

## [GBD201] GRAPHIC EXPRESSION I

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN BIOMEDICAL ENGINEERING		<b>Subject</b>	GRAPHIC EXPRESSION
<b>Semester</b>	2	<b>Course</b>	1	<b>Mention / Field of specialisation</b>
<b>Character</b>	BASIC TRAINING		<b>Language</b>	EUSKARA
<b>Plan</b>	2022	<b>Modality</b>	Face-to-face	<b>Total hours</b>
<b>Credits</b>	6	<b>Hours/week</b>	5.19	93.5 class hours + 56.5 non-class hours = <b>150 total hours</b>

### PROFESSORS

IRIBECAMPOS JUARISTI, MIKEL
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		0,28
<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		0,32

Total: 6

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

### SECONDARY LEARNING RESULTS

#### **RGB103** [!] 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	6 h.	5 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

**CH - Class hours:** 31 h.  
**NCH - Non-class hours:** 19 h.  
**TH - Total hours:** 50 h.

**RGB104** [!] *Acota y define las tolerancias necesarias de las piezas que forman un conjunto mecánico respetando las normas de dibujo técnico*

**LEARNING ACTIVITIES**

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
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	10 h.	7 h.	17 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.		8 h.
Carrying out exercises and solving problems individually and/or in teams	32 h.	20 h.	52 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

**CH - Class hours:** 53 h.  
**NCH - Non-class hours:** 32 h.  
**TH - Total hours:** 85 h.

**RGB190** [!] *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**

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
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	2,5 h.	1,5 h.	4 h.

**EVALUATION SYSTEM**

*W*

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%
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**MAKE-UP MECHANISMS**

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems  
Observation (technical capacity, attitude and participation)

**CH - Class hours:** 2,5 h.  
**NCH - Non-class hours:** 1,5 h.  
**TH - Total hours:** 4 h.

**RGB191** [!] *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**

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
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*

Self-assessment	25%
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**MAKE-UP MECHANISMS**

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term

Co-assessment	25%	projects, challenges and problems
Observation (technical capacity, attitude and participation)	50%	Observation (technical capacity, attitude and participation)

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

**RGB193** [!] *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**

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
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	2,5 h.	1,5 h.	4 h.

**EVALUATION SYSTEM**

	<i>W</i>
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%

**MAKE-UP MECHANISMS**

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems  
 Observation (technical capacity, attitude and participation)

**CH - Class hours:** 2,5 h.  
**NCH - Non-class hours:** 1,5 h.  
**TH - Total hours:** 4 h.

**RGB194** [!] *Realiza una presentación oral y defensa del proyecto clara y concisa, haciendo uso correcto, inclusivo y no discriminatorio del lenguaje.*

**LEARNING ACTIVITIES**

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
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	2,5 h.	1,5 h.	4 h.

**EVALUATION SYSTEM**

	<i>W</i>
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%

**MAKE-UP MECHANISMS**

Observation (technical capacity, attitude and participation)

**CH - Class hours:** 2,5 h.  
**NCH - Non-class hours:** 1,5 h.  
**TH - Total hours:** 4 h.

**CONTENTS**

1. Representation of parts
  - 1.1. Ortogonal representation and cross sections
  - 1.2. Dimensions
2. Threaded unions
3. Tolerances (Dimension, surface, geometricas)
4. Interpretation of assemblies and mechanical elements
5. SolidWorks

## LEARNING RESOURCES AND BIBLIOGRAPHY

### Learning resources

Moodle Platform  
Topic related web quires  
Slides of the subject  
Specific Master Software  
Video projections

### Bibliography

Prácticas de Dibujo Técnico (Cortes y secciones). Joaquín Gonzalo.  
Editorial Donostiarra. ISBN 8470633163  
Vistas y visualización de formas. Gaspar Fernández. Editorial  
Donostiarra. ISBN 8470633155  
Normalización del Dibujo Técnico. Candido Preciado y Francisco  
Jesús Moral. Editorial Donostiarra. ISBN 9788470633096