[MHA201] INDUSTRIAL AUTOMATION

GENERAL INFORMATION

Studies	UNIVERSITY MASTER IN INDUSTRIAL ENGINEERING			**Subject**	?
Semester	1	**Course**	1	**Mention / Field of specialisation**	
Character	COMPULSORY				
Plan	2022	**Modality**	Face-to-face	**Language**	CASTELLANO
Credits	4,5	**Hours/week**	2.78	**Total hours**	50 class hours + 62.5 non-class hours = **112.5 total hours**

PROFESSORS

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REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
BASIC INDUSTRIAL AUTOMATION	*(No previous knowledge required)*

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
MHRA02 - To project, calculate and design integrated manufacturing systems		*x*		0,72
MHRA08 - To design and project automated production systems and advanced process control		*x*		3,2
MHRA28 - To communicate your conclusions and the knowledge and ultimate reasons that support them to specialized and non-specialized audiences in a clear and unambiguous way		*x*		0,16
MHRA30 - To work with people, involving and directing them in a dynamic aimed at a common objective that includes reflection on their ethical and social responsibility, with a global vision of the work to be carried out and the characteristics that it requires (quality, deadlines,...), assuming responsibility for the decisions made		*x*		0,16
MHR126 - To apply the knowledge acquired and your problem-solving skills in new, little-known or changing environments within broader (or multidisciplinary) contexts related to your area of study		*x*		0,26
			Total:	**4,5**

KC: Knowledge or Content / SK: Skills / AB: Abilities

ENAEE LEARNING RESULTS	ECTS
ENA124 - Knowledge and comprehension: Deep knowledge and comprehension of the engineering disciplines of their speciality, at the level necessary to acquire the rest of the competencies of the degree.	0,5
ENA125 - Knowledge and comprehension: Critical Possession of avant-garde knowledge of their speciality.	0,5
ENA127 - Analysis in engineering: Ability to analyse new and complex engineering products, processes and systems within a broader multidisciplinary context; select and apply the most appropriate analysis, calculation and experimental methods already established, as well as innovative methods; and critically interpret the results of such analyses.	0,5
ENA129 - Analysis in engineering: Ability to identify, formulate and solve engineering problems defined incompletely, and/or with conflicts, which accept different valid solutions and require considering knowledge beyond those of their discipline and take into account the social, health and security, environmental, economic and industrial implications; to select and apply the most appropriate methods of analysis, calculation and experimental, as well as the most innovative methods for solving problems.	0,5
ENA132 - Engineering projects: Ability to project while applying the knowledge and cutting-edge understanding of their engineering speciality.	0,5
ENA137 - Research and innovation: Ability to investigate the application of the most advanced technologies in their speciality.	0,5
ENA140 - Practical application of engineering: Complete knowledge of application of materials, equipment and tools, engineering technology and processes, and their limitations.	0,5
ENA146 - Communication and Teamwork: Ability to employ different methods to communicate their conclusions, clearly and unambiguously, and the knowledge and logical foundations that support them, to audiences specialised and not specialised in the issue, in domestic and international contexts.	0,5
ENA147 - Communication and Teamwork: Ability to operate effectively in domestic contexts as a member or leader of a team, which may be composed of people of different disciplines and levels, and who can use virtual communication tools.	0,5
Total:	**4,5**

CONTENTS

PLC programming

- Numerical processing- Analogue signals-Local and global data modules (Struct and UDT data types)- functions - Interrupts

HMI

-Configuration of an HMI-Programming of graphical interfaces-Alarms and historical data-Recipes and Trends-User administration

Industrial communications

- TCP-IP architecture

- Profinet

- OPC-UA

Machine safety

-Directives and standards (2006/42/EC, CE marking,UNE-EN ISO12.100, UNE-EN ISO 13849-1:2008)-System software (PL>=PLr check)-PLC safety programming

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes	Penín AR. Sistemas Scada-Guía Práctica. Marcombo; 2007
Topic related web quires	Pérez EM, Acevedo JM, Silva CF. Autómatas programables y sistemas de automatización. Marcombo; 2009
Moodle Platform	
Programmes	
Computer practical training	
Slides of the subject	