

[GJH202] BASIC INDUSTRIAL AUTOMATION

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING		Subject	?
Semester	2	Course	3	Mention / Field of specialisation
Character	COMPULSORY		Language	CASTELLANO/EUSKARA
Plan	2022	Modality	Face-to-face	Total hours
Credits	3	Hours/week	2.5	45 class hours + 30 non-class hours = 75 total hours

PROFESSORS

AZKARATE FERNANDEZ, IGOR
 DOK-ZUBIETA ANSORREGUI, JON

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GJR305 - To know the fundamentals of automation and automated systems	x			2,6
G-RTR1 - To develop interdisciplinary projects specific to their specialty and of gradual complexity, - becoming aware of respect for human rights and fundamental rights, and analyzing and assessing the impact of the proposed solutions on the SDGs - to acquire and/or apply basic, advanced and /or avant-garde, demonstrating the ability to work in multidisciplinary teams and/or undertake further studies with a high degree of autonomy		x		0,16
G-RTR2 - To express information, ideas and the arguments that support them in an orderly, clear and coherent manner, orally and in writing, based on quality information, self-made or obtained from different sources, using inclusive and non-discriminatory language		x		0,24
Total:				3

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

SECONDARY LEARNING RESULTS

RGJ390 [!] *Definir y gestionar los objetivos y la planificación de un proyecto que le permita adquirir y/o reforzar los conocimientos de tecnologías específicas de su especialidad,- que en ocasiones llegan a la vanguardia del conocimiento- y definir una estrate*

LEARNING ACTIVITIES

	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	1 h.	1 h.	2 h.

EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%

MAKE-UP MECHANISMS

(No mechanisms)
Comments: Continuous assessment. Retake is not foreseen.

CH - Class hours: 1 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 2 h.

RGJ391 [!] *Coordinar el equipo de trabajo, estimulando la cohesión y buen clima para lograr la integración de todas las personas y su contribución para alcanzar un rendimiento apropiado, tanto a nivel individual como grupal, para el desarrollo del proyecto en*

LEARNING ACTIVITIES

	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	1 h.	1 h.	2 h.

EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory	100%

MAKE-UP MECHANISMS

(No mechanisms)
Comments: Continuous assessment. Retake is not foreseen.

exercises, term projects, challenges and problems

CH - Class hours: 1 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 2 h.

RGJ393 [!] *Elabora la memoria del proyecto, aportando argumentos elaborados y haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje.*

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	2 h.	1 h.	3 h.

EVALUATION SYSTEM

	<i>W</i>
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%

MAKE-UP MECHANISMS

(No mechanisms)
Comments: Revision and correction of the written report of the semester project

CH - Class hours: 2 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 3 h.

RGJ394 [!] *Realiza una presentación oral del proyecto, justificando las soluciones propuestas con argumentos elaborados y precisos, y haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje.*

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	2 h.	1 h.	3 h.

EVALUATION SYSTEM

	<i>W</i>
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%

MAKE-UP MECHANISMS

(No mechanisms)
Comments: Continuous assessment. Retake is not foreseen.

CH - Class hours: 2 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 3 h.

RGJ314 [!] *Programa y desarrolla funciones avanzadas del autómata programables (funciones numéricas, parametrizables y señales analógicas)*

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	2 h.	2 h.	4 h.
Computer simulation exercises, individually and/or in teams	7 h.	4 h.	11 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	4 h.	1 h.	5 h.

EVALUATION SYSTEM

	<i>W</i>
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	25%

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests
Comments: If the grade for the control point is lower than 5, a

Individual written and/or oral tests or individual coding/programming tests

75%

recovery will be carried out. In this case, the final mark will be composed of 25% of the control point + 75% of the recovery.

Comments: In order to be able to take the individual test, it is compulsory to have handed in all the class exercises.

CH - Class hours: 13 h.

NCH - Non-class hours: 7 h.

TH - Total hours: 20 h.

RGJ3315 [!] *Desarrolla programas estructurados en autómatas programables*

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

5 h.

3 h.

8 h.

Computer simulation exercises, individually and/or in teams

15 h.

14 h.

29 h.

Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects

6 h.

2 h.

8 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

25%

Individual written and/or oral tests or individual coding/programming tests

Individual written and/or oral tests or individual coding/programming tests

75%

Comments: If the grade for the control point is lower than 5, a recovery will be carried out. In this case, the final mark will be composed of 25% of the control point + 75% of the recovery.

Comments: In order to be able to take the individual test, it is compulsory to have handed in all the class exercises.

CH - Class hours: 26 h.

NCH - Non-class hours: 19 h.

TH - Total hours: 45 h.

CONTENTS

GRAFCET methodology application to PLCs:

- Contact diagram programming (review).
- Structured text programming.

Analog signals.

Data blocks and function blocks.

Indirect addressing.

PID control.

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Bibliography

Subject notes

Topic related web quires

Moodle Platform

Programmes

Autómatas programables y sistemas de automatización. Barcelona. Marcombo.

PECIÑA, L. 2018. Programación de controladores avanzados SIMATIC S7 1500 con TIA Portal AWL y SCL. Marcombo Formación

YUSTE, R. L. 2017. Autómatas programables SIEMENS Grafset y Guía Gemma con TIA Portal. Barcelona. Marcombo

http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_Ink.pl?grupo=MECATRONICA32&ejecuta=5&_ST