

## [GCM101] LIFE CYCLE ASSESSMENT

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN ENGINEERING IN ECO-TECHNOLOGY IN INDUSTRIAL PROCESS		<b>Subject</b>	ENVIRONMENTAL DESIGN
<b>Semester</b>	1	<b>Course</b>	3	<b>Mention / Field of specialisation</b>
<b>Character</b>	OPTIONAL		<b>Language</b>	ENGLISH
<b>Plan</b>	2017	<b>Modality</b>	Adapted Face-to-face	<b>Total hours</b>
<b>Credits</b>	4,5	<b>Hours/week</b>	2.22	40 class hours + 72.5 non-class hours = <b>112.5 total hours</b>

### PROFESSORS

GALLO FERNANDEZ, ANGEL

### REQUIRED PREVIOUS KNOWLEDGE

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

### SKILLS

#### VERIFICA SKILLS

##### SPECIFIC

**GCES07** - To understand the environmental issues of contemporary society and its future environmental needs, analysing the most important aspects from the technological, economic and social points of view

##### 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.

**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

5 h.

5 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: 5 h.

TH - Total hours: 5 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

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

**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: 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		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

**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.

**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		4 h.	4 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

**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

**Comments:** Assessment of the acquired transversal skills: overcome the project.  
 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.

**RGC324** Evaluates the optimization in consumption and in the environmental impact of an industrial product throughout its entire life cycle

**LEARNING ACTIVITIES**

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	40 h.	24,5 h.	64,5 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams		30 h.	30 h.

**EVALUATION SYSTEM**

*W*

Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices 70%  
 Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems 30%  
**Comments:** It is mandatory to deliver every task in order to take part in the evaluation process

**MAKE-UP MECHANISMS**

Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices  
**Comments:** Every task must be delivered and passed in order to pass the learning outcome

**CH - Class hours:** 40 h.  
**NCH - Non-class hours:** 54,5 h.  
**TH - Total hours:** 94,5 h.

**CONTENTS**

1. Environmental impact definition and measurement

- Previous concepts
- Environmental impact evaluation
- Software

2. Product Design & EcoDesign

- Market & Functional Analysis
- Specification Sheet
- Product Design
- Design for X (DfX)

3. PBL

- EcoDesign tools
- Ijobe methodology

## LEARNING RESOURCES AND BIBLIOGRAPHY

### Learning resources

Programmes  
Moodle Platform  
Video projections

### Bibliography

<https://katalogoa.mondragon.edu/janium-bin/referencista.pl?Id=20210908154020>