[GJG203] MANUFACTURING TECHNOLOGY LABORATORY

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING			**Subject**	?
Semester	2	**Course**	2	**Mention / Field of specialisation**	???
Character	OPTIONAL				
Plan	2022	**Modality**	Face-to-face	**Language**	EUSKARA/CASTELLANO
Credits	6	**Hours/week**	5.11	**Total hours**	92 class hours + 58 non-class hours = **150 total hours**

2030 AGENDA GOALS

PROFESSORS

ORTUBAY IBABE, RAFAEL
VILLAR ANCHIA, JOSEBA ANDONI
MENDIGUREN OLAETA, JOSEBA
MASKARIANO MANZANO, JULEN
AZPI-LOPEZ, ANGEL (SOMORROSTRO)
AZPI-CALDERON, CHRISTIAN (SOMORROSTRO)

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
MANUFACTURING TECHNOLOGY	*(No previous knowledge required)*

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GJR106 - Knowing and applying production and manufacturing techniques, tools and systems	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		0,36
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:	6

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

SECONDARY LEARNING RESULTS

2RGJ291 (2 sem)

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.

RGJ220 [!] *Determina procesos de fabricación, analizando y justificando la secuencia y variables del proceso*

LEARNING ACTIVITIES	CH	NCH	TH

Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	2 h.		2 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	3 h.	3 h.	6 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	5 h.	3 h.	8 h.
Practical work in workshops and/or laboratories, individually and/or in teams	8 h.	6 h.	14 h.

EVALUATION SYSTEM	*W*
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	40%
Individual written and/or oral tests or individual coding/programming tests	60%

MAKE-UP MECHANISMS

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

Comments: If a retake exam is needed, the final mark will be obtained 25% first mark 75% second one

CH - Class hours: 18 h.
NCH - Non-class hours: 12 h.
TH - Total hours: 30 h.

2RGJ292 **(2 sem)**

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.

2RGJ293 **(2 sem)**

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.

RGJ223 **[!]** ***Controla dimensiones, geometrías y superficies de productos, comparando las medidas con las especificaciones del producto.***

LEARNING ACTIVITIES	CH	NCH	TH
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	1 h.	2 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	2 h.	1 h.	3 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	2 h.	1 h.	3 h.
Practical work in workshops and/or laboratories, individually and/or in teams	4 h.	3 h.	7 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	60%
Individual written and/or oral tests or individual coding/programming tests	40%

MAKE-UP MECHANISMS

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

Comments: If a retake exam is needed, the final mark will be obtained 25% first mark 75% second one

CH - Class hours: 9 h.
NCH - Non-class hours: 6 h.
TH - Total hours: 15 h.

2RGJ290 (2 sem)

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.

RGJ221 [!] ***Opera las herramientas, máquinas y equipos que intervienen en el proceso de fabricación, relacionando su funcionamiento con las condiciones del proceso y las características del producto final***

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	2 h.	3 h.	5 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	5 h.	4 h.	9 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.	4 h.	12 h.
Practical work in workshops and/or laboratories, individually and/or in teams	12 h.	7 h.	19 h.

EVALUATION SYSTEM	W
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	80%

MAKE-UP MECHANISMS

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

Comments: If a retake exam is needed, the final mark will be obtained 25% first mark 75% second one

CH - Class hours: 27 h.
NCH - Non-class hours: 18 h.
TH - Total hours: 45 h.

RGJ222 **[!]** ***Prepara máquinas de control numérico (CNC), seleccionando los útiles y aplicando las técnicas o procedimientos requeridos.***

LEARNING ACTIVITIES	CH	NCH	TH
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	3 h.	5 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	6 h.	3 h.	9 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.	4 h.	12 h.
Practical work in workshops and/or laboratories, individually and/or in teams	12 h.	7 h.	19 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	80%
Individual written and/or oral tests or individual coding/programming tests	20%

MAKE-UP MECHANISMS

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

Comments: If a retake exam is needed, the final mark will be obtained 25% first mark 75% second one

CH - Class hours: 28 h.
NCH - Non-class hours: 17 h.
TH - Total hours: 45 h.

2RGJ294 **(2 sem)**

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: Continuous assessment. Retake is not foreseen.

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

CONTENTS

SELECTION OF MACHINING MATERIALS- Commercial forms of materials.- Materials and their machining conditions.MACHINING WITH HAND TOOLS- Filing, drilling, sawing, reaming, threading, riveting, punching...PREPARATION OF MACHINES, EQUIPMENT, TOOLING AND TOOLS.- Forming machines and equipment- Machines and equipment for manufacturing by machining.- Elements and controls of the machines.- Adjustment of process parameters.OPERATIONS WITH METAL REMOVAL MACHINE TOOLS.- Operation of machine tools.- Cutting tools.- Chip removal operating techniques.NUMERICAL CONTROL PROGRAMMING- Workpiece clamping tools.- Machining strategies.- CNC-ISO programming.FORMING OPERATIONS- Machine operation- Tools and fixtures- Forming operating techniquesWELDING IN NATURAL ATMOSPHERE AND PROJECTION- Operation of welding and projection machines.- Welding and projection techniques.CONTROL OF DIMENSIONS, GEOMETRIES AND SURFACES OF PRODUCTS.- Measurement, comparison and verification processes- Geometric and surface measurement and verification techniques in the manufacturing process.

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography

[!] *Plataforma Moodle*

[!] *Presentaciones en clase*

[!] *Laboratorios*

[!] *Realización de prácticas en laboratorio*

[!] *Consultas en páginas web relacionadas con el tema*

CRUZ, T. 2010. Control Numérico y Programación II. Marcombo Formación

KALPAKJIAN, S. SCHMID, S.R. 2009. Manufactura, ingeniería y tecnología. Prentice Hall

GROOVER, M. 1997. Fundamentos de manufactura moderna: Materiales, procesos y sistemas. Prentice Hall

HERNÁNDEZ, G. 2016. Manual del soldador. Cesol

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