

[GCK104] ENVIRONMENTAL PROCESS OPTIMISATION PLASTICS AND COMPOSITES

GENERAL INFORMATION

Studies	DEGREE IN ENGINEERING IN ECO-TECHNOLOGY IN INDUSTRIAL PROCESS		Subject	ENVIRONMENTAL PROCESS OPTIMISATION
Semester	1	Course	3	Mention / Field of specialisation
Character	COMPULSORY		Language	ENGLISH
Plan	2017	Modality	Adapted Face-to-face	Total hours
Credits	6	Hours/week	3.11	56 class hours + 94 non-class hours = 150 total hours

PROFESSORS

AURREKOETXEA NARBARTE, ION
ESNAOLA ARRUTI, ARITZ

REQUIRED PREVIOUS KNOWLEDGE

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

SKILLS

VERIFICA SKILLS

SPECIFIC

GCES06 - To be able to analyse, design, simulate and optimise processes and products.

GCIN10 - To have basic knowledge of and ability to apply environmental and sustainability technologies.

GENERAL

G_CB6 - To be able to respond adequately in complex situations or situations that call for innovative solutions in both the academic field and work environments within their field of study;

GCCG03 - To take the initiative in problem solving, decision making and creativity, and to communicate and share knowledge and skills, understanding the ethical and professional responsibilities of the business activity in the field of Ecotechnology Engineering in Industrial Processes.

GCCG1 - To have the knowledge, understanding and ability to apply the laws pertaining to Ecotechnology Engineering in Industrial Processes; to be able to comply with the specifications, standards and regulations in force.

GCCG4 - To know how to perform measurements, calculations, valuations, studies, reports, task planning, and other activities pertaining to the field of Ecotechnology Engineering in Industrial Processes

GCCG5 - To be able to analyse and assess the social and environmental impact of technical solutions.

GCCG8 - To draft and develop projects in the field of Ecotechnology Engineering in Industrial Processes, focusing on the the design and development and on the application of systems, technologies and strategies in the industrial processes which minimise their impact on the environment.

CROSS

GCCTR2 - To be able to do their job in cooperative, participatory environments, with awareness of social responsibility.

BASIC

G_CB2 - To be able to apply knowledge to occupational or professional tasks; have the necessary skills to pose and defend arguments, and to solve problems within their field of study

G_CB3 - To be capable of gathering and interpreting relevant data (normally within their field of study) in order to make judgements, reflecting on relevant matters of a social, scientific or ethical nature

G_CB4 - To be able to communicate information, ideas, problems and solutions to both expert and lay audiences

LEARNING RESULTS

RG301 Assumes responsibilities in the work team, organizing and planning the tasks to be developed, facing the contingencies and encouraging the participation of its members.

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

6 h.

6 h.

EVALUATION SYSTEM

Self-assessment

W

50%

Co-assessment

50%

MAKE-UP MECHANISMS

(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: 6 h.

TH - Total hours: 6 h.

RG302 Analyze the intervening variables in the problem and propose actions for a stable situation.

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.

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

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: 5 h.

TH - Total hours: 5 h.

RG304 Define the problem, develop the solution and present the conclusions in a efficient manner, arguing and justifying each one of them 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

6 h.

6 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

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: 6 h.

TH - Total hours: 6 h.

RG305 Define the problem, develop the solution and present the conclusions in a efficient manner, arguing and justifying each one of them in spoken form.

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 h.

6 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Presentation and defence of exercises, case studies,

100%

(No mechanisms)

computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

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: 6 h.

TH - Total hours: 6 h.

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

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Development, writing and presentation of memorandums, reports, audiovisual material, etc.	4 h.	6 h.	10 h.
Relating to projects/POPBLs carried out individually or in teams			
Individual study and work, tests and evaluations and check points	2 h.		2 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	30 h.	18 h.	48 h.

EVALUATION SYSTEM

	<i>W</i>
Individual written and oral tests to assess technical skills of the subject	70%
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	30%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject
Comments: Average = written exam 25% + retake 75%

CH - Class hours: 36 h.

NCH - Non-class hours: 24 h.

TH - Total hours: 60 h.

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

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Development, writing and presentation of memorandums, reports, audiovisual material, etc.	2 h.	8 h.	10 h.
Relating to projects/POPBLs carried out individually or in teams			
Individual study and work, tests and evaluations and check points	2 h.	2 h.	4 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	16 h.		16 h.

EVALUATION SYSTEM

	<i>W</i>
Individual written and oral tests to assess technical skills of the subject	80%
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	20%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject
Comments: Average = written exam 25% + retake 75%

CH - Class hours: 20 h.

NCH - Non-class hours: 10 h.

TH - Total hours: 30 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 37 h. 37 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

100%

(No mechanisms)

Comments: Continuous assessment

CH - Class hours: 0 h.

NCH - Non-class hours: 37 h.

TH - Total hours: 37 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