

[GEF301] CHEMISTRY

GENERAL INFORMATION

| | | | | |
|------------------|--|-------------------|-----------------|--|
| Studies | DEGREE IN INDUSTRIAL ELECTRONICS ENGINEERING | | Subject | CHEMISTRY |
| Semester | 2 | Course | 1 | Mention / Field of specialisation |
| Character | BASIC TRAINING | | Language | EUSKARA |
| Plan | 2022 | Modality | Face-to-face | Total hours |
| Credits | 6 | Hours/week | 5.19 | 93.5 class hours + 56.5 non-class hours = 150 total hours |

PROFESSORS

SARRIONANDIA ARIZNABARRETA, MARIASUN
BURUAGA LAMARAIN, LOREA

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

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

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

ENAAE LEARNING RESULTS

ENA101 - Knowledge and comprehension: Knowledge and understanding of mathematics and other basic sciences inherent in them engineering speciality, at a level that allows them to acquire the other competencies of the degree.

ENA106 - Engineering projects: Ability to project, design and develop complex products (parts, components, finished products, etc.), processes and systems of their speciality, which meet the established requirements, including awareness of the social, health and safety, environmental, economic and industrial aspects, as well as selecting and applying appropriate project methods.

ENA113 - Practical application of engineering: Knowledge of application of materials, equipment and tools, engineering technology and processes, and their limitations in the field of their speciality.

ENA119 - Communication and Teamwork: Ability to effectively communicate information, ideas, problems and solutions in the field of engineering and with society in general.

ENA120 - Communication and Teamwork: Ability to operate effectively in domestic and international contexts, individually and as a team, and to cooperate with both engineers and people from other disciplines.

SECONDARY LEARNING RESULTS

RGE115 [!] *Conoce las características de los materiales que tienen una situación física diferente partiendo de las características atómicas*

LEARNING ACTIVITIES

| | CH | NCH | TH |
|---|-------|-------|-------|
| Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints | 2 h. | 10 h. | 12 h. |
| Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects | 38 h. | 15 h. | 53 h. |

EVALUATION SYSTEM

| | W |
|---|-----|
| Individual written and/or oral tests or individual coding/programming tests | 85% |
| Self-assessment | 15% |
| Comments: - Control point: minimum grade 5. | |

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests
Comments: - Students with less than a 5 at the control point must retake the exam. - Final note of the control point: control point 25% and retake 75%.

CH - Class hours: 40 h.

NCH - Non-class hours: 25 h.
TH - Total hours: 65 h.

RGE116 [!] *Identifica y desarrolla las reacciones químicas que ocurren en diferentes situaciones de servicio*

LEARNING ACTIVITIES

| | <i>CH</i> | <i>NCH</i> | <i>TH</i> |
|---|-----------|------------|-----------|
| Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints | 2 h. | 10 h. | 12 h. |
| Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects | 33 h. | 10 h. | 43 h. |
| Carrying out work experience in real environments and writing the corresponding report | 9 h. | 6 h. | 15 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 | 4% |
| Individual written and/or oral tests or individual coding/programming tests | 77,5% |
| Self-assessment | 12% |
| Prototype / Product | 6,5% |

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests
Prototype / Product
Comments: - Students with less than a 5 at the control point must retake the exam. - Final note of the control point: control point 25% and retake 75%. - In the project / PBL there will not be any retake of the individual defense.

Comments: - Control point: minimum grade 5. - PBL project grade: 30% product, 20% technical content of the report and 50% individual technical defense.

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

RGE190 [!] *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> |
|--|-----------|------------|-----------|
| Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams | 2,5 h. | 1,5 h. | 4 h. |

EVALUATION SYSTEM

| | <i>W</i> |
|--|----------|
| Observation (technical capacity, attitude and participation) | 100% |

MAKE-UP MECHANISMS

Observation (technical capacity, attitude and participation)
Comments: Continuous assessment.

CH - Class hours: 2,5 h.
NCH - Non-class hours: 1,5 h.
TH - Total hours: 4 h.

RGE191 [!] *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

| | <i>CH</i> | <i>NCH</i> | <i>TH</i> |
|--|-----------|------------|-----------|
| 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

| | <i>W</i> |
|--|----------|
| Observation (technical capacity, attitude and participation) | 100% |

MAKE-UP MECHANISMS

Observation (technical capacity, attitude and participation)
Comments: Continuous assessment.

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

RGE193 [!] *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

| | <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 | 2,5 h. | 1,5 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 | 100% |

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems
Comments: - Continuous assessment. - It may be asked to redo the document.

CH - Class hours: 2,5 h.
NCH - Non-class hours: 1,5 h.
TH - Total hours: 4 h.

RGE194 [!] *Realiza una presentación oral y defensa del proyecto clara y concisa, haciendo uso correcto, inclusivo y no discriminatorio del lenguaje.*

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 | 2,5 h. | 1,5 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

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
Comments: - Continuous assessment.

CH - Class hours: 2,5 h.
NCH - Non-class hours: 1,5 h.
TH - Total hours: 4 h.

CONTENTS

1. Atomic model and periodic features
2. The Fundamental Concepts of Chemical Connexions
3. States of matter: Liquids and gas
4. Fundamental Concepts of Chemical Reactions

5. Acid base reactions

6. Thermochemistry

7. Electrochemistry

LEARNING RESOURCES AND BIBLIOGRAPHY

| Learning resources | Bibliography |
|--------------------------|--|
| Class presentations | Química la ciencia central, 11a edición. Theodore L. Brown, H. Eugene LeMay, Bruce E. Bursten, Catherine J. Murphy. Editorial Pearson (2009) |
| Video projections | Química general, 10a edición. Ralph H. Petrucci, F Geoffrey Herring, Jeffry D. Madura, Carey Bissonnette. Editorial Pearson (2011) |
| Topic related web quires | Kimikaren Oinarriak, Teresa Arbeola Lopez (2010) |
| Moodle Platform | Kimika Orokorra, 2. argitalpena, UEUko Kimika Saila (1996) |
| Lab practical training | |