

## [GJG302] OP S2. MANUFACTURING TECHNOLOGIES

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN MECHATRONICS ENGINEERING	<b>Subject</b>	?
<b>Semester</b>	2	<b>Course</b>	2
<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  
MENDIGUREN OLAETA, JOSEBA  
ARRILLAGA EGUILUZ, ARITZ  
IBARRETXE LOPEZ, UNAI  
GARCIA MICHELENA, PABLO  
AZPI-LOPEZ, ANGEL (SOMORROSTRO)  
LUENGO TESOURO, IVAN

### REQUIRED PREVIOUS KNOWLEDGE

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

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>GJR125</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

**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

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 1 h. NCH 2 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)

CH - Class hours: 1 h.

NCH - Non-class hours: 2 h.

TH - Total hours: 3 h.

**2RGJ292 (2 sem) Identify and accurately explain the SDGs addressed by the project carried out.**

**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*

100%

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

**MAKE-UP MECHANISMS**

(No mechanisms)

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

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

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

**RGJ205 They are able to choose and develop the optimum manufacturing process for a specific mechanical component considering its geometry and material composition.**

**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*

100%

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

**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.

**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**

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*

1 h.

*NCH*

2 h.

*TH*

3 h.

**EVALUATION SYSTEM**

*W*

100%

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

**MAKE-UP MECHANISMS**

(No mechanisms)

**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.

**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.

**RGJ204** They acquire knowledge about machining processes, understanding their advantages, limitations and main process parameters.

#### 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

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:** 28 h.

**NCH - Non-class hours:** 22 h.

**TH - Total hours:** 50 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

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.

**RGJ203** They acquire knowledge about forming processes, understanding their advantages, limitations and main process parameters.

#### 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

10 h.

7 h.

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	15 h.	4 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:** 29 h.

**NCH - Non-class hours:** 21 h.

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

## CONTENTS

FORMING1. Casting2. Sheet metal forming METAL REMOVAL1. Turning2. Milling3. Drilling4. Cutting conditions and tools5. Process sheets and machining practices

## LEARNING RESOURCES AND BIBLIOGRAPHY

### Learning resources

Moodle Platform  
 Class presentations  
 Lab practical training  
 Labs  
 Video projections

### Bibliography

Kalpakjian, S., Schmid, R.S. Manufacturing Engineering and Technology. Prentice Hall, New Jersey, 2000. ISBN: 978-01331287  
[http://katalogoa.mondragon.edu/janium-bin/janium\\_login\\_opac\\_re\\_Ink.pl?grupo=MECATRONICA22&ejecuta=10&\\_ST](http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_Ink.pl?grupo=MECATRONICA22&ejecuta=10&_ST)