Universidad Zaragoza

Academic Year/course: 2023/24

28708 - Chemistry

Syllabus Information

Academic year: 2023/24
Subject: 28708 - Chemistry
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 423 - Bachelor's Degree in Civil Engineering
ECTS: 6.0
Year: 1
Semester: First semester
Subject type: Basic Education
Module:

1. General information

The objective of the subject is that students acquire a basic vision of the structure of matter in relation to its properties and the chemical transformations that matter can undergo.

These approaches and goals are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (https://www.un.org/sustainabledevelopment/es/),in such a way that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement. Goal 6: Clean Water and Sanitation.

2. Learning results

Explain concepts related to the structure of matter, dissolutions and reactions.

Apply the acquired knowledge of chemistry.

Use numerical methods in the solution of the chemical problems proposed.

Solve questions and problems of General Chemistry.

Know and properly use basic laboratory equipment to perform simple chemical experiments.

Acquire skills to handle chemical language; particularly symbolic and formal language.

Interpret and present the contents of basic scientific texts.

3. Syllabus

BLOCK 1. Atom and Periodic System.

Unit 1. The atom. *Unit 2.* General study of the Periodic Table.

BLOCK 2. Chemical bonding.

Unit 3.- Ionic bonding. *Unit 4*.- Covalent bonding. *Unit 5*.- Metallic bonding.

BLOCK 3. Bonds among molecules.

Unit 6.- Intermolecular bonds.

BLOCK 4. Aggregation states.

Unit 7.- Gaseous state. *Unit 8*.- Liquid state. *Unit 9*.- Solid state.

BLOCK 5. Introduction to the study of solutions.

Unit 10. Introduction to the study of solutions.

BLOCK 6. Introduction to the study of reactions.

Unit 11. Introduction to the study of solutions. Stoichiometry.

BLOCK 7. Introduction to the study of materials and environmental impact.

Unit 12. Introduction to the chemical analysis of materials. *Unit 13.* Environmental impact and management of constructionwaste.

BLOCK 8. Introduction to Geology.

Unit 14.- Introduction to Geology. Rocks.

PRACTICE. Knowing and handling laboratory material. Preparation of solutions. Filtration. Volumetric analysis. Distillation.

4. Academic activities

Lectures: sessions with the teacher in which the subject syllabus will be explained. 24 hours

Problems: sessions to solve problems posed by the teacher. 20 hours

Seminars: sessions of exposition of topics without repercussion in terms of evaluation. 4 hours

Laboratory practices. 6 hours

Assessment tests. 6 hours

5. Assessment system

CONTINUOUS ASSESSMENT system:

Two eliminatory midterm exams of the subject, compensable between them, with a grade equal to or higher than 3. The grade is obtained as an average of both if both have been passed or have been compensated with the previous requirement.

GLOBAL FINAL ASSESSMENT system:

This test must be taken by those students who have not chosen the split assessment system or those who, having chosen this system, have not passed it. The latter should only be examined in this final testof the partial tests they have pending, which they must pass in order to pass the subject.

In any case, the tests will be 50% theory and 50% problems. In addition, in order to pass the subject by any of the systems, the laboratory practices must be completed.