Course guide
340022 - QUIM-N1013 - Chemistry

Unit in charge: Vilanova i la Geltrú School of Engineering
Teaching unit: 713 - EQ - Department of Chemical Engineering.

Degree: BACHELOR’S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR’S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR’S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR’S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Compulsory subject).

Academic year: 2023  ECTS Credits: 6.0  Languages: Catalan

LECTURER

Coordinating lecturer: NATIVITAT SALVADÓ CABRÉ
Others: MARTÍ BELTRAN GONZALEZ
        SALVADOR BUTÍ PAPIOL
        AGUSTÍ FORTUNY SANROMÀ
        NÚRIA JIMÉNEZ GARCÍA
        JOAQUIM OLIVÉ DURAN
        LURDES ROSET CALZADA
        MONTSERRAT RUIZ PLANAS
        NATIVITAT SALVADÓ CABRÉ

PRIOR SKILLS

Students who have not done Chemistry subjects in the higher school or in the higher degree modules, a detailed reading of some chemistry text for the higher school is recommended, also a reading of the pages, F1 to F104, of "FUNDAMENTOS" that you will find in the book Principles of Chemistry. This book is recommended in the bibliography and can be found in the EPSEVG library:

Authors: Peter Atkins / Loretta Jones
Principios de Química. Los caminos del descubrimiento
5a Edición. Editorial Médica Panamericana

These pages contain an introduction to the chemical language, the most basic concepts, some examples and exercises.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
5. CE4. Ability to understand and apply principles of basic knowledge of general chemistry, organic and inorganic chemistry and its applications in engineering.
Transversal:
1. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
2. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.
4. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world’s situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.

TEACHING METHODOLOGY
1. Teaching in the classroom
2. Use of teaching material: visualizations, animations and videos
3. Solving exercises and problems, applications of chemistry to the everyday world.
4. Experimental chemistry in the laboratory
5. Student-teacher interaction based on exercises and questions proposed in classroom
6. Teacher-student interaction during time scheduled

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h

CONTENTS

Structure of matter

Description:
- Introduction to chemistry
- Electronic structure
- Periodic Table and Periodic Properties
- Chemical bonds
- Molecular structure
- States of matter: gas, solid and liquid
- Solutions

Related activities: 

Full-or-part-time: 60h
- Theory classes: 12h
- Laboratory classes: 12h
- Self study: 36h
Chemical Transformations

Description:
- Chemical reactions
- Thermochemistry
- Chemical Kinetics
- Chemical equilibrium
- Acid and base
- Reduction-oxidation reactions, electrochemistry

Full-or-part-time: 90h
Theory classes: 18h
Laboratory classes: 18h
Self study: 54h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

Complementary:

RESOURCES

Audiovisual material:
- Nom recurs. Resource

Other resources:
https://www.rsc.org/periodic-table