

[GJJ203] MECHANICAL SYSTEMS

GENERAL INFORMATION

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

PROFESSORS

IZQUIERDO ORTIZ DE LANDALUCE, MIKEL

 ELGUEZABAL LAZCANO, JON

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
GRAPHIC EXPRESION	(No previous knowledge required)

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GJR202 - To represent mechanical elements, parts and assemblies using computer-aided design tools		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

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

W

100%

MAKE-UP MECHANISMS

(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.

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

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

W

100%

MAKE-UP MECHANISMS

(No mechanisms)

Comments: With the project of the second semester

exercises, term projects, challenges and problems

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

	<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.	2 h.	4 h.

EVALUATION SYSTEM

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

W

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: 2 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

	<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

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

W

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.

RGJ206 [!] *Interpreta e indica correctamente las tolerancias sobre un componente mecánico*

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	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	6 h.	6 h.	12 h.

EVALUATION SYSTEM

Reports on the completion of exercises, case studies,

W

55%

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual

computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems
 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
 Individual written and/or oral tests or individual coding/programming tests

25%

20%

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%.

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

CH - Class hours: 22 h.

NCH - Non-class hours: 13 h.

TH - Total hours: 35 h.

RGJ207 [!] *Identifica y representa los elementos mecánicos y sus aplicaciones*

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

4 h.

3 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

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

75%

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%.

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

CH - Class hours: 15 h.

NCH - Non-class hours: 10 h.

TH - Total hours: 25 h.

RGJ208 [!] *Interpreta y representa conjuntos y despieces mecánicos empleando las adecuadamente las herramientas informáticas*

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

MAKE-UP MECHANISMS

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

20%

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

Comments: There won't be a second chance for the

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%	submitted exercises	There will be a retake exam for the individual test. Final mark: first exam 25% and the retake exam 75%.
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			

CH - Class hours: 45 h.

NCH - Non-class hours: 30 h.

TH - Total hours: 75 h.

CONTENTS

1. TOLERANCES

1.1. Geometrical tolerances

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

2.1. Representation and interpretation of assemblies starting from 2D drawings

2.2. Representation of assemblies starting from real parts

2.3. Representation of detailed drawings for manufacturing and assembly (Solid Works)

3. MECHANICAL ELEMENTS

3.1. Specifications, applications and examples of the most common mechanical elements

3.2. Joint and connection elements

3.3. Rotating guidance elements

3.4. Linear guidance elements

3.5. Sealing elements

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Subject notes
 Topic related web quires
 Labs
 Moodle Platform

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

Class presentations

Video projections

Daniel E. Puncoschar. “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_Ink.pl?grupo=MECATRONICA21&ejecuta=20&_ST