

[GAI106] ELECTROMECHANICAL POWER CONVERSION

GENERAL INFORMATION

Studies	DEGREE IN ENERGY ENGINEERING		Subject	ELECTRICAL ENERGY
Semester	2	Course	3	Mention / Field of specialisation
Character	COMPULSORY		Language	EUSKARA
Plan	2017	Modality	Adapted Face-to-face	Total hours
Credits	6	Hours/week	2.78	50 class hours + 100 non-class hours = 150 total hours

PROFESSORS

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 DOK-GONZALEZ JIMENEZ, DAVID

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
PHYSICS I PHYSICS II CONTROL AND INSTRUMENTATION PROCESS CONTROL ELECTRONIC TECHNOLOGY II ELECTRONIC TECHNOLOGY I ELECTRICAL MACHINES	(No previous knowledge required)

SKILLS

VERIFICA SKILLS

SPECIFIC

GAES07 - To know about control of machines and electric drives and their applications.

GENERAL

GACG3 - 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 Energy Engineering.

GACG4 - To know how to perform measurements, calculations, valuations, studies, reports, task planning schemes, and other activities pertaining to the field of Energy.

GACG5 - To be able to analyse and assess the social and environmental impact of technical solutions.

GACG8 - To draft and develop energy engineering projects focusing on the design, development and operation of energy applications, systems and services, applying strategies which minimise its impact on the environment.

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;

CROSS

GACTR2 - To be able to do their job in cooperative, participatory environments, with awareness of social responsibility.

BASIC

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

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, writing and presentation of memorandums, reports, audiovisual material, etc.
 Relating to projects/POPBLs carried out individually or in teams

CH

NCH

TH

6 h.

6 h.

EVALUATION SYSTEM

Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence

W

100%

MAKE-UP MECHANISMS

(No mechanisms)

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, 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		6 h.	6 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: 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, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams		6 h.	6 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: 6 h.
TH - Total hours: 6 h.

RG308 [!] *Modela el sistema mecánico de los accionamientos de los motores*

LEARNING ACTIVITIES	CH	NCH	TH
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Individual study and work, tests and evaluations and check points		7 h.	7 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.		8 h.
Individual and team exercises	3 h.	3 h.	6 h.

EVALUATION SYSTEM

W

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

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject

CH - Class hours: 11 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 21 h.

RGA309 [!] *Modela y controla los accionamientos eléctricos basados en motores de corriente continua (DC)*

LEARNING ACTIVITIES

CH

NCH

TH

Individual study and work, tests and evaluations and check points	3 h.	2 h.	5 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	4 h.		4 h.
Individual and team exercises	3 h.	2 h.	5 h.
Individual or team workshop and/or lab practice	3 h.	2 h.	5 h.
Individual and/or team computer simulation practice	3 h.	2 h.	5 h.

EVALUATION SYSTEM

W

Individual written and oral tests to assess technical skills of the subject	60%
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	40%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject

CH - Class hours: 16 h.
NCH - Non-class hours: 8 h.
TH - Total hours: 24 h.

RGA310 [!] *Modela y controla los accionamientos eléctricos basados en motores brushless (AC/DC)*

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		25 h.	25 h.
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	4 h.	1 h.	5 h.
Individual and team exercises	1 h.	2 h.	3 h.
Individual or team workshop and/or lab practice	3 h.	4 h.	7 h.
Individual and/or team computer simulation practice	2 h.	1 h.	3 h.

EVALUATION SYSTEM

W

Individual written and oral tests to assess technical skills of the subject	30%
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	20%
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	50%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject

CH - Class hours: 12 h.

NCH - Non-class hours: 35 h.

TH - Total hours: 47 h.

RGA311 [!] *Modela y controla los accionamientos eléctricos basados en motores asíncronos*

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		18 h.	18 h.
Individual study and work, tests and evaluations and check points	2 h.	1 h.	3 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	5 h.		5 h.
Individual and team exercises	2 h.	3 h.	5 h.
Individual or team workshop and/or lab practice	2 h.	2 h.	4 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of the subject	40%	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	10%	
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	50%	

CH - Class hours: 11 h.

NCH - Non-class hours: 24 h.

TH - Total hours: 35 h.

CONTENTS

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes	http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_Ink.pl?grupo=ENERGIA32&ejecuta=15
Moodle Platform	
Student book	
Specific Master Software	
Topic related web quires	
Labs	