

## [GJG301] MANUFACTURING TECHNOLOGIES

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN MECHATRONICS ENGINEERING	<b>Subject</b>	?
<b>Semester</b>	2	<b>Course</b>	1
<b>Character</b>	OPTIONAL	<b>Mention / Field of specialisation</b>	???
<b>Plan</b>	2025	<b>Modality</b>	Face-to-face
<b>Credits</b>	6	<b>Language</b>	CASTELLANO/EUSKARA
		<b>Total hours</b>	90 class hours + 60 non-class hours = <b>150 total hours</b>

### 2030 AGENDA GOALS



### PROFESSORS

SAENZ DE ARGANDOÑA FERNANDEZ DE GOROSTIZA, ENEKO  
UGARTE BARRENA, DONE  
MENDIGUREN OLAETA, JOSEBA  
ESNAOLA ARRUTI, ARITZ  
SORIANO MORENO, DENIS  
DOKBE-ETXEBESTE GALLARDO, MIKEL  
IBARRETXE LOPEZ, UNAI  
GARCIA MICHELENA, PABLO  
AZPI-LOPEZ, ANGEL (SOMORROSTRO)

### REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	(No previous knowledge required)

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>GJR115</b> - To know the different production and manufacturing systems, their characteristics and the main parameters that define them	x			5,4
<b>G-TR1</b> - 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
<b>G-TR2</b> - 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

**2RGJ193** (2 sem) Write a clear and concise project report using the information sources and report structure provided, and using language that is correct, inclusive, and non-discriminatory.

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.

**RGJ2013** Is capable of selecting and developing the optimal manufacturing process for a mechanical component with a given geometry and material.

#### LEARNING ACTIVITIES

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

CH

25 h.

NCH

10 h.

TH

35 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

100%

#### MAKE-UP MECHANISMS

(No mechanisms)

**Comments:** Continuous assessment, no make-up foreseen

**CH - Class hours:** 25 h.

**NCH - Non-class hours:** 10 h.

**TH - Total hours:** 35 h.

**2RGJ192** (2 sem) Understand and describe the phases involved in developing engineering teams, and identify and describe the professional roles of an engineer, recognizing their contribution to the achievement of sustainable development goals (SDGs).

#### LEARNING ACTIVITIES

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

CH

2 h.

NCH

1 h.

TH

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.

**RGJ1011** Learn about existing forming manufacturing processes, understanding their advantages and limitations as well as their main variables.

#### LEARNING ACTIVITIES

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

CH

10 h.

NCH

7 h.

TH

17 h.

Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints

4 h.

10 h.

14 h.

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

13 h.

6 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:** In the event of having to take the make-up test, final mark: 75% mark for the make-up test + 25% mark for the first test.

**CH - Class hours:** 27 h.

**NCH - Non-class hours:** 23 h.

**TH - Total hours:** 50 h.

**RGJ2012** Learn about existing machining processes, understanding their advantages and limitations as well as their main variables.

LEARNING ACTIVITIES	CH	NCH	TH
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	6 h.	8 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	26 h.	16 h.	42 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	
Individual written and/or oral tests or individual coding/programming tests	80%	<b>Comments:</b> In the event of having to take the make-up test, final mark: 75% mark for the make-up test + 25% mark for the first test.	

**CH - Class hours:** 28 h.  
**NCH - Non-class hours:** 22 h.  
**TH - Total hours:** 50 h.

**2RGJ190** (2 sem) Understand and apply the phases for developing, based on defined objectives and planning, a technically complex project in line with your knowledge. Reflect on your training needs, becoming aware of your limitations.

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)		
<b>Comments:</b> Continuous assessment. Retake is not foreseen.				

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

**2RGJ191** (2 sem) Contribute to the team's operating strategy by prioritizing common goals, encouraging and valuing everyone's participation, and taking responsibility for individual tasks and meeting deadlines.

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)		
<b>Comments:</b> Continuous assessment. Retake is not foreseen.				

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

**2RGJ194 (2 sem)** Give a clear and concise oral presentation and defense of the project, using language correctly.

#### LEARNING ACTIVITIES

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

**CH**

2 h.

**NCH**

1 h.

**TH**

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:** Continuous assessment. Retake is not foreseen.

**CH - Class hours:** 2 h.

**NCH - Non-class hours:** 1 h.

**TH - Total hours:** 3 h.

## CONTENTS

Forming section-Sheet metal forming-Casting Machining section-Turning-Milling-Drilling-Basic cutting tools-Basic cutting conditions-Process sheets-CNC

## LEARNING RESOURCES AND BIBLIOGRAPHY

### Learning resources

Subject notes  
Video projections  
Lab practical training

### Bibliography

Fundamentals of Modern Manufacturing. Materials, Processes and Systems. Mikell P. Groover.  
Kalpakjian, S., Schmid, R.S. Manufacturing Engineering and Technology. Prentice Hall, New Jersey, 2000. ISBN: 978-0133128741  
[http://katalogoa.mondragon.edu/janium-bin/janium\\_login\\_opac\\_re\\_Ink.pl?grupo=MECATRONICA12&ejecuta=25&\\_ST](http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_Ink.pl?grupo=MECATRONICA12&ejecuta=25&_ST)