



1. General information

Course: COMPUTER CONTROLLED SYSTEMAS

Type: CORE COURSE

Degree: 359 - UNDERGRAD. IN INDUSTRIAL ELECTRONICS AND AUTOMAT. ENGINEERING (CR)

Center: 602 - E.T.S. INDUSTRIAL ENGINEERING OF C. REAL

Year: 3

Main language: Spanish

Use of additional languages:

Web site:

Code: 56412

ECTS credits: 6

Academic year: 2023-24

Group(s): 20 40 41

Duration: C2

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: VICENTE FELIU BATLLE - Group(s): 20

Building/Office	Department	Phone number	Email	Office hours
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Lecturer: FRANCISCO RAMOS DE LA FLOR - Group(s): 20

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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
A02	To know how to apply knowledge to work or vocation in a professional manner and possess the competences that are usually demonstrated by the formulation and defence of arguments and the resolution of problems in the field of study.
A03	To have the capability to gather and interpret relevant data (normally within the area of study) to make judgements that include a reflection on themes of a social, scientific or ethical nature.
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 Electronic Engineering and Automation.
A15	Ability to work to specifications and comply with obligatory rules and regulations.
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
D08	Knowledge of automatic regulation and control techniques and their application to industrial automatization.
D11	Ability to design control and industrial automatization systems.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Ability to reconstruct continuous signals from a sample signal

Ability to design systems of control and industrial automatization

Master the techniques of design of discrete control systems through the discretization of continuous regulators and through transfer functions in z

Analyze the dynamic and static response of a discrete system

Be able to make and simplify block diagrams in variable z

Know and correctly interpret the stability criteria of discrete systems

6. Units / Contents

Unit 1:

Unit 2:

Unit 3:

Unit 4:

Unit 5:

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	1.2	30	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CB01 CB02 CB03	0.4	10	N	-	
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	CB01 CB02 CB03	0.6	15	N	-	
Formative Assessment [ON-SITE]	Assessment tests		0.2	5	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CB01 CB02 CB03 CB04 CB05	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
Mid-term tests	60.00%	0.00%	
Projects	20.00%	20.00%	
Assessment of activities done in the computer labs	20.00%	20.00%	
Final test	0.00%	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
Formative Assessment [PRESENCIAL][Assessment tests]	5
Unit 1 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	2
Unit 2 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	9
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	20
Unit 3 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	7
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	25
Unit 4 (de 5):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	16
Unit 5 (de 5):	
Activities	Hours

Class Attendance (theory) [PRESENCIAL][Lectures]	7
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	6
Study and Exam Preparation [AUTÓNOMA][Self-study]	27
Global activity	
Activities	hours
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	10
Formative Assessment [PRESENCIAL][Assessment tests]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Class Attendance (theory) [PRESENCIAL][Lectures]	30
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Katsuhiko Ogata	Sistemas de Control en Tiempo Discreto	Ed. Pearson, Prentice Hall			1996	
M. Sami Fadali, Antonio Visioli	Digital Control Engineering	Academic Press		9780123943910	2012	
C.L. Phillips, H. Nagle	Sistemas de Control Digital. Análisis y Diseño	Gustavo Gili		978-8425213359	1993	
Oscar Reinoso; José María Sebastián; Rafael Aracil y Fernando Torres	Control de Sistemas Discretos	Mc Graw Hill		9788448142049	2004	
C. Valdivia Miranda	Sistemas de control continuos y discretos	Paraninfo		978-8428307444	2012	
K.J. Aström y B. Wittenmark	Computer-Controlled Systems. Theory and Design	Prentice Hall			1997	