

[GMC301] GRAPHIC EXPRESSION I

GENERAL INFORMATION

Studies	DEGREE IN MECHANICAL ENGINEERING	Subject	GRAPHIC EXPRESSION
Semester	1	Course	1
Character	BASIC TRAINING	Mention / Field of specialisation	
Plan	2022	Modality	Face-to-face
Credits	6	Language	EUSKARA
		Total hours	89.5 class hours + 60.5 non-class hours = 150 total hours

2030 AGENDA GOALS



PROFESSORS

EZPELETA LASCURAIN, IÑIGO
GONZALEZ DOMINGUEZ, ANA
AZPI-IÑURRIETA GALPARSORO, ANE (GOIERRI)

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
G-RA02 - 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
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		0,36
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		0,24
Total:				6

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

ENAE LEARNING RESULTS

ENA101 - Knowledge and comprehension: Knowledge and understanding of mathematics and other basic sciences inherent in them engineering speciality, at a level that allows them to acquire the other competencies of the degree.

ENA104 - Analysis in engineering: The ability to analyse complex products, processes and systems in their field of study; choose and apply relevant analytical, calculation and experimental methods in a suitable way; and correctly interpret the results of such analyses.

ENA106 - Engineering projects: Ability to project, design and develop complex products (parts, components, finished products, etc.), processes and systems of their speciality, which meet the established requirements, including awareness of the social, health and safety, environmental, economic and industrial aspects, as well as selecting and applying appropriate project methods.

ENA113 - Practical application of engineering: Knowledge of application of materials, equipment and tools, engineering technology and processes, and their limitations in the field of their speciality.

ENA114 - Practical application of engineering: Ability to apply standards of engineering practice in their speciality.

ENA119 - Communication and Teamwork: Ability to effectively communicate information, ideas, problems and solutions in the field of engineering and with society in general.

ENA120 - Communication and Teamwork: Ability to operate effectively in domestic and international contexts, individually and as a team, and to cooperate with both engineers and people from other disciplines.

SECONDARY LEARNING RESULTS

RGM104 [!] 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	10 h.	10 h.	20 h.

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

37 h.

20 h.

57 h.

Comments: Cutting-edge technologies or resources (additive manufacturing) are used to manufacture the prototype designed in the semester project.

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%

Comments: All assignments must be handed in in order to be submitted for the checkpoints. Otherwise, the marks for the assignments will not be taken into account. If an assignment is copied or allowed to be copied, the marks for the assignments will not be taken into account.

MAKE-UP MECHANISMS

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

Comments: The control points will not be recovered, as the learning outcome is a continuous assessment. To recover the learning outcome, at the end of the term there will be a recovery with a weight of 75%.

CH - Class hours: 50 h.

NCH - Non-class hours: 35 h.

TH - Total hours: 85 h.

1RGM194 (1 sem)

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

1,5 h.

1,5 h.

3 h.

EVALUATION SYSTEM

W

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

100%

Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.

CH - Class hours: 1,5 h.

NCH - Non-class hours: 1,5 h.

TH - Total hours: 3 h.

1RGM192 (1 sem)

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.

1 h.

3 h.

EVALUATION SYSTEM

W

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

100%

Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.

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

1RGM193 (1 sem)

LEARNING ACTIVITIES

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

CH

1,5 h.

NCH

1,5 h.

TH

3 h.

EVALUATION SYSTEM

W

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

100%

Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.

CH - Class hours: 1,5 h.
NCH - Non-class hours: 1,5 h.
TH - Total hours: 3 h.

RGM103 [I] Representa diferentes tipos de piezas respetando las normas de dibujo técnico

LEARNING ACTIVITIES

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

CH

1 h.

NCH

4 h.

TH

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%

Comments: All assignments must be handed in in order to be submitted for the checkpoints. Otherwise, the marks for the assignments will not be taken into account. If an assignment is copied or allowed to be copied, the marks for the assignments will not be taken into account.

MAKE-UP MECHANISMS

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

Comments: The control points will not be recovered, as the learning outcome is a continuous assessment. To recover the learning outcome, at the end of the term there will be a recovery with a weight of 75%.

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

1RGM190 (1 sem)

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		1,5 h.	1,5 h.	3 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS		
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	100%	(No mechanisms)		
Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.		Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.		
CH - Class hours: 1,5 h.				
NCH - Non-class hours: 1,5 h.				
TH - Total hours: 3 h.				

1RGM191 (1 sem)				
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.	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: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.		Comments: Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.		
CH - Class hours: 2 h.				
NCH - Non-class hours: 1 h.				
TH - Total hours: 3 h.				

CONTENTS

1. Representation of parts1.1. Orthogonal representation1.2. Dimensioning2. Bolted joints3. Tolerances (dimensional, surface and geometrical)4. Mechanical elements and interpretation of assemblies5. SolidWorks (Updated version)

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes	Normalización del Dibujo Técnico. Candido Preciado y Francisco Jesús Moral. Editorial Donostiarra. ISBN 9788470633096
Topic related web quires	Prácticas de Dibujo Técnico (Cortes y secciones). Joaquín Gonzalo. Editorial Donostiarra. ISBN 8470633163
Moodle Platform	Vistas y visualización de formas. Gaspar Fernández. Editorial Donostiarra. ISBN 8470633155
Specific Master Software	