Universidad Zaragoza

Academic Year/course: 2023/24

28602 - Foundamentals of building materials

Syllabus Information

Academic year: 2023/24
Subject: 28602 - Foundamentals of building materials
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 422 - Bachelor's Degree in Building 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. Likewise, they will gain knowledge of the Earth's composition and geological processes, as well as the environmental impact of constructionwaste.

Estos planteamientos y objetivos están alineados con los siguientes Objetivos de Desarrollo Sostenible (ODS) de la Agenda 2030 de Naciones Unidas (https://www.un.org/sustainabledevelopment/es/), de tal manera que la adquisición de los resultados de aprendizaje de la asignatura proporciona capacitación y competencia para contribuir en cierta medida a su logro. Goal 6: Clean water and sanitation.

2. Learning results

Explain the concepts related to the structure of matter, dissolutions and reactions as well as the geological foundations of the earth's crust

Apply the knowledge acquired in Chemistry and Geology.

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.

Have the ability to handle chemical language; particularly symbolic and formal language.

Interpret and present the contents of basic scientific texts.

Understand the technique used in reports concerning the chemical analysis of materials.

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.

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

Unit 10. Introduction to the study of solutions.

BLOCK 6. Introduction to the study of reactions.

Introduction to the study of reactions. Stoichiometry.

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

Introduction to the chemical analysis of materials. Environmental impact and management of constructionwaste.

BLOCK 8. Introduction to Geology.

Unit *14*.- Introduction to Geology. Rocks.

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 and compensable with a grade of 3 or higher. . 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 only must be examined in this final exam of the partial tests they have pending, which must be passed 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.