

[GEM204] ENGINEERING AND SOCIAL CHANGES

GENERAL INFORMATION

Studies	DEGREE IN INDUSTRIAL ELECTRONICS ENGINEERING		Subject	COMPANY
Semester	1	Course	2	Mention / Field of specialisation
Character	OPTIONAL		Language	EUSKARA
Plan	2017	Modality	Adapted Face-to-face	Total hours
Credits	3	Hours/week	2.5	45 class hours + 30 non-class hours = 75 total hours

PROFESSORS

AZPI-KANPANDEGI, HARITZ (HUHEZI)

REQUIRED PREVIOUS KNOWLEDGE

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

SKILLS

VERIFICA SKILLS

GENERAL

GECT07 - To be able to analyse and assess the social and environmental impact of technical solutions.

GECT10 - To be able to do their job in multilingual, multidisciplinary environments.

CROSS

GECG02 - To be able to understand and apply knowledge to problem solving in complex work situations or specialised and professional environments calling for creative and innovative ideas, using self-developed arguments and procedures;

GECG03 - To be capable of gathering and interpreting data and information on which to base conclusions including, when necessary and pertinent, reflection on matters of a social, scientific or ethical nature in their field of study;

GECG05 - To clearly and accurately communicate knowledge, methods, ideas, problems and solutions in their field of study to all kinds of audiences, both expert and lay, in different languages.

GECG07 - To be able to do their job in cooperative, participatory environments, with awareness of social responsibility.

ENAAE LEARNING RESULTS

ENA103 - Knowledge and comprehension: Awareness of the multidisciplinary context of engineering.

ENA105 - Analysis in engineering: The ability to identify, formulate and solve engineering problems in their speciality; choose and apply adequately established analytical, calculation and experimental methods; and acknowledge the importance of social, health and safety, environmental, economic, and industrial restrictions.

ENA115 - Practical application of engineering: Knowledge of the social, health and safety, environmental, economic and industrial implications of engineering practice.

ENA117 - Preparation of judgements: Ability to collect and interpret data and handle complex concepts within their speciality, in order to make judgements that involve reflection on ethical and social issues.

LEARNING RESULTS

RG203 They Apply methods, techniques, regulations, etc. typical of the engineering profession in familiar contexts.

LEARNING ACTIVITIES

	CH	NCH	TH
Individual study and work, tests and evaluations and check points	1,6 h.	1 h.	2,6 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	3,6 h.	2,4 h.	6 h.
Individual and team exercises	1,6 h.	,5 h.	2,1 h.
Individual and/or team computer simulation practice	3,2 h.	2,2 h.	5,4 h.
Tutoring sessions and monitoring of training activities		1,4 h.	1,4 h.
Workshops, discussions, seminars, case studies, role plays, etc	1 h.		1 h.
Solving of multidisciplinary exercises or team study cases	1 h.	,5 h.	1,5 h.

EVALUATION SYSTEM

W

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	10%
Written, coding/programming and individual oral tests for the evaluation of technical skills in the field	20%

MAKE-UP MECHANISMS

(No mechanisms)

CH - Class hours: 12 h.
NCH - Non-class hours: 8 h.
TH - Total hours: 20 h.

RG202 They make decisions and evaluate any possible consequences of the selected alternative.

LEARNING ACTIVITIES		CH	NCH	TH
Individual study and work, tests and evaluations and check points		2,8 h.	1,8 h.	4,6 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects		6,3 h.	4,2 h.	10,5 h.
Individual and team exercises		2,8 h.	,9 h.	3,7 h.
Individual and/or team computer simulation practice		5,6 h.	3,9 h.	9,5 h.
Tutoring sessions and monitoring of training activities			2,3 h.	2,3 h.
Workshops, discussions, seminars, case studies, role plays, etc		1,75 h.		1,75 h.
Solving of multidisciplinary exercises or team study cases		1,75 h.	,9 h.	2,65 h.
EVALUATION SYSTEM		W	MAKE-UP MECHANISMS	
Individual written and oral tests to assess technical skills of the subject		70%	(No mechanisms)	
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices		10%		
Written, coding/programming and individual oral tests for the evaluation of technical skills in the field		20%		

CH - Class hours: 21 h.
NCH - Non-class hours: 14 h.
TH - Total hours: 35 h.

RG201 They coordinate the work with the rest of the group members, contributing to develop the task to be done and creating a good work atmosphere.

LEARNING ACTIVITIES		CH	NCH	TH
Individual study and work, tests and evaluations and check points		1,6 h.	1 h.	2,6 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects		3,6 h.	2,4 h.	6 h.
Individual and team exercises		1,6 h.	,5 h.	2,1 h.
Individual and/or team computer simulation practice		3,2 h.	2,2 h.	5,4 h.
Tutoring sessions and monitoring of training activities			1,4 h.	1,4 h.
Workshops, discussions, seminars, case studies, role plays, etc		1 h.		1 h.
Solving of multidisciplinary exercises or team study cases		1 h.	,5 h.	1,5 h.
EVALUATION SYSTEM		W	MAKE-UP MECHANISMS	
Individual written and oral tests to assess technical skills of the subject		70%	(No mechanisms)	
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices		10%		
Written, coding/programming and individual oral tests for the evaluation of technical skills in the field		20%		

CH - Class hours: 12 h.
NCH - Non-class hours: 8 h.
TH - Total hours: 20 h.

CONTENTS

MODULE 1: Changes in Today's Society

- New World Order (Neoliberalism and TNCs)

- Globalization

- Energy/Environmental Challenge

- Change of Era, Epoque of Change

MODULE 2: Science, Technology and Society

- CTG Start - Origin of Consumer Society (Fordism) and Development (Neoliberalism)

- Programmed Obsolescence

- Product Life Cycle Analysis

MODULE 3: New Scenarios - Energy Challenge

- Technological Challenges (Enterprise 4.0)

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Slides of the subject
Video projections

Bibliography

J. Azkarraga, L. Altuna, T. Kausel, I. Iñurrategi, “La evolución sostenible. Una crisis multidimensional”, Cuadernos de Lanki nº4
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G. Duch, "Lo que hay que tragar", Ed. Los libros del lince, 2010
Y. Herrero, F. Cembranos, M. Pascual, "Cambiar las gafas para mirar el mundo", 1ª edición, Ed. Libros en acción, 2011
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MA Sobrevila, "La formación del Ingeniero Profesional para el tiempo actual. Tesis de las ingenierías de base", Ed. Academia Nacional de Educación, 2000
L. Altuna (Coord.), "La experiencia Cooperativa de Mondragon. Una síntesis general", Ed. Mondragon Unibertsitatea, 2008