



1. General information

Course: INDUSTRIAL AUTOMATION

Type: CORE COURSE

Degree: 418 - UNDERGRAD. IN INDUSTRIAL ELECTRONICS AND AUTOMAT. ENGINEERING

Center: 303 - E.DE INGENIERÍA INDUSTRIAL Y AEROSPOACIAL DE TOLEDO

Year: 3

Main language: Spanish

Use of additional languages:

Web site:

Code: 56508

ECTS credits: 6

Academic year: 2023-24

Group(s): 41

Duration: C2

Second language:

English Friendly: Y

Bilingual: N

Lecturer: FERNANDO JOSE CASTILLO GARCIA - Group(s): 41

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2. Pre-Requisites

To take this subject to the best advantage, the student must have acquired the knowledge derived from obtaining the skills related to the subjects of mathematics, physics, computer science, graphic expression, electrical and electronic technology, automatic regulation, machine theory and mechanisms, electronic instrumentation and digital electronics and microprocessors.

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

The Industrial Automation subject allows students to acquire the ability to design industrial automation and control systems that, complemented with those acquired in other specific subjects, will facilitate the application of their skills in the world of work or research and, ultimately, will help the engineer to face the problems that will arise throughout the exercise of the profession. Therefore, this subject is an important part of the training of a future graduate in Industrial Electronic Engineering and Automation.

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
CEE11	Ability to design control and automatic industrial systems.
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

Ability to design industrial automation and control systems

6. Units / Contents

Unit 1: Introduction to Industrial Automation

Unit 2: Technology and architecture of the automatisms

Unit 3: Logical design of automatisms

Unit 4: Programming automatisms

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	CB04 CEE11 CG03 CG04 CG06 CT01 CT02 CT03	1.2	30	N	-	
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)	CB01 CB02 CB03 CB04 CB05 CEE11 CG03 CG04 CG06 CT02 CT03	0.4	10	N	-	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	CB01 CB02 CB03 CB04 CB05 CEE11 CG03 CG04 CG06 CT01 CT02 CT03	0.6	15	Y	Y	
Formative Assessment [ON-SITE]	Assessment tests	CB01 CB02 CEE11 CG03 CG04 CG06 CT03	0.2	5	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CB01 CB02 CB03 CB04 CB05 CEE11 CG04	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	40.00%	40.00%	Personalized practices on automatisms and logical behavior. It is required to obtain a grade equal to or greater than 4.0 to pass the subject
Final test	60.00%	60.00%	It will include theoretical-practical questions and/or the resolution of problems related to the contents of the subject.
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).

Evaluation criteria for the final exam:

Continuous assessment:

The final mark will be obtained as the ponderate mean of the theoretical and practical parts

Non-continuous evaluation:

The final mark will be obtained as the ponderate mean of the theoretical and practical parts

Specifications for the resit/retake exam:

The final mark will be obtained as the ponderate mean of the theoretical and practical parts

9. Assignments, course calendar and important dates

Not related to the syllabus/contents	
Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	30
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	10
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
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	10
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	15
Class Attendance (theory) [PRESENCIAL][Lectures]	30
Formative Assessment [PRESENCIAL][Assessment tests]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
E. Mandado Pérez y otros	Autómatas programables. Entorno y aplicaciones	Paraninfo		9788497323284	2994	
F. Reyes y otros	Mecatrónica: Control y Automatización	Alfaomega		9789586829632	2013	
F. Ojeda	Automatización con Grafcet y Autómata Programable: Problemas Ra-Ma resueltos			978-84-9964-811-8	2019	