

[GOD205] PRODUCT ENGINEERING

GENERAL INFORMATION

Studies	DEGREE IN INDUSTRIAL ORGANIZATION ENGINEERING		Subject	Product Engineering
Semester	2	Course	3	Mention / Field of specialisation
Character	OPTIONAL		Language	EUSKARA
Plan	2017	Modality	Adapted Face-to-face	Total hours
Credits	4,5	Hours/week	3.11	[!] 56 class hours + 57 non-class hours = 113 total hours

PROFESSORS

(No professor appointed)

REQUIRED PREVIOUS KNOWLEDGE

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

SKILLS

VERIFICA SKILLS

SPECIFIC

- GOC302** - To identify and know how to efficiently reduce the environmental impact of products throughout their life cycle
- GOC303** - To appropriately apply tools for executing industrial projects or services
- GOC309** - To solve problems and analyse the implications of the solution proposed by defining actions which hinder the reappearance of problems (stable solution) and taking part in various work teams.
- GOC310** - To draft different types of documents, arguing and justifying the conclusions and solutions presented therein and to communicate, present and share the information appropriately.

GENERAL

- GOCT01** - To suggest the launch of new products, identifying the suitable actions for adequate planning, manufacture and management and minimising their environmental impact throughout their life cycle.
- GOCT02** - To define, plan and control projects with regard to main limitations (time, deadlines, costs, resources)

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_CB4** - To be able to communicate information, ideas, problems and solutions to both expert and lay audiences

ENAE LEARNING RESULTS

	ECTS
ENAE03 - Knowledge and understanding: Sufficient knowledge of their branch of engineering, including some knowledge at the forefront of their field.	1,8
ENAE05 - Analysis in engineering: Ability to apply their knowledge and understanding in identifying, formulating and solving engineering problems using established methods.	0,56
ENAE06 - Analysis in engineering: Ability to apply their knowledge and understanding in analysing product, process and method engineering.	0,56
ENAE08 - Engineering projects: Ability to apply their knowledge in the development and completion of projects which meet specific requirements.	0,19
ENAE09 - Engineering projects: Understanding of the different methods and ability to use them.	0,19
ENAE15 - Practical application of engineering: Understanding of applicable methods and techniques and their limitations.	0,46
ENAE17 - Transversal competences: To work effectively, both individually and in a team.	0,19
ENAE18 - Transversal competences: To use different methods to communicate effectively with the engineering community and society in general.	0,19
ENAE19 - Transversal competences: Demonstrate that they are aware of the responsibility implied in the practical application of engineering, the social and environmental impact, and show commitment with professional ethics, responsibility and regulations of the practical application of engineering.	0,19
ENAE20 - Transversal competences: Demonstrate that they are aware of entrepreneurial practices and project management, in addition to risk control and management and understand their limitations.	0,18

Total: 4,5

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

CH

NCH

TH

Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams		5 h.	5 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS	
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	Individual written and oral tests to assess technical skills of the subject	
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, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams		5 h.	5 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS	
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	(No mechanisms)	
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, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams		4 h.	4 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS	
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	(No mechanisms)	
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
Individual study and work, tests and evaluations and check points		4 h.	4 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS	
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	(No mechanisms)	

CH - Class hours: 0 h.
NCH - Non-class hours: 4 h.
TH - Total hours: 4 h.

RG0303 [!] *Analiza, evalúa y propone mejoras en todo el ciclo de vida de un producto*

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Individual study and work, tests and evaluations and check points	2 h.	20 h.	22 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	27 h.		27 h.
Individual or team workshop and/or lab practice	4 h.		4 h.

EVALUATION SYSTEM

W

Individual written and oral tests to assess technical skills of the subject	10%
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	90%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices

CH - Class hours: 33 h.
NCH - Non-class hours: 20 h.
TH - Total hours: 53 h.

RG0304 Identifying creativity techniques and tools and using them correctly with the purpose of conceptualizing or improving a product or service.

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Individual and team exercises	10 h.	14 h.	24 h.
Individual or team workshop and/or lab practice	2 h.		2 h.

EVALUATION SYSTEM

W

Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	100%
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MAKE-UP MECHANISMS

(No mechanisms)

CH - Class hours: 12 h.
NCH - Non-class hours: 14 h.
TH - Total hours: 26 h.

RG0305 [!] *Identifica y describe cómo tratar los vertidos, residuos y emisiones generados por una empresa y propone buenas prácticas para reducir el impacto generado, cumpliendo la ley.*

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	9 h.	5 h.	14 h.
Individual and team exercises	2 h.		2 h.

EVALUATION SYSTEM

W

Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	100%
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MAKE-UP MECHANISMS

Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices

CH - Class hours: 11 h.
NCH - Non-class hours: 5 h.
TH - Total hours: 16 h.

CONTENTS

1. Product
 1. Product definition
 2. Product classifications
 3. Product range
2. Product development
 1. Planning
 2. Concept development
 1. User needs
 2. Product specifications
 3. Product conceptualisation
 4. Prototypes and mock-ups
 5. Specification booklet
 3. Product architecture
 4. Detailed design
 5. Testing and refinement
3. Product engineering
 1. Ecodesign
 2. Introduction
 3. Evolution of Ecodesign
 4. Ecodesign Terminology
 1. Climate change
 2. Ecological footprint
 3. Environmental footprint
 4. Environmental impact
 5. Sustainable development
4. Product life cycle
5. IHOBE methodology
6. Processes

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Lab practical training	Karl T. Ulrich, Steven D. Eppinger. Product Design and Development. 2012
Topic related web quires	IHOBE, EKODISEINURAKO ESKULIBURU PRAKTIKOA 7 urratsetan Ezartzeko Eragiketa 2000
Moodle Platform	ECODESIGN -- The Competitive Advantage by Wolfgang Wimmer, Kun-Mo Lee, Ferdinand Quella, John Polak.
Class presentations	QFD Despliegue de la Función Calidad, Paso a Paso: El Desarrollo del Producto (Spanish Edition) Oct 1, 2015, Jose Salinas
Slides of the subject	House of Quality - Simple Steps to Win, Insights and Opportunities for Maxing Out Success, 2015 by Gerard Blokdiijk
	The Guide to the Product Management and Marketing Body of Knowledge [Libro] : ProdBOK / Greg Geracie, Steven D. Eppinger, 2013