



1. General information

Course: INDUSTRIAL COMPUTER SYSTEMS**Type:** CORE COURSE**Degree:** 416 - UNDERGRADUATE DEGREE PROGRAMME IN INDUSTRIAL ELECTRONICS AND AUTOMATION ENG**Center:** 605 - SCHOOL OF INDUSTRIAL ENGINEERS. AB**Year:** 3**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 56507**ECTS credits:** 6**Academic year:** 2022-23**Group(s):** 14 12**Duration:** First semester**Second language:** English**English Friendly:** Y**Bilingual:** N**Lecturer:** AURELIO BERMUDEZ MARIN - Group(s): 12

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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
CEE10	Applied knowledge of industrial computing and communications.
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.
CG06	Ability to handle specifications, regulations and mandatory standards.
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

Capacity to plan interconnection networks between devices of a production system using fieldbuses.

Capacity to plan an application based on real-time systems.

Capacity to design and implement SCADA-type monitoring systems

Capacity to design communication systems in industry.

Knowledge of the basic structure of a computer system in industry.

Knowledge of the characteristics of industrial peripherals.

6. Units / Contents

Unit 1:

Unit 1.1

Unit 1.2

Unit 1.3

Unit 2:
 Unit 2.1
 Unit 2.2
 Unit 2.3
 Unit 2.4
 Unit 3:
 Unit 4:
 Unit 4.1
 Unit 4.2
 Unit 5:
 Unit 5.1
 Unit 6:
 Unit 6.1

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	CB01 CB02 CB03 CB04 CB05 CEE10 CG03 CG04 CG06 CT01 CT02 CT03	1.2	30	N	-	
Class Attendance (theory) [ON-SITE]	Problem solving and exercises	CB01 CB02 CB03 CB04 CB05 CEE10 CG03 CG04 CG06 CT01 CT02 CT03	0.4	10	N	-	
Laboratory practice or sessions [ON-SITE]	Problem solving and exercises	CB01 CB02 CB03 CB04 CB05 CEE10 CG03 CG04 CG06 CT01 CT02 CT03	0.6	15	N	-	
Study and Exam Preparation [OFF-SITE]	Self-study	CB01 CB02 CB03 CB04 CB05 CEE10 CG03 CG04 CG06 CT01 CT02 CT03	3.6	90	N	-	
Laboratory practice or sessions [ON-SITE]	Assessment tests	CB01 CB02 CB03 CB04 CB05 CEE10 CG03 CG04 CG06 CT01 CT02 CT03	0.1	2.5	Y	Y	
Final test [ON-SITE]	Assessment tests	CB01 CB02 CB03 CB04 CB05 CG03 CG04 CG06 CT01 CT02 CT03	0.1	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
Practical exam	40.00%	40.00%	
Test	60.00%	60.00%	
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]	30
Class Attendance (theory) [PRESENCIAL][Problem solving and exercises]	10
Laboratory practice or sessions [PRESENCIAL][Problem solving and exercises]	15
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Laboratory practice or sessions [PRESENCIAL][Assessment tests]	2.5
Final test [PRESENCIAL][Assessment tests]	2.5
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	30
Class Attendance (theory) [PRESENCIAL][Problem solving and exercises]	10
Laboratory practice or sessions [PRESENCIAL][Problem solving and exercises]	15
Laboratory practice or sessions [PRESENCIAL][Assessment tests]	2.5
Final test [PRESENCIAL][Assessment tests]	2.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Pedro de Miguel Anasagasti	Fundamentos de los Computadores	Ediciones Paraninfo, S.A		9788497322942	2004	
A. Burns y A. Wellings	Sistemas de tiempo real y lenguajes de programación	3ª Edición Pearson Addison-Wesley		978-84-782-9058-1	2003	
A. Creus	Simulación y Control de Procesos por Ordenador	2ª Edición, Editorial Marcombo		978-84-267-1455-8	2007	
A. Rodríguez	Sistemas SCADA	3ª Edición, Editorial Marcombo		978-84-267-1781-8	2012	
A. S. Tanenbaum	Redes de computadoras	4ª Edición Pearson Prentice Hall		978-97-026-0162-3	2003	
B. Gottfried	Programación en C. Serie Schaum	2ª Ed. Revisada McGraw-Hill		978-84-481-9846-6	2005	
G. Coulouris, J Dollimore y T. Kindberg	Sistemas distribuidos: conceptos y diseño	3ª Edición Pearson Addison-Wesley		978-84-782-9049-9	2001	
H. Schildt	C. Manual de referencia	4ª Edición McGraw-Hill		978-97-010-4770-5	2001	
J. Domingo Peña, J. Gámiz Caro, A. Grau i Saltes y H. Martínez García	Comunicaciones en el entorno industrial	UOC		978-84-978-8004-6	2003	
M. A. Castro Gil, F. Mur Pérez, G. Díaz Orueta y R. Sebastián Fernández	Comunicaciones industriales: sistemas distribuidos y aplicaciones	UNED		978-84-362-5467-9	2007	
V. Guerrero, R. Yuste y L. Martínez	Comunicaciones industriales	Marcombo		978-84-267-1574-6	2010	
W. Bolton	Mecatrónica. Sistemas de control electrónico en la ingeniería mecánica y electrónica	4ª Edición Alfa Omega		978-60-778-5432-6	2010	