[GAK102] ENERGY PROJECTS WORKSHOP I

GENERAL INFORMATION

Studies	DEGREE IN ENERGY ENGINEERING			**Subject**	ENERGY AND SUSTAINABILITY
Semester	1	**Course**	3	**Mention / Field of specialisation**	
Character	COMPULSORY				
Plan	2017	**Modality**	Adapted Face-to-face	**Language**	ENGLISH
Credits	3	**Hours/week**	1.39	**Total hours**	25 class hours + 50 non-class hours = **75 total hours**

PROFESSORS

AGIRREZABALA IRADI, ENEKO
ANITUA AZCARATE, GERMAN

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	Matlab and Simulink

SKILLS

VERIFICA SKILLS

SPECIFIC

GAES11 - Applied knowledge of renewable energies.

GAES15 - To improve energy processes applied in the fields of construction, industrial and tertiary sector, to increase efficiency by applying knowledge of control, modelling and simulation of systems.

GENERAL

GACG1 - To have the knowledge, understanding and ability to apply the law pertaining to energy engineering; to be able to comply with the specifications, standards and regulations in force.

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.

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

GACG7 - To commercialise company products and services, foreseeing client needs.

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	*CH*	*NCH*	*TH*
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams		2 h.	2 h.

EVALUATION SYSTEM	*W*
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%

Comments: Assesment 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 communication Oral communication

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assesment. 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: 2 h.
TH - Total hours: 2 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		3 h.	3 h.

EVALUATION SYSTEM	W
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%

Comments: Assesment 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 communication Oral communication

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assesment. 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: 3 h.
TH - Total hours: 3 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		3 h.	3 h.

EVALUATION SYSTEM	W
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%

Comments: Assesment 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 communication Oral communication

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assesment. 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: 3 h.
TH - Total hours: 3 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		3 h.	3 h.

EVALUATION SYSTEM	W
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%

Comments: Assesment 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 communication Oral

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assesment. 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.

communication

CH - Class hours: 0 h.
NCH - Non-class hours: 3 h.
TH - Total hours: 3 h.

RGA321 Lists the different organizational structures of project management as well as their advantages and disadvantages. Knows and lists the phases according to classical project management, as well as the associated techniques and tools, and knows when

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		10 h.	10 h.
Individual study and work, tests and evaluations and check points	2 h.	10 h.	12 h.
Practices of problem solving and real or simulated context projects	3 h.	6 h.	9 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	12 h.		12 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of the subject	38,35%	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	38,35%	Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	23,3%	

Comments: The following will be taken into account: The final project and its deliverables individually The final document of the laboratory works Participation and attitude Continuous assesment of the projects. For that the following will be taken into account: (a) Continuous assesment about the fulfillment of the tasks during the development of the project, both individual and teamwork; (b) In the end of the project, the solution proposed by the students team, as well as the corresponding report; (c) Finally, the oral defense of the project, addressing the acquired knowledge, the quality of the presentation as well as the reasoned justification of the principles and causes of proposing the selected solution.

CH - Class hours: 17 h.
NCH - Non-class hours: 26 h.
TH - Total hours: 43 h.

RGA322 Applies knowledge related to the project office in the field of energy.

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		10 h.	10 h.
Individual study and work, tests and evaluations and check points		2 h.	2 h.
Practices of problem solving and real or simulated context projects	2 h.	1 h.	3 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.		6 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of the subject	26%	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	26,4%	Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	47,6%	

Comments: The following will be taken into account: The final project and its deliverables individually The final document of the laboratory works Participation and attitude Continuous assesment of the projects. For that the following will be taken into account: (a) Continuous assesment about the fulfillment of the tasks during the development of the project, both individual and teamwork; (b) In the end of the project, the solution proposed by the students team, as well as the corresponding report; (c) Finally, the oral defense of the project, addressing the acquired knowledge, the quality of the presentation as well as the reasoned justification of the principles and causes of proposing the selected solution.

CH - Class hours: 8 h.
NCH - Non-class hours: 13 h.
TH - Total hours: 21 h.

CONTENTS

Technical content:

1. Smart grid
2. Renewable energies (for buildings)

    1. Generation: PV, solar thermal and wind
    2. Consumption: profiles and loads
    3. Storage and control: BSS and MPPT

3. Electric mobility
4. NZEB and smart building
5. Actual regulations and legislation (+CE3X)

Project Management:

1. Importance of Project Management
2. Introduction
3. Types of project management
4. Classical management
5. Agile methodologies

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Moodle Platform Class presentations Slides of the subject Technical articles https://www.pmi.org/	http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_lnk.pl?grupo=ENERGIA31&ejecuta=30