE**Degree:** 417 - UNDERGRAD. IN INDUSTRIAL ELECTRONICS AND AUTOMAT. ENGINEERING**Center:** 602 - E.T.S. INDUSTRIAL ENGINEERING OF C. REAL**Year:** 4**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 56518**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 20**Duration:** First semester**Second language:** English**English Friendly:** Y**Bilingual:** N**2. Pre-Requisites**

Not established

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

Not established

4. Degree competences achieved in this course**Course competences**

Code	Description
CB01	Prove that they have acquired and understood knowledge in a subject area that derives from general secondary education and is appropriate to a level based on advanced course books, and includes updated and cutting-edge aspects of their field of knowledge.
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
CEO20	Knowledge of hardware and software required to develop specialised computer systems for automation and robotics applications.
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.
CT01	Knowledge of a second language.
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

Ability to design and implement discrete signal processing systems on a computer.

Ability to select and program microcontrollers in the design of embedded control systems.

Knowledge and use of design and synthesis flows on programmable and configurable devices.

6. Units / Contents**Unit 1: Introduction****Unit 2: The microprocessor****Unit 3: Use of microprocessor-based systems (Raspberry Pi)****Unit 4: Input/Output Systems****Unit 5: Advanced Architectures****Unit 6: The microcontroller****Unit 7: Prototyping of microcontroller based systems (Arduino)****7. Activities, Units/Modules and Methodology**

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures		1	25	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises		0.6	15	Y	N	

Laboratory practice or sessions	Practical or hands-on activities		0.6	15	Y	Y
Formative Assessment [ON-SITE]	Assessment tests		0.2	5	Y	Y
Study and Exam Preparation [OFF-SITE]	Self-study		3.6	90	N	-
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
Laboratory sessions	35.00%	35.00%	
Projects	20.00%	20.00%	
Test	45.00%	45.00%	
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).

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	25
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
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]	25
Formative Assessment [PRESENCIAL][Assessment tests]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Andrés García	El Control Automático en la Industria	Ediciones de la Universidad de Castilla-La Mancha		84-8427-405-5	2005	
Christopher T. Kilian	Modern Control Technology: Components and Systems	Delmar Thomson Learning		978-0766823587	2000	2nd edition
Hennessy, J. L. y D. A. Patterson	Computer Architecture. A Quantitative Approach	Morgan Kaufmann, Elsevier	Amsterdam	978-0-12-383873-5	2012	5th edition
Ortega, J., Anguita, M. y A. Prieto	Arquitectura de computadores	Thomson	Madrid	978-8497322744	2005	
Stallings, W.	Organización y Arquitectura de Computadores	Pearson Prentice Hall	Madrid	978-84-8966-082-3	2012	