

[GCK304] ENVIRONMENTAL PROCESS OPTIMISATION PLASTICS AND COMPOSITES

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 [!] 78 class hours + 129 non-class hours = 207 total hours
Credits	4,5	Hours/week	4.33	

PROFESSORS

ESNAOLA ARRUTI, ARITZ

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GCR307 - Determines the process variables necessary to manufacture a component using a technology suitable for plastics and composites		x		3,78
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		0,4
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		0,32

Total: 4,5

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

4 h.

4 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: 4 h.

TH - Total hours: 4 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

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.

RG392 [!] *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

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.

RG393 [!] *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

4 h.

4 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: 4 h.

TH - Total hours: 4 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

4 h.

4 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: 4 h.

TH - Total hours: 4 h.

RGC319 Analysis and design of products and processes of plastics and composite materials

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

4 h.

6 h.

10 h.

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

2 h.

2 h.

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

21 h.

11,5 h.

32,5 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

30%

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

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

70%

Comments: Average = written exam 25% + retake 75%

CH - Class hours: 27 h.

NCH - Non-class hours: 17,5 h.

TH - Total hours: 44,5 h.

RGC320 Optimization of process and raw's material preparation; Heating/melting stages, mould filling, compactation and curing/solidification

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.

4 h.

6 h.

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

2 h.

2 h.

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

8 h.

5 h.

13 h.

EVALUATION SYSTEM

W

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

20%

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

80%

MAKE-UP MECHANISMS

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

Comments: Average = written exam 25% + retake 75%

CH - Class hours: 12 h.

NCH - Non-class hours: 9 h.

TH - Total hours: 21 h.

RGC321 Demonstrate the ability of selection, design and manufacturing of plastic and composite components

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

29 h.

29 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

CH - Class hours: 0 h.

NCH - Non-class hours: 29 h.

TH - Total hours: 29 h.

RGC319 [!] *Análisis y diseño de productos y procesos de materiales plásticos y compósitos*

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

4 h.

6 h.

10 h.

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

2 h.

2 h.

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

21 h.

11,5 h.

32,5 h.

EVALUATION SYSTEM

W

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

30%

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

70%

MAKE-UP MECHANISMS

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

Comments: Average = written exam 25% + retake 75%

CH - Class hours: 27 h.

NCH - Non-class hours: 17,5 h.

TH - Total hours: 44,5 h.

RGC320 [!] *Optimización del proceso y preparación de la materia prima; Fases de calentamiento/fusión, llenado del molde, compactación y curado/solidificación*

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

2 h.

4 h.

6 h.

individually and/or in teams

Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints 2 h. 2 h.

Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects 8 h. 5 h. 13 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems 20%

Individual written and/or oral tests or individual coding/programming tests 80%

MAKE-UP MECHANISMS

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

Comments: Average = written exam 25% + retake 75%

CH - Class hours: 12 h.

NCH - Non-class hours: 9 h.

TH - Total hours: 21 h.

RGC321 [!] *Demuestra la capacidad de selección, diseño y fabricación de componentes de material plástico y composites*

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 29 h. 29 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

CH - Class hours: 0 h.

NCH - Non-class hours: 29 h.

TH - Total hours: 29 h.

CONTENTS

- 1- Applications of plastics and composites
- 2- Polymers properties
- 3- Composites properties
- 4- Mechanical and physical behaviour of plastics and composites
- 5- Manufacturing process of plastic materials
- 6- Manufacturing process of composite materials

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Subject notes

Moodle Platform

Video projections

Programmes

Bibliography

http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_in k.pl?grupo=EKOTEKNOLOGIA31&ejecuta=15