

## [GOC301] CHEMISTRY

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN INDUSTRIAL ORGANIZATION ENGINEERING	<b>Subject</b>	CHEMISTRY
<b>Semester</b>	2	<b>Course</b>	1
<b>Character</b>	BASIC TRAINING	<b>Mention / Field of specialisation</b>	
<b>Plan</b>	2022	<b>Modality</b>	Face-to-face
<b>Credits</b>	6	<b>Hours/week</b>	5.17
		<b>Language</b>	CASTELLANO
		<b>Total hours</b>	93 class hours + 57 non-class hours = <b>150 total hours</b>

### PROFESSORS

	GARAY ARAICO, AINARA
	GARITAONAINDIA URIBE, GARAZI

### REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
<i>(No specific previous subjects required)</i>	<i>(No previous knowledge required)</i>

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>G-RA08</b> - To understand and apply the principles of basic knowledge of general chemistry, organic and inorganic chemistry and their applications in engineering		x		5,4
<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		0,28
<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		0,32
<b>Total:</b>				<b>6</b>

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

#### ENAE LEARNING RESULTS

ENAE LEARNING RESULTS	ECTS
<b>ENAE01</b> - Knowledge and understanding: Knowledge and understanding of the underlying scientific and mathematical principles in their branch of engineering.	2,2
<b>ENAE04</b> - Knowledge and understanding: To be aware of the multidisciplinary context of engineering.	0,24
<b>ENAE05</b> - Analysis in engineering: Ability to apply their knowledge and understanding in identifying, formulating and solving engineering problems using established methods.	2,4
<b>ENAE08</b> - Engineering projects: Ability to apply their knowledge in the development and completion of projects which meet specific requirements.	0,52
<b>ENAE17</b> - Transversal competences: To work effectively, both individually and in a team.	0,32
<b>ENAE18</b> - Transversal competences: To use different methods to communicate effectively with the engineering community and society in general.	0,32
<b>Total:</b>	<b>6</b>

### SECONDARY LEARNING RESULTS

**RGO115** [!] *Conoce las características de los materiales que tienen una situación física diferente partiendo de las características atómicas*

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	4 h.	4 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	6 h.	10 h.	16 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.		6 h.
Carrying out exercises and solving problems individually and/or in teams	14 h.	7 h.	21 h.
Practical work in workshops and/or laboratories, individually and/or in teams	3 h.	1 h.	4 h.
Tutoring sessions and monitoring of training activities	8 h.	2 h.	10 h.
<b>EVALUATION SYSTEM</b>	<b>w</b>	<b>MAKE-UP MECHANISMS</b>	

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	15%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	85%	

**CH - Class hours:** 41 h.  
**NCH - Non-class hours:** 24 h.  
**TH - Total hours:** 65 h.

**RG0116** [!] *Identifica y desarrolla las reacciones químicas que ocurren en diferentes situaciones de servicio*

**LEARNING ACTIVITIES**

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
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.	9 h.	19 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	10 h.	6 h.	16 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	11 h.	10 h.	21 h.
Practical work in workshops and/or laboratories, individually and/or in teams	3 h.	1 h.	4 h.

**EVALUATION SYSTEM**

	<i>W</i>
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	15%
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	20%
Individual written and/or oral tests or individual coding/programming tests	65%

**MAKE-UP MECHANISMS**

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

**CH - Class hours:** 44 h.  
**NCH - Non-class hours:** 26 h.  
**TH - Total hours:** 70 h.

**RG0190** [!] *Conocer y aplicar las fases para desarrollar de forma guiada, con los objetivos y la planificación previamente definidos, un proyecto de complejidad técnica acorde con los conocimientos de formación básica de la ingeniería. Reflexiona sobre los cono*

**LEARNING ACTIVITIES**

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
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.	2 h.	4 h.

**EVALUATION SYSTEM**

	<i>W</i>
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)

**CH - Class hours:** 2 h.  
**NCH - Non-class hours:** 2 h.  
**TH - Total hours:** 4 h.

**RG0191** [!] *Contribuir en la estrategia de funcionamiento del equipo priorizando los objetivos comunes, fomentando y valorando la participación de todas las personas y responsabilizándose de las tareas individuales, así como del cumplimiento de plazos.*

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)

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

**RG0193** [!] *Redacta una memoria de proyecto clara y concisa utilizando las fuentes de información y estructura de memoria facilitadas, 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	2 h.	2 h.	4 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:** 2 h.  
**NCH - Non-class hours:** 2 h.  
**TH - Total hours:** 4 h.

**RG0194** [!] *Realiza una presentación oral y defensa del proyecto clara y concisa, haciendo 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	2 h.	2 h.	4 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)

**CH - Class hours:** 2 h.  
**NCH - Non-class hours:** 2 h.  
**TH - Total hours:** 4 h.

## CONTENTS

1. Atomic model and periodic characteristics  
2. Basic concepts of chemical bonds  
3. States of matter: solids, liquids and gases  
4. Basic concepts of chemical reactions  
5. Acid-base reactions  
6. Thermochemistry  
7. Electrochemistry

## LEARNING RESOURCES AND BIBLIOGRAPHY

### Learning resources

Topic related web quires  
Moodle Platform  
Class presentations  
Lab practical training  
Video projections  
Slides of the subject

### Bibliography

Química la ciencia central, 11a edición. Theodore L. Brown, H. Eugene LeMay, Bruce E. Bursten, Catherine J. Murphy. Editorial Pearson (2009)  
Química general, 10a edición. Ralph H. Petrucci, F Geoffrey Herring, Jeffrey D. Madura, Carey Bissonnette. Editorial Pearson (2011)  
Jeffry D. Madura, Carey Bissonnette. Editorial Pearson (2011)  
Kimikaren Oinarriak, Teresa Arbeola Lopez (2010)  
Kimika Orokorra, 2. argitalpena, UEUko Kimika Saila (1996)