

[GJH102] BASIC INDUSTRIAL AUTOMATION

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING		Subject ?
Semester	2	Course	3
Character	COMPULSORY		Mention / Field of specialisation
Plan	2020	Modality	Adapted Face-to-face
Credits	3	Hours/week	2.5
		Language	CASTELLANO
		Total hours	45 class hours + 30 non-class hours = 75 total hours

PROFESSORS

AZKARATE FERNANDEZ, IGOR
 ZUBIETA ANSORREGUI, JON

REQUIRED PREVIOUS KNOWLEDGE

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

SKILLS

VERIFICA SKILLS

SPECIFIC

GJCE12 - Knowledge of the foundations of automation and automated systems.

GENERAL

GJCG06 - Implement and materialize projects of automation and control of equipment, processes and flexible industrial systems, through the integration of hardware and software in order to optimize the operation of the different units that make up the system to meet the needs of the productive sector

BASIC

G_CB5 - To have developed learning abilities required to embark on subsequent studies with a high level of autonomy.

LEARNING RESULTS

RG301 They assume responsibilities in the team, organizing and planning the tasks to be developed, dealing with contingencies and encouraging the participation of its members.

LEARNING ACTIVITIES

Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams

CH

1 h.

NCH

1 h.

TH

2 h.

EVALUATION SYSTEM

	W
Self-assessment	30%
Co-assessment	35%
Observation (technical capacity, attitude and participation)	35%

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.

RG302 They analyze the variables involved in the problem and propose actions for a stable situation.

LEARNING ACTIVITIES

Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams

CH

1 h.

NCH

1 h.

TH

2 h.

EVALUATION SYSTEM

	W
Observation (technical capacity, attitude and participation)	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.

RG304 They define the problem, the development of the solution, as well as the conclusions in an effective way, arguing and justifying each of them, making a correct use of the language, in writing.

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	2 h.	1 h.	3 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

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

RG305 They define the problem, the development of the solution, as well as the conclusions in an effective way, arguing and justifying each one of them, and making a correct use of the language, orally.

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	2 h.	1 h.	3 h.

EVALUATION SYSTEM

	W
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	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 They program and develop advanced PLC functions (numerical functions, parameterizable and analog signals)

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	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

	W
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	75%

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests
Comments: In case of having a grade lower than 5 in the exam, a recovery will be made, being the final grade of this section 25% of the exam grade + 75% of the recovery grade.

coding/programming tests

Comments: All deliveries must be completed for carrying out the individual test. Necessary condition.

CH - Class hours: 13 h.

NCH - Non-class hours: 7 h.

TH - Total hours: 20 h.

RGJ3315 They develop structured programs in programmable robots

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	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

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

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

25%

75%

Comments: All deliveries must be completed for carrying out the individual test. Necessary condition.

MAKE-UP MECHANISMS

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

Comments: In case of having a grade lower than 5 in the exam, a recovery will be made, being the final grade of this section 25% of the exam grade + 75% of the recovery grade.

CH - Class hours: 26 h.

NCH - Non-class hours: 19 h.

TH - Total hours: 45 h.

CONTENTS

GRAFSET 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

Subject notes

Bibliography

Autómatas programables y sistemas de automatización. Barcelona.

Topic related web quires
Moodle Platform
Programmes

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