[GJI301] OP S2. MECHATRONIC SYSTEM ASSEMBLY LABORATORY I

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING			**Subject**	?
Semester	2	**Course**	2	**Mention / Field of specialisation**	???
Character	OPTIONAL				
Plan	2025	**Modality**	Face-to-face	**Language**	CASTELLANO/EUSKARA
Credits	4,5	**Hours/week**	3.75	**Total hours**	67.5 class hours + 45 non-class hours = **112.5 total hours**

2030 AGENDA GOALS

PROFESSORS

ERAÑA LARRAÑAGA, IÑIGO
AZPI-ZUGADI, JOSE RAMON (SOMORROSTRO)
AZPI-CALDERON, CHRISTIAN (SOMORROSTRO)

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GJR229 - To know and apply principles of assembly, adjustment and fine-tuning of mechanical elements and systems	x			4,02
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		0,32
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		0,16
			Total:	4,5

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

SECONDARY LEARNING RESULTS

2RGJ291 (2 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: Continuous assessment. Retake is not foreseen.

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

2RGJ292 (2 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	1 h.	1 h.	2 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)*

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

2RGJ293 (2 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	1 h.	1 h.	2 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: 1 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 2 h.

RGJ226 Perform the basic operations necessary to assemble, adjust, or tune mechanical assemblies, using the appropriate tools and machines.

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	8 h.	5 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 **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
Individual written and/or oral tests or individual coding/programming tests	30%	
Portfolio	30%	
Observation (technical capacity, attitude and participation)	15%	

CH - Class hours: 34 h.
NCH - Non-class hours: 21 h.
TH - Total hours: 55 h.

RGJ227 Understand the elements, tools, and techniques used in the assembly of mechanical assemblies.

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
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	30%
Portfolio	30%
Observation (technical capacity, attitude and participation)	15%

MAKE-UP MECHANISMS

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

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

CH - Class hours: 26,5 h.
NCH - Non-class hours: 19 h.
TH - Total hours: 45,5 h.

2RGJ290 (2 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: Continuous assessment. Retake is not foreseen.

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

2RGJ294 (2 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	1 h.	1 h.	2 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: Continuous assessment. Retake is not foreseen.

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

CONTENTS

1. 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.2. JointsThreaded joints.Other joints.3. Sealing elementsStatic sealing.Dynamic sealing.4. GuidingRotary guidance.Linear guidance.

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	ORTEA, L. 2007. Montaje y mantenimiento mecánico. E. Ortea.
Labs	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_lnk.pl?grupo=MECATRONICA22&ejecuta=20&_ST
Video projections	