

## [GJF101] METHODOLOGICAL FOUNDATIONS

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN MECHATRONICS ENGINEERING		<b>Subject</b>	?
<b>Semester</b>	1	<b>Course</b>	1	<b>Mention / Field of specialisation</b>
<b>Character</b>	BASIC TRAINING		<b>Language</b>	CASTELLANO/EUSKARA
<b>Plan</b>	2020	<b>Modality</b>	Face-to-face	<b>Total hours</b>
<b>Credits</b>	6	<b>Hours/week</b>	5	90 class hours + 60 non-class hours = <b>150 total hours</b>

### PROFESSORS

HERRERO VAZQUEZ, TAMARA  
 TERMENON CONDE, MAITE

### REQUIRED PREVIOUS KNOWLEDGE

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

### SKILLS

#### VERIFICA SKILLS

##### GENERAL

**GJCG01** - To be able to take the initiative in problem solving, decision making, creativity, critical thinking, effective communication and the transfer of knowledge and skills in the field of mechatronics engineering

##### CROSS

**GJCTR2** - 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;

##### 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

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

**G\_CB5** - To have developed learning abilities required to embark on subsequent studies with a high level of autonomy.

### LEARNING RESULTS

**RGJ181** They communicate, search and structure written information: they write a clear and concise project report following the criteria established in the guide for written reports using the appropriate software.

#### LEARNING ACTIVITIES

	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc.	3 h.	2 h.	5 h.
Relating to projects/POPBLs carried out individually or in teams			
Individual study and work, tests and evaluations and check points	8 h.	9 h.	17 h.
Individual and team solving of exercises, problems, and practices	4 h.		4 h.

#### EVALUATION SYSTEM

	W
Individual written and oral tests to assess technical skills of the subject	40%
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	20%
Observation of student participation and attitude in the proposed training activities	40%

#### MAKE-UP MECHANISMS

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

**Comments:** Regarding to the semester project document, revision and correction of the written report of the semester project

**CH - Class hours:** 15 h.

**NCH - Non-class hours:** 11 h.

**TH - Total hours:** 26 h.

**RGJ182** They communicate, search and structure orally the information correctly: they make a clear and concise oral presentation and defense of the project, considering the aspects gathered in the oral communication guide and using the proper software approp

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.	2 h.	6 h.
Individual study and work, tests and evaluations and check points		4 h.	4 h.	8 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects		3 h.		3 h.
Individual and team exercises		5 h.	4 h.	9 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS		
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	50%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence		
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	30%	<b>Comments:</b> With the oral presentation of the project of the second semester		
Observation of student participation and attitude in the proposed training activities	20%			
<b>CH - Class hours:</b> 16 h.				
<b>NCH - Non-class hours:</b> 10 h.				
<b>TH - Total hours:</b> 26 h.				

**RGJ191** They use the right methodology to find solutions to problems and to develop projects: analyse problems properly, look for meaningful information to face them and propose solutions.

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.	3 h.	7 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects		6 h.		6 h.
Individual and team exercises		11 h.	11 h.	22 h.
Individual and team solving of exercises, problems, and practices		5 h.	4 h.	9 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS		
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	30%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence		
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	50%	<b>Comments:</b> With the project of the second semester		
Observation of student participation and attitude in the proposed training activities	20%			
<b>CH - Class hours:</b> 26 h.				
<b>NCH - Non-class hours:</b> 18 h.				
<b>TH - Total hours:</b> 44 h.				

**RGJ192** They use the right methodology to find solutions to problems and to develop projects: analyse problems properly, look for meaningful information to face them and propose solutions.

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.	3 h.	7 h.
Individual study and work, tests and evaluations and check points		2 h.		2 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects		3 h.		3 h.
Individual and team exercises		10 h.	10 h.	20 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS		
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	30%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical		

Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence 50%  
 Observation of student participation and attitude in the proposed training activities 20%

defence

**Comments:** With the project of the second semester

**CH - Class hours:** 19 h.

**NCH - Non-class hours:** 13 h.

**TH - Total hours:** 32 h.

**RGJ193** They know and describe the phases for developing their engineering equipments, and they identify and describe the professional functions of an engineer.

**LEARNING ACTIVITIES**

Individual study and work, tests and evaluations and check points

**CH**

**NCH**

**TH**

1 h.

1 h.

Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects

2 h.

2 h.

Individual and team exercises

8 h.

8 h.

16 h.

Visits to laboratories, companies and/or Technology Centers

3 h.

3 h.

**EVALUATION SYSTEM**

**W**

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

80%

Observation of student participation and attitude in the proposed training activities

20%

**MAKE-UP MECHANISMS**

*(No mechanisms)*

**Comments:** As it is a continuous evaluation, no recovery mechanisms are considered.

**CH - Class hours:** 14 h.

**NCH - Non-class hours:** 8 h.

**TH - Total hours:** 22 h.

**CONTENTS**

1. Welcome plan
2. Teamwork
3. Oral communication
4. Written communication
5. Professional profile

**LEARNING RESOURCES AND BIBLIOGRAPHY**

**Learning resources**

Topic related web quires  
 Presentations by external Lecturers  
 Technical articles  
 Moodle Platform  
 Class presentations  
 Subject notes  
 Video projections

**Bibliography**

Johansen, Lars G., "Project Planning and Management", chapter 3 from: Project-Organised and Problem-Based Learning, Preliminary version  
 Kolmos, A., Du, X., Holgaard, J. E. and Jensen, L. P.: Facilitation in a PBL Environment, Aalborg University, 2008. (Irakurtzeko 23-34)  
 Bustos, C.; Moreno, A.; 2011 Los equipos: cómo trabajar juntos, sin tirarnos los trastos. ISBN 978-84-614-3951-5  
 Arana, N.; Astigarraga, E.; Carrera, X.; Rodríguez, V.; Zubizarreta, M. 2007. Marco conceptual y pedagógico para la implementación de la Formación por Proyectos en el Sena. Didáctica Proyectos Educativos. Bogotá. (irakurtzeko 172-181)  
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