

## [GJB201] GRAPHIC EXPRESION

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN MECHATRONICS ENGINEERING		<b>Subject</b>	?
<b>Semester</b>	2	<b>Course</b>	1	<b>Mention / Field of specialisation</b>
<b>Character</b>	BASIC TRAINING		<b>Language</b>	EUSKARA/CASTELLANO
<b>Plan</b>	2022	<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

AZPI-UNZUETA, JAVIER (SOMORROSTRO)
LASA BASTIDA, MIKEL

### REQUIRED PREVIOUS KNOWLEDGE

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

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>G-RA02</b> - To demonstrate spatial vision and knowledge of graphic representation techniques, both through traditional methods of metric geometry and descriptive geometry, and through computer-aided design applications	x	x		5,4
<b>G-RTR1</b> - 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
<b>G-RTR2</b> - 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

#### **RGJ141** [!] *Representa diferentes tipos de piezas respetando las normas de dibujo técnico*

#### 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.	4 h.	5 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	7 h.	4 h.	11 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	4 h.	4 h.	8 h.
Carrying out exercises and solving problems individually and/or in teams	20 h.	6 h.	26 h.

#### EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	10%
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	10%
Individual written and/or oral tests or individual coding/programming tests	80%

#### MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests

**Comments:** Given that the learning outcome is continuous, the control points will not be recovered. The test taken at the end of the term for the recovery of the learning outcome will have a weight of 75%.

**Comments:** All assignments must be handed in in order to be able to take part in the checkpoints. Failure to hand in all work will result in the marks for the work being disregarded. If any work is copied or allowed to be copied, the marks for the work will not be taken into account.

**CH - Class hours:** 32 h.  
**NCH - Non-class hours:** 18 h.

TH - Total hours: 50 h.

**RGJ142** [!] *Acota y define las tolerancias necesarias de las piezas que forman un conjunto mecánico respetando las normas de dibujo técnico*

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.	5 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	11 h.	9 h.	20 h.
Carrying out exercises and solving problems individually and/or in teams	37 h.	20 h.	57 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	10%	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	10%	<b>Comments:</b> Given that the learning outcome is continuous, the control points will not be recovered. The test taken at the end of the term for the recovery of the learning outcome will have a weight of 75%.
Individual written and/or oral tests or individual coding/programming tests	80%	

**Comments:** All assignments must be handed in in order to be able to take part in the checkpoints. Failure to hand in all work will result in the marks for the work being disregarded. If any work is copied or allowed to be copied, the marks for the work will not be taken into account.

CH - Class hours: 51 h.

NCH - Non-class hours: 34 h.

TH - Total hours: 85 h.

**RGJ190** [!] *Conocer y aplicar las fases para desarrollar de forma guiada, con los objetivos y la planificación previamente definidos, un proyecto de complejidad técnica acorde con los conocimientos de formación básica de la ingeniería. Reflexiona sobre los cono*

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:** Continuous assessment. Retake is not foreseen.

CH - Class hours: 2 h.

NCH - Non-class hours: 2 h.

TH - Total hours: 4 h.

**RGJ191** [!] *Contribuir en la estrategia de funcionamiento del equipo priorizando los objetivos comunes, fomentando y valorando la participación de todas las personas y responsabilizándose de las tareas individuales, así como del cumplimiento de plazos.*

LEARNING ACTIVITIES	CH	NCH	TH
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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:** Continuous assessment. Retake is not foreseen.

**CH - Class hours:** 2 h.

**NCH - Non-class hours:** 2 h.

**TH - Total hours:** 4 h.

**RGJ193** [!] *Redacta una memoria de proyecto clara y concisa utilizando las fuentes de información y estructura de memoria facilitadas, y haciendo un uso correcto, inclusivo y no discriminatorio 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.

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:** Revision and correction of the written report of the semester project

**CH - Class hours:** 2 h.

**NCH - Non-class hours:** 2 h.

**TH - Total hours:** 4 h.

**RGJ194** [!] *Realiza una presentación oral y defensa del proyecto clara y concisa, 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

1 h.

2 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:** Continuous assessment. Retake is not foreseen.

**CH - Class hours:** 1 h.

**NCH - Non-class hours:** 2 h.

**TH - Total hours:** 3 h.

**CONTENTS**

1. Representation and interpretation of industrial parts
  - 1.1 Orthogonal representation
  - 1.2 Dimensioning
2. Threaded joints
3. Tolerances (dimensional, surface and geometrical)
4. Mechanical elements and assembly drawings
5. Solid works

**LEARNING RESOURCES AND BIBLIOGRAPHY**

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**Learning resources**

Subject notes  
Topic related web quires  
Moodle Platform

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**Bibliography**

C. Preciado and F.J. Moral. &#8220;Normalización del Dibujo Técnico&#8221;. EDITORIAL DONOSTIARRA

J.M. AuriaApilluelo, P. IbañezCarabantesand P. UbietoArtur. &#8220;Dibujo Industrial, Conjuntos y Despieces&#8221;. Editorial Thomson

Daniel E. Puncochar. &#8220;Interpretationof Geometry, Dimensioningand Tolerancing&#8221;. Editorial Industrial PressInc

Cecil Jensen. &#8220;Geometric, Dimensioning& Tolerancing&#8221;. Editorial Delmar

C.H. Simmons and D.E. Maguire. &#8220;Manual of Engineering Drawing: to British and International Standards&#8221;. DOI: 10.1016/B978-0-08-096652-6.00001-2

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