

[GJI201] MECHATRONIC SYSTEMS ASSEMBLY LABORATORY I

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING		Subject	?	
Semester	2	Course	2	Mention / Field of specialisation	
Character	OPTIONAL	Modality	Face-to-face	Language	CASTELLANO/EUSKARA
Plan	2022	Hours/week	3.75	Total hours	67.5 class hours + 45 non-class hours = 112.5 total hours
Credits	4,5				

PROFESSORS

ERAÑA LARRAÑAGA, IÑIGO
 AZPI-CALDERON, CHRISTIAN (SOMORROSTRO)

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
GRAPHIC EXPRESION MECHANICAL SYSTEMS	(No previous knowledge required)

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GJR209 - To know and apply principles of assembly, adjustment and fine-tuning of mechanical elements and systems	x			4,02
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		0,24
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:				4,5

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.	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 assessment. Retake is not foreseen.

CH - Class hours: 2 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 3 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.	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 assessment. Retake is not foreseen.

CH - Class hours: 2 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 3 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

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

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: 1 h.

TH - Total hours: 3 h.

RGJ294 [!] *Realiza una presentación oral del proyecto argumentando de forma eficaz, y 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

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 assessment. Retake is not foreseen.

CH - Class hours: 2 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 3 h.

RGJ226 [!] *Realiza las operaciones básicas necesarias para montar, ajustar o poner a punto conjuntos mecánicos, utilizando las herramientas y máquinas correspondientes.*

LEARNING ACTIVITIES

CH

NCH

TH

Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning

2 h.

5 h.

7 h.

Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams

7 h.

6 h.

13 h.

Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects

4 h.

3 h.

7 h.

Practical work in workshops and/or laboratories, individually and/or in teams

18 h.

18 h.

Portfolio development

2 h.

8 h.

10 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	25%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	30%	Comments: A retake exam for the individual tests would be considered. Final mark: retake exam (75%) + Tests (25%). Laboratory practices will be made-up by on-going evaluation
Portfolio	30%	
Observation (technical capacity, attitude and participation)	15%	
CH - Class hours: 33 h. NCH - Non-class hours: 22 h. TH - Total hours: 55 h.		

RGJ227 [!] <i>Conoce los elementos, herramientas y técnicas utilizadas en el montaje de conjuntos mecánicos</i>			
LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	6 h.	6 h.	12 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	11 h.	7 h.	18 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	3,5 h.	6 h.	9,5 h.
Practical work in workshops and/or laboratories, individually and/or in teams	6 h.		6 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	25%	Individual written and/or oral tests or individual coding/programming tests	
Individual written and/or oral tests or individual coding/programming tests	30%	Comments: A retake exam for the individual tests would be considered. Final mark: retake exam (75%) + Tests (25%). Laboratory practices will be made-up by on-going evaluation	
Portfolio	30%		
Observation (technical capacity, attitude and participation)	15%		
CH - Class hours: 26,5 h. NCH - Non-class hours: 19 h. TH - Total hours: 45,5 h.			

CONTENTS

- Analysis of mechanical assemblies, tools and basic operations
 Analysis of mechanical assemblies: tolerances, materials, manufacturing processes.
 Basic tools for mechanical assembly/disassembly.
 Use of machinery and basic operations.
- Joints
 Screwed joints.
 Other joints.
- Sealing elements
 Static sealing.
 Dynamic sealing.
- Guiding
 Rotary guiding.
 Linear guiding

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes	NORTON, R. L. 2013. Diseño de maquinaria. Síntesis y análisis de máquinas y mecanismos. 5º edición. McGraw-Hill.
Topic related web quires	CHILDS, P. R. 2014. Mechanical design engineering Handbook. Oxford Butterworth Heinemann
Moodle Platform	
Labs	

Video projections

ORTEA, L. 2007. Montaje y mantenimiento mecánico. E. Ortea.
SCHMID, Steven R., HAMROCK Bernard J., JACOBSON, Bo O.
2014, Fundamentals of machine elements. CRC Press LLC. http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_ink.pl?grupo=MECATRONICA22&ejecuta=20&_ST