[GJC303] OP S1. MECHANICAL SYSTEMS

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING			**Subject**	?
Semester	1	**Course**	2	**Mention / Field of specialisation**	???
Character	OPTIONAL				
Plan	2025	**Modality**	Face-to-face	**Language**	CASTELLANO/EUSKARA
Credits	6	**Hours/week**	5	**Total hours**	90 class hours + 60 non-class hours = **150 total hours**

2030 AGENDA GOALS

PROFESSORS

ELGUEZABAL LAZCANO, JON
LASA BASTIDA, MIKEL

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
GRAPHIC EXPRESION	*(No previous knowledge required)*

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GJR222 - To represent mechanical elements, parts and assemblies using computer-aided design tools		x		5,4
G-TR1 - 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-TR2 - 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

SECONDARY LEARNING RESULTS

RGJ206 **They correctly interpret and indicate the tolerances on a mechanical component**

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	5 h.	3 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	5 h.	2 h.	7 h.
Computer simulation exercises, individually and/or in teams	1 h.	1 h.	2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	5 h.	1 h.	6 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	7 h.	12 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	55%
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	25%
Individual written and/or oral tests or individual coding/programming tests	20%

Comments: A minimum mark of 3 points out of 7 will be necessary to be able to make the average with the rest of the evaluated items

MAKE-UP MECHANISMS

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

Comments: There won't be a second chance for the submitted exercises There will be a retake exam for the individual test. Final mark: first exam 25% and the retake exam 75%.

CH - Class hours: 21 h.

NCH - Non-class hours: 14 h.
TH - Total hours: 35 h.

1RGJ291 **(1 sem) Establish the responsibilities of team members using appropriate techniques to promote their efficiency in project development (sharing resources, contributing ideas, seeking consensus, evaluating results, the process, etc.).**

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%

MAKE-UP MECHANISMS
(No mechanisms)
Comments: With the project of the second semester

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

1RGJ292 **(1 sem) Identify and accurately explain the SDGs addressed by the project carried out.**

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%

MAKE-UP MECHANISMS
(No mechanisms)

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

1RGJ293 **(1 sem) Correctly draft and structure the project report, using appropriate language. To do so, search for and use the appropriate sources of information.**

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
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%

MAKE-UP MECHANISMS
(No mechanisms)
Comments: Revision and correction of the written report of the semester project

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

RGJ208 **They interpret and draw mechanical assemblies and exploded views, using proper software appropriately.**

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	11 h.	8 h.	19 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	11 h.	7 h.	18 h.
Carrying out exercises and solving problems individually and/or in teams	23 h.	15 h.	38 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%
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	55%
Individual written and/or oral tests or individual coding/programming tests	25%

Comments: A minimum mark of 3 points out of 7 will be necessary to be able to make the average with the rest of the evaluated items

MAKE-UP MECHANISMS

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

Comments: There won´t be a second chance for the submitted exercises There will be a retake exam for the individual test. Final mark: first exam 25% and the retake exam 75%.

CH - Class hours: 45 h.
NCH - Non-class hours: 30 h.
TH - Total hours: 75 h.

1RGJ290 (1 sem)Propose the objectives and planning of a project that will enable you to acquire and/or reinforce your knowledge of technologies—which are sometimes at the cutting edge of knowledge—and define an effective learning strategy.

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%

MAKE-UP MECHANISMS

(No mechanisms)

Comments: With the project of the second semester

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

1RGJ294 (1 sem) Give an oral presentation of the project, arguing effectively and using language correctly.

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
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%

MAKE-UP MECHANISMS

(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.

RGJ207 **They represent mechanical parts and identify their applications**

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.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	3 h.	4 h.	7 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	5 h.	2 h.	7 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	5 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	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	75%
Individual written and/or oral tests or individual coding/programming tests	15%

Comments: : A minimum mark of 3 points out of 7 will be necessary to be able to make the average with the rest of the evaluated items

MAKE-UP MECHANISMS

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

Comments: There won't be a second chance for the submitted exercises There will be a retake exam for the individual test. Final mark: first exam 25% and the retake exam 75%.

CH - Class hours: 14 h.
NCH - Non-class hours: 11 h.
TH - Total hours: 25 h.

CONTENTS

1. TOLERANCES

1.1. Geometric Tolerances

2. REPRESENTATION OF MECHANICAL ASSEMBLIES IN 3D (SOLID WORKS)

2.1. Representation and interpretation os assemblies starting from 2D

2.2. Representation of assemblies from real assemblies

2.3. Representation of exploded viwes and dimensioning (Solid Works)

3. MECHANICAL ELEMENTS

3.1. Characteristics, applications, examples of mechanical elements (descriptive)

3.2. Connecting and coupling elements

3.3. Guiding elements

3.4. Sealing elements

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources
Subject notes
Topic related web quires
Labs
Moodle Platform
Class presentations
Video projections

Bibliography

C. Preciado and F.J. Moral. “Normalización del Dibujo Técnico”. EDITORIAL DONOSTIARRA

J.M. Auria Apilluelo, P. Ibañez Carabantes and P. Ubieto Artur. “Dibujo Industrial, Conjuntos y Despieces”. Editorial Thomson

Daniel E. Puncochar. “Interpretation of Geometry, Dimensioning and Tolerancing”. Editorial Industrial Press Inc

Cecil Jensen. “Geometric, Dimensioning & Tolerancing”. Editorial Delmar

C.H. Simmons and D.E. Maguire. “Manual of Engineering Drawing: to British and International Standards”. DOI: 10.1016/B978-0-08-096652-6.00001-2

http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_lnk.pl?grupo=MECATRONICA21&ejecuta=20&_ST