

[MRA007] MACHINE SAFETY

GENERAL INFORMATION

Studies	Master's Degree in ROBOTICS AND CONTROL SYSTEMS	Subject	Automation
Semester	2	Course	1
Character	OPTIONAL	Mention / Field of specialisation	AUTOMATION
Plan	2019	Modality	Adapted Face-to-face
Credits	3	Hours/week	0
		Language	CASTELLANO
		Total hours	40 class hours + 35 non-class hours = 75 total hours

PROFESSORS

ZALDIBIA GARATE, JOSEBA EDORTA

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	(No previous knowledge required)

SKILLS

VERIFICA SKILLS

SPECIFIC

MRCE07 - Developing the study that validates the technical solution regarding the requirements of current safety regulations in machines and applying solutions based on safety PLCs according to defined specifications

GENERAL

MRCG01 - Automating, controlling, maintaining and providing intelligence to industrial processes and autonomous systems while directing innovative projects that guarantee their availability, using and integrating cutting-edge technologies in both industrial and scientific environments, with the ability to deliver advice on the most appropriate alternatives considering the specifications of users and current regulations

CROSS

MRCTR1 - Ability to work in multidisciplinary teams and in a multilingual environment and to communicate, both orally and in writing, knowledge, procedures, results and ideas related to subjects related to the Master's degree

MRCTR2 - Ability to do their job with a cooperative and participatory attitude, while being socially responsible

BASIC

M_CB7 - To know how to apply the acquired knowledge and competencies and the ability to solve problems in new or unfamiliar contexts within wider (or multidisciplinary) environments related to their field of study

LEARNING RESULTS

RA071 The ability to carry out the study and to validate the technical solution that meets current machine safety requirements using the relevant tools, working individually and in multidisciplinary teams

LEARNING ACTIVITIES

	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	4 h.	12 h.	16 h.
Individual study and work, tests and evaluations and check points	3 h.		3 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.		6 h.
Individual and team solving of exercises, problems, and practices	5 h.	5 h.	10 h.

EVALUATION SYSTEM

	W
Individual written and oral tests to assess technical skills of the subject	40%
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	35%
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	25%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject

Comments: All activities (control points, individual and group work, etc.) must have a minimum grade of 5 and an opportunity for recovery (except the PBL). In unapproved training activities (less than 5) the recovery is compulsory and the final grade will be the grade obtained in the recovery. In the activities carried out it is necessary to obtain a minimum mark of 4 to calculate the average mark of the learning result. Otherwise, the note of the learning result will be that of the suspended activity. The system will calculate the final grade with the RA, applying the percentages defined in IKOF.

CH - Class hours: 18 h.

NCH - Non-class hours: 17 h.

TH - Total hours: 35 h.

RA072 The ability to implement and validate the control program through the safety automaton considering the required technical solution, collaborating actively to evaluate and assume the social responsibility implicit in the proposal and solving the probl

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Development, writing and presentation of memorandums, reports, audiovisual material, etc.	4 h.	8 h.	12 h.
Relating to projects/POPBLs carried out individually or in teams			
Individual study and work, tests and evaluations and check points	3 h.		3 h.
Individual or team workshop and/or lab practice	6 h.		6 h.
Classroom presentations of relevant concepts and procedures in participatory environments	9 h.	10 h.	19 h.

EVALUATION SYSTEM

	<i>W</i>
Individual written and oral tests to assess technical skills of the subject	40%
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	25%
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	35%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject

Comments: All activities (control points, individual and group work, etc.) must have a minimum grade of 5 and an opportunity for recovery (except the PBL). In unapproved training activities (less than 5) the recovery is compulsory and the final grade will be the grade obtained in the recovery. In the activities carried out it is necessary to obtain a minimum mark of 4 to calculate the average mark of the learning result. Otherwise, the note of the learning result will be that of the suspended activity. The system will calculate the final grade with the RA, applying the percentages defined in IKOF.

CH - Class hours: 22 h.

NCH - Non-class hours: 18 h.

TH - Total hours: 40 h.

CONTENTS

1.-European and International legislation Framework
 2.-Tools for the calculation of the PL Performance Level
 3.-Safety equipment
 4.-Safety Controllers (PLC Safety)
 5.-Analysis of Practical Applications

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Presentations by external Lecturers
 Subject notes
 Topic related web quires
 Moodle Platform
 Programmes
 Student book

Bibliography

AUTOMATAS PROGRAMABLES Y SISTEMAS DE AUTOMATIZACION; Autores: MANDADO, Enrique - ACEVEDO, Jorge – FERNANDEZ, Celso - ARMESTO, José Editorial: Marcombo ISBN: 978-84-267-1575-3