

## [GAJ201] FLUID MECHANICS

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN ENERGY ENGINEERING	<b>Subject</b>	THERMAL AND FLUID ENGINEERING
<b>Semester</b>	1	<b>Course</b>	2
<b>Character</b>	COMPULSORY	<b>Mention / Field of specialisation</b>	
<b>Plan</b>	2022	<b>Modality</b>	Face-to-face
<b>Credits</b>	4,5	<b>Hours/week</b>	2.67
		<b>Language</b>	CASTELLANO/EUSKARA
		<b>Total hours</b>	48 class hours + 64.5 non-class hours = <b>112.5 total hours</b>

### PROFESSORS

FERNANDEZ ARROIABE TXAPARTEGI, PERU

### REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
MATHEMATICS I	(No previous knowledge required)
MATHEMATICS II	
PHYSICS I	

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>GAJ203</b> - Applies the fundamental principles of fluid mechanics to the analysis of problems in the field of energy engineering.	x			4,02
<b>G-RTR1</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		0,24
<b>G-RTR2</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: 4,5

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

### SECONDARY LEARNING RESULTS

**RGJ290** [!] *Proponer los objetivos y la planificación de un proyecto que le permita adquirir y/o reforzar los conocimientos de tecnologías propias de su especialidad,- que en ocasiones llegan a la vanguardia del conocimiento- y definir una estrategia de aprendiz*

#### 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

3 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)

CH - Class hours: 0 h.

NCH - Non-class hours: 3 h.

TH - Total hours: 3 h.

**RGJ291** [!] *Establecer las responsabilidades de los miembros del equipo utilizando técnicas adecuadas para fomentar la eficiencia del equipo para el desarrollo del proyecto en los plazos establecidos (compartir recursos, aportar ideas, habilidades comunicativas*

#### 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

3 h.

3 h.

individually and/or in teams

#### 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: 0 h.

NCH - Non-class hours: 3 h.

TH - Total hours: 3 h.

**RG293** [!] *Redacta y estructura correctamente la memoria del proyecto, haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje. Para ello, busca y hace uso de las fuentes de información adecuadas.*

#### 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

3 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: 0 h.

NCH - Non-class hours: 3 h.

TH - Total hours: 3 h.

**RG294** [!] *Realiza una presentación oral del proyecto con argumentos elaborados por sí mismos y haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje.*

#### 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

3 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: 0 h.

NCH - Non-class hours: 3 h.

TH - Total hours: 3 h.

**RG205** [!] *Describe las propiedades de los fluidos y sus efectos sobre los sistemas energéticos*

#### LEARNING ACTIVITIES

CH

NCH

TH

Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning

5 h.

5 h.

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

1 h.

1 h.

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

8 h.

8 h.

Carrying out exercises and solving problems individually and/or in teams

2 h.

4 h.

6 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and/or oral tests or individual coding/programming tests	100%	(No mechanisms)
<b>CH - Class hours:</b> 11 h. <b>NCH - Non-class hours:</b> 9 h. <b>TH - Total hours:</b> 20 h.		

RGA206 [!] <i>Aplica los métodos de análisis del comportamiento hidrostático de los fluidos a sistemas energéticos</i>			
LEARNING ACTIVITIES	CH	NCH	TH
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	10 h.		10 h.
Carrying out exercises and solving problems individually and/or in teams	7 h.	6,5 h.	13,5 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS	
Individual written and/or oral tests or individual coding/programming tests	100%	Individual written and/or oral tests or individual coding/programming tests	
<b>CH - Class hours:</b> 19 h. <b>NCH - Non-class hours:</b> 6,5 h. <b>TH - Total hours:</b> 25,5 h.			

RGA207 [!] *Aplica los métodos de análisis de la dinámica de fluidos en sistemas energéticos para optimizar su rendimiento*

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		22,5 h.	22,5 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		8 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	12 h.		12 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	6,5 h.	10,5 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	40%	(No mechanisms)	
Individual written and/or oral tests or individual coding/programming tests	60%		

CH - Class hours: 18 h.  
NCH - Non-class hours: 37 h.  
TH - Total hours: 55 h.

## CONTENTS

## LEARNING RESOURCES AND BIBLIOGRAPHY

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**Learning resources**

Subject notes  
Moodle Platform

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**Bibliography**

[http://katalogoa.mondragon.edu/janium-bin/janium\\_login\\_opac\\_re\\_Ink.pl?grupo=ENERGIA21&ejecuta=35](http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_Ink.pl?grupo=ENERGIA21&ejecuta=35)