UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: PROCESS CONTROL AND FACTORY AUTOMATION
Code: 310628
Type: CORE COURSE
ECTS credits: 6
Degree: 2328 - MASTERS DEGREE PROGRAMME IN INDUSTRIAL ENGINEERING
Academic year: 2019-20
Center: 605 - SCHOOL OF INDUSTRIAL ENGINEERS. AB
Group(s): 10 11 20 21
Year: 1
Duration: C2
Main language: Spanish
Second language: English
Use of additional languages:
English Friendly: N
Web site:
Bilingual: Y

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

Building/Office	Department	Phone number	Email	Office hours
Edificio Politécnico, 2-A02	INGENIERÍA ELÉCTRICA, ELECTRÓNICA, AUTOMÁTICA Y COMUNICACIONES	Vía Teams	vicente.feliu@uclm.es	Se publicarán al principio del curso

Lecturer: **ANDRES GARCIA HIGUERA** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Politécnico/A01 - Coordinador	INGENIERÍA ELÉCTRICA, ELECTRÓNICA, AUTOMÁTICA Y COMUNICACIONES	926 29 54 60	andres.garcia@uclm.es	Se publicará al inicio del curso

Lecturer: **PABLO PEDREGAL TERCERO** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
2-A21	MATEMÁTICAS	926295436	pablo.pedregal@uclm.es	Se informará a comienzo del curso

Lecturer: **PEDRO LUIS RONCERO SANCHEZ-ELIPE** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Edificio Politécnico, 2-D03	INGENIERÍA ELÉCTRICA, ELECTRÓNICA, AUTOMÁTICA Y COMUNICACIONES	Vía Teams	pedro.roncero@uclm.es	Se comunicará a través del campus virtual y el tablón de anuncios

Lecturer: **ANDRES SALOMON VAZQUEZ FERNANDEZ PACHECO** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Edificio Politécnico 2-B02	INGENIERÍA ELÉCTRICA, ELECTRÓNICA, AUTOMÁTICA Y COMUNICACIONES	Vía Teams	andress.vazquez@uclm.es	Se publicará al inicio del curso

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
A01	To have appropriate knowledge of the scientific and technological aspects of mathematical, analytical and numerical methods in engineering, electrical engineering, energy engineering, chemical engineering, mechanical engineering, continuous medium mechanics industrial electronics, automation, manufacturing, materials, quantitative management methods, industrial computing, town planning, infrastructures, etc.
A02	To plan, calculate and design products, processes, facilities and plants.
A04	To conduct research, development and innovation in products, processes and methods.
B08	Ability to design and plan automated production and advanced process control systems.
CB06	Knowledge and skills to organise and manage enterprises.
CB07	Strategy and planning knowledge and skills applied to different organisational structures.
CB09	Knowledge of financial and costs accounting.
CB10	Knowledge of information systems for management, industrial organisation, production, logistics and quality management systems.
D04	Knowledge and abilities to plan and design electrical and fluid installations, lighting, heating and ventilation, energy saving and efficiency, acoustics, communications, domotics, Smart buildings and security installations.
D06	Knowledge and ability to perform verification and supervision of installations, processes and products.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Gain knowledge of the systems used in process control and production automation.

Develop criteria to select the best solution for a specific problem.
Acquire the knowledge required to understand process control design.
Acquire basic knowledge required for tasks in production automation projects.

6. Units / Contents

Unit 1:
Unit 2:
Unit 3:
Unit 4:
Unit 5:
Unit 6:

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	R	Description
Class Attendance (theory) [ON-SITE]	Lectures	A01 A02 A04 B08 D04 D06	0.72	18	N	-	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	A01 A02 A04 B08 D04 D06	0.6	15	N	-	-	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	A01 A02 A04 B08 D04 D06	0.32	8	Y	Y	Y	
Workshops or seminars [ON-SITE]	Workshops and Seminars	A01 A02 A04 B08 D04 D06	0.08	2	N	-	-	
Study and Exam Preparation [OFF-SITE]	Self-study	A01 A02 A04 B08 D04 D06	1.52	38	N	-	-	
Writing of reports or projects [OFF-SITE]	Guided or supervised work	A01 A02 A04 B08 D04 D06	1.6	40	Y	N	N	
Practicum and practical activities report writing or preparation [OFF-SITE]	Practical or hands-on activities	A01 A02 A04 B08 D04 D06	0.48	12	Y	Y	Y	
Individual tutoring sessions [ON-SITE]		A01 A02 A04 B08 D04 D06	0.44	11	N	-	-	
Progress test [ON-SITE]	Assessment tests	A01 A02 A04 B08 D04 D06	0.16	4	Y	N	Y	
Final test [ON-SITE]	Assessment tests	A01 A02 A04 B08 D04 D06	0.08	2	Y	N	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
R: Rescheduling training activity

8. Evaluation criteria and Grading System

	Grading System		
Evaluation System	**Face-to-Face**	**Self-Study Student**	**Description**
Progress Tests	50.00%	50.00%	
Practicum and practical activities reports assessment	20.00%	20.00%	
Theoretical papers assessment	15.00%	15.00%	
Laboratory sessions	15.00%	15.00%	
Final test	50.00%	50.00%	
Total:	**150.00%**	**150.00%**	

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	**hours**
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	2
Progress test [PRESENCIAL][Assessment tests]	4
Final test [PRESENCIAL][Assessment tests]	2

Unit 1 (de 6):

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	3
Individual tutoring sessions [PRESENCIAL][]	1

Unit 2 (de 6):

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	4

Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	9
Practicum and practical activities report writing or preparation [AUTÓNOMA][Practical or hands-on activities]	1
Individual tutoring sessions [PRESENCIAL][]	2

Unit 3 (de 6):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	10
Practicum and practical activities report writing or preparation [AUTÓNOMA][Practical or hands-on activities]	2
Individual tutoring sessions [PRESENCIAL][]	2

Unit 4 (de 6):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	7
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	10
Practicum and practical activities report writing or preparation [AUTÓNOMA][Practical or hands-on activities]	3
Individual tutoring sessions [PRESENCIAL][]	2

Unit 5 (de 6):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	10
Practicum and practical activities report writing or preparation [AUTÓNOMA][Practical or hands-on activities]	3
Individual tutoring sessions [PRESENCIAL][]	2

Unit 6 (de 6):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	7
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	10
Practicum and practical activities report writing or preparation [AUTÓNOMA][Practical or hands-on activities]	3
Individual tutoring sessions [PRESENCIAL][]	2

Global activity	
Activities	**hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	18
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	8
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	38
Writing of reports or projects [AUTÓNOMA][Guided or supervised work]	40
Practicum and practical activities report writing or preparation [AUTÓNOMA][Practical or hands-on activities]	12
Individual tutoring sessions [PRESENCIAL][]	11
Progress test [PRESENCIAL][Assessment tests]	4
Final test [PRESENCIAL][Assessment tests]	2
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Andrés García Higuera	El Control Automático en la Industria	UCLM	Cuenca	84-8427-405-5	2005	
C. A. Smith y A. Corripio	Principles and Practice of Automatic Process Control	John Wiley & Sons			2005	3rd edition
J.A. Somolinos, R. Morales, E. Tremps	Fundamentos de la ingeniería de control	Editorial Universitaria Ramón Areces		978-84-9961-142-6	2013	
K. J. Aström y R. M. Murray	Feedback Systems: An Introduction for Scientists and Engineers http://www.cds.caltech.edu/~murray/amwiki	Princeton University Press			2011	Electronic edition Version 2.10e