[GJI101] MECHATRONIC SYSTEMS ASSEMBLY LABORATORY I

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING			**Subject**	?
Semester	2	**Course**	2	**Mention / Field of specialisation**	
Character	OPTIONAL				
Plan	2020	**Modality**	Face-to-face	**Language**	EUSKARA
Credits	4,5	**Hours/week**	3.75	**Total hours**	67.5 class hours + 45 non-class hours = **112.5 total hours**

PROFESSORS

ERAÑA LARRAÑAGA, IÑIGO

AZPI-CALDERON, CHRISTIAN (SOMORROSTRO)

REQUIRED PREVIOUS KNOWLEDGE

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

SKILLS

VERIFICA SKILLS

SPECIFIC

GJCE33 - Knowledge and capacity for the assembly and servicing of mechanical systems

GENERAL

GJCG03 - Addressing and optimising activities of assembly, commissioning, assistance and maintenance of facilities, machinery, and industrial mechatronic systems

GJCG04 - Managing technically teams and people in activities of assembly, commissioning, assistance and maintenance of facilities, machinery and industrial systems, through the methodology of administration by projects for the effective execution of planning

CROSS

GJCTR2 - To be able to understand and apply knowledge to problem solving in complex work situations or specialised and professional environments calling for creative and innovative ideas, using self-developed arguments and procedures;

LEARNING RESULTS

RG201 They coordinate their work with the other members of the team, contribute in their team to the development of the tasks to be carried out and the creation of a good working climate.

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
Self-assessment	30%
Co-assessment	35%
Observation (technical capacity, attitude and participation)	35%

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.

RG202 They make decisions and assess the possible consequences of the selected alternative.

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
Observation (technical capacity, attitude and participation)	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.

RG204 They define the problem, the development of the solution, as well as the conclusions in an effective way, making a correct use of the language, in writing.

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.	2 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%	Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems **Comments:** Revision and correction of the written report of the semester project

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

RG205 They define the problem, the development of the solution, as well as the conclusions in an effective way, making a correct use of the language, orally.

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
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 assessment. Retake is not foreseen.

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

RGJ229 They assemble, adjust and set-up mechatronic systems, interpreting plans, diagrams and assembly and disassembly procedures.

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	4 h.	16 h.	20 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	12 h.	8 h.	20 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.	2 h.	10 h.
Practical work in workshops and/or laboratories, individually and/or in teams	34,5 h.		34,5 h.
Portfolio development	2 h.	14 h.	16 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies,	25%	Individual written and/or oral tests or individual

computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems		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: 60,5 h.
NCH - Non-class hours: 40 h.
TH - Total hours: 100,5 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. Joints
Screwed joints.
Other joints.

3. Sealing elements
Static sealing.
Dynamic sealing.

4. Guiding
Rotary guiding.
Linear guiding.

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes	ORTEA, L. 2007. Montaje y mantenimiento mecánico. E. Ortea.
Topic related web quires	CHILDS, P. R. 2014. Mechanical design engineering Handbook. Oxford Butterworth Heinemann.
Moodle Platform	NORTON, R. L. 2013. Diseño de maquinaria. Síntesis y análisis de máquinas y mecanismos. 5º edición. McGraw-Hill.
Labs	SCHMID, Steven R., HAMROCK Bernard J., JACOBSON, Bo O. 2014, Fundamentals of machine elements. CRC Press LLC.
Video projections	http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_lnk.pl?grupo=MECATRONICA22&ejecuta=20&_ST