

[GJJ202] MECHANICAL TECHNOLOGY

GENERAL INFORMATION

Studies DEGREE IN MECHATRONICS ENGINEERING	Subject ?	
Semester 1	Course 2	Mention / Field of specialisation
Character OPTIONAL		
Plan 2022	Modality Face-to-face	Language CASTELLANO/EUSKARA
Credits 6	Hours/week 5	Total hours 90 class hours + 60 non-class hours = 150 total hours

PROFESSORS

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AZPI-ARTETXE, MAIALEN (SOMORROSTRO)

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
<i>(No specific previous subjects required)</i>	<i>(No previous knowledge required)</i>

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GJR104 - To know and apply the basic principles of materials engineering, metrology and industrial fluidic systems	x			5,4
G-RTR1 - To develop interdisciplinary projects specific to their specialty and of gradual complexity, - becoming aware of respect for human rights and fundamental rights, and analyzing and assessing the impact of the proposed solutions on the SDGs - to acquire and/or apply basic, advanced and /or avant-garde, demonstrating the ability to work in multidisciplinary teams and/or undertake further studies with a high degree of autonomy		x		0,32
G-RTR2 - To express information, ideas and the arguments that support them in an orderly, clear and coherent manner, orally and in writing, based on quality information, self-made or obtained from different sources, using inclusive and non-discriminatory language		x		0,28
Total:				6

KC: Knowledge or Content / SK: Skills / AB: Abilities

SECONDARY LEARNING RESULTS

RGJ290 [!] *Proponer los objetivos y la planificación de un proyecto que le permita adquirir y/o reforzar los conocimientos de tecnologías propias de su especialidad,- que en ocasiones llegan a la vanguardia del conocimiento- y definir una estrategia de aprendiz*

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	2 h.	2 h.	4 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	<i>(No mechanisms)</i>
Comments: With the project of the second semester		

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

RGJ291 [!] *Establecer las responsabilidades de los miembros del equipo utilizando técnicas adecuadas para fomentar la eficiencia del equipo para el desarrollo del proyecto en los plazos establecidos (compartir recursos, aportar ideas, habilidades comunicativas*

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	2 h.	2 h.	4 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

(No mechanisms)

Comments: With the project of the second semester

CH - Class hours: 2 h.

NCH - Non-class hours: 2 h.

TH - Total hours: 4 h.

RGJ293 [!] *Redacta y estructura correctamente la memoria del proyecto, haciendo un uso correcto del lenguaje. Para ello, busca y hace uso de las fuentes de información adecuadas*

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

1 h.

3 h.

4 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

(No mechanisms)

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.

RGJ294 [!] *Realiza una presentación oral del proyecto argumentando de forma eficaz, y haciendo un uso correcto del lenguaje*

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

2 h.

1 h.

3 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

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.

RGJ217 [!] *Distingue entre los diferentes tipos de material entendiendo los fundamentos de ciencia, tecnología y química de materiales, comprendiendo la relación entre la microestructura, la síntesis o procesado y las propiedades de los materiales*

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

6 h.

4 h.

10 h.

Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints

2 h.

8 h.

10 h.

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

20 h.

6 h.

26 h.

Carrying out exercises and solving problems individually and/or in teams

4 h.

2 h.

6 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	24%	Individual written and/or oral tests or individual coding/programming tests
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	20%	Comments: Final mark: written second-chance exam (75%) + exam(25%)
Individual written and/or oral tests or individual coding/programming tests	56%	

CH - Class hours: 32 h.

NCH - Non-class hours: 20 h.

TH - Total hours: 52 h.

RGJ218 [!] *Conoce y aplica las técnicas y aparatos de medida y control utilizados en la industria manufacturera*

LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	3 h.		3 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	2 h.	1 h.	3 h.
Practical work in workshops and/or laboratories, individually and/or in teams	6 h.	3 h.	9 h.

EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	80%
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	20%

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests
Comments: Final mark: written second-chance exam (75%) + exam(25%)

CH - Class hours: 11 h.

NCH - Non-class hours: 4 h.

TH - Total hours: 15 h.

RGJ219 [!] *Identifica los componentes y describe las funciones que cumplen en un sistema de potencia fluidica e interpreta los circuitos y diagramas en los que estos se representan*

LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	6 h.	4 h.	10 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	8 h.	10 h.
Computer simulation exercises, individually and/or in teams	5 h.	3 h.	8 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	14 h.	6 h.	20 h.
Carrying out exercises and solving problems individually and/or in teams	7 h.	5 h.	12 h.
Practical work in workshops and/or laboratories, individually and/or in teams	6 h.	2 h.	8 h.

EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	30%
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree	20%

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests
Comments: Final mark: written second-chance exam (75%) + exam (25%)

project, master's thesis, challenges and problems Individual written and/or oral tests or individual coding/programming tests	50%
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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- Plastic s* 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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