

[GCZ302] BASIC INDUSTRIAL AUTOMATION

GENERAL INFORMATION

Studies	DEGREE IN ENGINEERING IN ECO-TECHNOLOGY IN INDUSTRIAL PROCESS		Subject	?
Semester	1	Course	3	Mention / Field of specialisation
Character	COMPULSORY		Language	ENGLISH
Plan	2022	Modality	Face-to-face	Total hours [!] 64 class hours + 75 non-class hours = 139 total hours
Credits	3	Hours/week	3.56	

PROFESSORS

MITXELENA MARTIARENA, EKHI

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GCR302 - Develops automation systems and control methods appropriate to the requirements and needs of users		x		2,56
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		0,2
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

RGC390 [!] 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

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

CH

NCH

TH

2 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. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

Comments: Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision

making methods, conflict management... Project management:

definition of objectives, planning,... Written and oral communication

CH - Class hours: 0 h.

NCH - Non-class hours: 2 h.

TH - Total hours: 2 h.

RGC391 [!] 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

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.

EVALUATION SYSTEM

W

Self-assessment

50%

Co-assessment

50%

Comments: Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision making methods, conflict management... Project management: definition of objectives, planning,... Written and oral communication

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

CH - Class hours: 0 h.

NCH - Non-class hours: 2 h.

TH - Total hours: 2 h.

RGC392 [!] *Identificar y argumentar de forma precisa los ODS en los que incide el proyecto realizado, aportando posibles acciones para la mejora.*

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

1 h.

1 h.

EVALUATION SYSTEM

W

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

100%

Comments: Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision making methods, conflict management... Project management: definition of objectives, planning,... Written and oral communication

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

CH - Class hours: 0 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 1 h.

RGC393 [!] *Elabora la memoria del proyecto, aportando argumentos elaborados y haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje.*

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

3 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%

Comments: Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision making methods, conflict management... Project management: definition of objectives, planning,... Written and oral communication

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

CH - Class hours: 0 h.

NCH - Non-class hours: 3 h.

TH - Total hours: 3 h.

RGC394 [!] *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

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

3 h.

3 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

100%

(No mechanisms)

Comments: Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision making methods, conflict management... Project management:

definition of objectives, planning,... Written and oral communication

Comments: Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

CH - Class hours: 0 h.

NCH - Non-class hours: 3 h.

TH - Total hours: 3 h.

RGC303 [!] *Diseña , implementa y monitoriza un sistema automatizado*

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

6,5 h.

6,5 h.

Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints

2 h.

6 h.

8 h.

Computer simulation exercises, individually and/or in teams

20 h.

7 h.

27 h.

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

10 h.

10 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

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

25%

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

75%

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

Comments: For the realization of the average, a 3.5 must be equaled or surpassed in all concepts. A lower grade will block the final qualification.

Comments: Classroom activities: the recovery will have a weight of 75 %. POPBL: continuous evaluation.

CH - Class hours: 32 h.

NCH - Non-class hours: 19,5 h.

TH - Total hours: 51,5 h.

RGC304 [!] *Valida un sistema automatizado en base a los requerimientos necesarios.*

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

12,5 h.

12,5 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

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

100%

(No mechanisms)

Comments: Continuous evaluation

exercises, term projects, challenges and problems

CH - Class hours: 0 h.
NCH - Non-class hours: 12,5 h.
TH - Total hours: 12,5 h.

RGC303 [!] *Diseña, implementa y monitoriza un sistema automatizado*

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		6,5 h.	6,5 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	6 h.	8 h.
Computer simulation exercises, individually and/or in teams	20 h.	7 h.	27 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	10 h.		10 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	25%
Individual written and/or oral tests or individual coding/programming tests	75%

Comments: For the realization of the average, a 3.5 must be equaled or surpassed in all concepts. A lower grade will block the final qualification.

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

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

Comments: Classroom activities: the recovery will have a weight of 75 %. POPBL: continuous evaluation.

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RGC304 [!] *Valida un sistema automatizado en base a los requerimientos necesarios.*

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		12,5 h.	12,5 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%
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MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous evaluation

CH - Class hours: 0 h.
NCH - Non-class hours: 12,5 h.
TH - Total hours: 12,5 h.

CONTENTS

Control and protection devices:- Protection devices.- Control devices or drive mechanisms.- Interpretation of electrical diagrams. Programming devices (PLC):- Basic concepts.- Programming environment with TIA Portal software.- Software development and simulation.- Connection with the digital twin: virtual commissioning.- Implementation of practical sessions.

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Slides of the subject
Specific Master Software
Moodle Platform
Lab practical training

Bibliography

[http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_in
k.pl?grupo=EKOTEKNOLOGIA31&ejecuta=35](http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_in
k.pl?grupo=EKOTEKNOLOGIA31&ejecuta=35)