



1. General information

Course: INDUSTRIAL COMPUTER SYSTEMS**Type:** CORE COURSE**Degree:** 360 - UNDERGRAD. IN INDUSTRIAL ELECTRONICS AND AUTOMAT. ENGINEERING (TO)**Center:** 303 - E.DE INGENIERÍA INDUSTRIAL Y AEROSPOACIAL DE TOLEDO**Year:** 3**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 56507**ECTS credits:** 6**Academic year:** 2021-22**Group(s):** 40**Duration:** First semester**Second language:** English**English Friendly:** Y**Bilingual:** N**Lecturer:** JUAN MORENO GARCIA - Group(s): 40

Building/Office	Department	Phone number	Email	Office hours
Sabatini / 1.56	TECNOLOGÍAS Y SISTEMAS DE INFORMACIÓN	926051653	juan.moreno@uclm.es	

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
A04	To be able to transmit information, ideas, problems and solutions to a specialized audience.
A05	To have developed the learning skills necessary to undertake subsequent studies with a greater degree of autonomy.
A07	Knowledge of Information Technology and Communication (ITC).
A08	Appropriate level of oral and written communication.
A12	Knowledge of basic materials and technologies that assist the learning of new methods and theories and enable versatility to adapt to new situations.
A13	Ability to take the initiative to solve problems, take decisions, creativity, critical reasoning and ability to communicate and transmit knowledge, skills and abilities in Industrial Engineering and Automation.
D05	Applied knowledge of electronic instrumentation.
D10	Applied knowledge of industrial computing and communications.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Know the characteristics of industrial peripherals

Know the basic structure of an information system in the work environment

Ability to design and implement SCADA type monitoring systems

Ability to design communication systems in the industrial environment

Ability to plan interconnecting networks between devices in a production system using fieldbuses

Ability to plan an application based on real-time systems

6. Units / Contents

Unit 1:

Unit 1.1

Unit 1.2

Unit 2:**Unit 3:****Unit 4:****Unit 5:**

Unit 5.1

Unit 5.2

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	A07 A12 D05 D10	0.8	20	N	-	
Class Attendance (practical) [ON-SITE]	Problem solving and exercises	A07 A12 D05 D10	0.6	15	N	-	
Class Attendance (practical) [ON-SITE]	Guided or supervised work	A05 A07 A12 D05 D10	0.6	15	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	A04 A05 A07 A08 A12 A13 D05 D10	3.6	90	N	-	
Progress test [ON-SITE]	Assessment tests	A04 A05 A07 A08 A12 A13 D05 D10	0.2	5	Y	Y	
Final test [ON-SITE]	Assessment tests	A08 A12 A13 D05 D10	0.2	5	Y	Y	
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
Final test	0.00%	65.00%	
Final test	0.00%	35.00%	
Total:	0.00%	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
Unit 1 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	4
Class Attendance (practical) [PRESENCIAL][Guided or supervised work]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	18
Unit 2 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	2
Class Attendance (practical) [PRESENCIAL][Guided or supervised work]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	12
Unit 3 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	4
Class Attendance (practical) [PRESENCIAL][Guided or supervised work]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	12
Unit 4 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	3
Class Attendance (practical) [PRESENCIAL][Guided or supervised work]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	12
Progress test [PRESENCIAL][Assessment tests]	2.5
Unit 5 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	6
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	5
Class Attendance (practical) [PRESENCIAL][Guided or supervised work]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	11
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	21
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	18
Class Attendance (practical) [PRESENCIAL][Guided or supervised work]	13
Study and Exam Preparation [AUTÓNOMA][Self-study]	65
Progress test [PRESENCIAL][Assessment tests]	2.5
Total horas: 119.5	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Burns, Alan. Wellings, Andy	Sistemas de tiempo real y lenguajes de programación	Pearson Addison- Wesley		8478290583	2003	De uso en Tema 4 Sistemas de Control en Tiempo Real.
Castro Gil, Alonso. Otros.	Comunicaciones industriales: sistemas distribuidos y aplicados	Universidad Nacional de Educación a Distancia		978-84-362-5467-9	2007	De uso en Tema 5: Comunicaciones industriales.
Coulouris, George	Sistemas distribuidos: conceptos y diseño	Addison-Wesley		978-84-7829-049-9	2007	De uso en Tema 6: Sistemas Informáticos Distribuidos.
Gottfried, Byron S.	Programación en C	McGraw-Hill Interamericana de España		84-481-9846-8	2005	Uso general, especialmente en prácticas con programación.
Miguel Anasagasti, Pedro de	Fundamentos de computadores	Thompson		84-9732-136-7	2002	De uso en Tema 3.1: Fundamentos de Computadores.
Rodríguez Penin, Aquilino	Sistemas SCADA: guía práctica	Marcombo		978-84-267-1455-8	2007	De uso en Tema 2: Sistemas SCADA.
Tanenbaum, Andrew S.	Redes de computadoras	Pearson Educación		970-26-0162-2	2003	De uso en Tema 5: Comunicaciones industriales.
Torres Carot, Vicente. Campelo Rivadulla, José Carlos. Rodríguez Ballester, Francisco.	Periféricos e Interfaces Industriales.	Universidad Politécnica De Valencia.		8477214743	2003	De uso en Tema 3.2: Periféricos Industriales.