[GJJ102] MECHANICAL TECHNOLOGY

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING			**Subject**	?
Semester	1	**Course**	2	**Mention / Field of specialisation**	
Character	OPTIONAL				
Plan	2020	**Modality**	Face-to-face	**Language**	EUSKARA
Credits	6	**Hours/week**	5	**Total hours**	90 class hours + 60 non-class hours = **150 total hours**

PROFESSORS

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REQUIRED PREVIOUS KNOWLEDGE

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

SKILLS

VERIFICA SKILLS

SPECIFIC

GJCE23 - Applied knowledge of materials engineering, metrology, and industrial fluid systems

GENERAL

GJCG03 - Addressing and optimising activities of assembly, commissioning, assistance and maintenance of facilities, machinery, and industrial mechatronic systems

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

LEARNING RESULTS

RG201 They coordinate their work with the other members of the team, contribute in their team to the development of the tasks to be carried out and the creation of a good working climate.

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.	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%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence **Comments:** With the project of the second semester

CH - Class hours: 2 h.
NCH - Non-class hours: 2 h.
TH - Total hours: 4 h.

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

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.	4 h.

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

technical defence	defence

CH - Class hours: 2 h.
NCH - Non-class hours: 2 h.
TH - Total hours: 4 h.

RG204 They define the problem, the development of the solution, as well as the conclusions in an effective way, making a correct use of the language, 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	1 h.	3 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%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence **Comments:** Revision and correction of the written report of the semester project

CH - Class hours: 1 h.
NCH - Non-class hours: 3 h.
TH - Total hours: 4 h.

RG205 They define the problem, the development of the solution, as well as the conclusions in an effective way, making a correct use of the language, orally.

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.	1 h.	3 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)* **Comments:** With the oral presentation of the project of the second semester

CH - Class hours: 2 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 3 h.

RGJ220 They distinguish between different types of material understanding the fundamentals of science, technology and chemistry of materials, including relationship between microstructure, synthesis or processing and properties of them.

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.	4 h.	10 h.
Individual study and work, tests and evaluations and check points	2 h.	8 h.	10 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	16 h.	4 h.	20 h.
Individual and team exercises	4 h.	2 h.	6 h.
Workshops, discussions, seminars, case estudies, role plays, etc	4 h.	2 h.	6 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of	56%	Individual written and oral tests to assess technical skills of the

the subject		subject
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	24%	**Comments:** Final mark: written second-chance exam (75%) + exam (25%)
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	20%	

CH - Class hours: 32 h.
NCH - Non-class hours: 20 h.
TH - Total hours: 52 h.

RGJ221 They know and apply the measurement and control techniques and devices used in the manufacturing industry.

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.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	2 h.	1 h.	3 h.
Individual or team workshop and/or lab practice	6 h.	3 h.	9 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	80%	Individual written and oral tests to assess technical skills of the subject
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	20%	

CH - Class hours: 11 h.
NCH - Non-class hours: 4 h.
TH - Total hours: 15 h.

RGJ222 They identify the components and describe the functions they perform in a fluid power system, understanding the circuits and diagrams in which they are displayed.

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.	4 h.	10 h.
Individual study and work, tests and evaluations and check points	2 h.	8 h.	10 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	14 h.	6 h.	20 h.
Individual and team exercises	7 h.	5 h.	12 h.
Individual or team workshop and/or lab practice	6 h.	2 h.	8 h.
Individual and/or team computer simulation practice	5 h.	3 h.	8 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of the subject	50%	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	30%	**Comments:** Final mark: written second-chance exam (75%) + exam(25%)
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	20%	

CH - Class hours: 40 h.
NCH - Non-class hours: 28 h.
TH - Total hours: 68 h.

CONTENTS

In the subject of Mechanical Technology, there are three sections.1. MATERIALS- Metal alloys* Steels and cast irons and their names* Heat treatments and surface treatments of steels* Non-ferrous metals- Plastics* Classification and structure* Mechanical properties* Physical properties- tests* Mechanical tests* Non-destructive testing2. METROLOGY-Accuracy-Measuring instruments: rulers, gauges, micrometers-Comparative clock, gauges and patterns-Rugosimeters3. FLUIDS-Applications in industry-Fluid power transmission (pneumatic and hydraulic)-Actuators-Valves and pumps-Pressurized air installations-Pneumatic and hydraulic accumulators-Hydraulic circuits in industrial machines (understanding and design)

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Topic related web quires
Labs
Moodle Platform
Video projections
Lab practical training
Slides of the subject

Bibliography

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