

Academic Year/course: 2024/25

## 28602 - Fundamentals of building materials

### Syllabus Information

**Academic year:** 2024/25

**Subject:** 28602 - Fundamentals 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.

### 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.

*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

Theoretical classes: theoretical sessions with the teacher in which the subject syllabus will be explained. 25 hours

Practical classes: problem-solving sessions posed by the teacher. They may also involve carrying out experimental practices in

the laboratory. 25 hours

Seminars: sessions to present topics without repercussions for evaluation. 4 hours

Evaluation 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.

## 6. Sustainable Development Goals

5 - Gender Equality

6 - Clean Water and Sanitation