Universidad Zaragoza

Academic Year/course: 2023/24

28607 - Materials I

Syllabus Information

Academic year: 2023/24
Subject: 28607 - Materials I
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 422 - Bachelor's Degree in Building Engineering
ECTS: 6.0
Year: 1
Semester: Second semester
Subject type: Compulsory
Module:

1. General information

The main objective of this subject is to learn about the different types of materials used in construction, the basic fundamentals of the science of materials, their properties, applications, behavior in service, and the technology developed to improve the properties of materials, in such a way that it allows any student to choose, the most suitable material for each application.

These goals are aligned with some of the Sustainable Development Goals (SDGs) of the 2030 Agenda of United Nations (https://www.un.org/sustainabledevelopment/es/), so that the acquisition of the learning results f the subject provides training and competence to contribute to some extent to the achievement of the objectives 8.4, 12.2 and 12.5.

2. Learning results

- Know the behavior and technology of materials
- Know and explain the manufacturing technologies and the technologies for the installation of the different materials
- Relate material properties to structure and/or microstructure.
- Relate the properties of the materials, obtained from the tests, with the applications and their behavior in service
- Choose materials according to the applications and their performance in service.
- Know the importance of innovation in the development of manufacturing, commissioning and applications of materials
- Critically analyze the results obtained in an experimental work and draw correct conclusions and proposefuture work.
- Conduct, individually and/or in a team, a research experiment in the field of Materials Engineering in a correct way and observing the necessary rules of safety, hygiene,safety economy of means, etc

3. Syllabus

- Unit 1 - General concepts.
- Unit 2 - Rocks.
- Unit 3 - Soils.
- Unit 4 - Ceramic materials.
- Unit 5 - Wood.
- Unit 6 - Glass.
- Unit 7 - Polymers.

4. Academic activities

- Participative master class.

The contents of the subject will be presented, with a theoretical and practical orientation towards the testing of construction materials

- Resolution of problems and cases, as well as presentations.

Practical material characterization problems will be solved. The students will individually make a brief presentation of a part of the syllabus.

- Practical and laboratory tests will be carried out.
- Study and personal work: Includes preparation and study of subject matter, as well as case studies and presentations.
- Assessment tests.
- Tutorials of the subject, in person or via videoconference, both individualized and in groups.

5. Assessment system

- Continuous assessment

Be eligible for the Continuous Assessment system, students must attend at least 80% of the classes and complete the laboratory practicals must be completed.

The student must demonstrate that he/she has achieved the intended learning results through the assessment of the following activities:

Written assessment tests: They will consist of one or more classic written exams, (theory + practice) scored from 0 to 10 points. At least 2 exams, the last one coinciding with the date of the call.

Exercises, theoretical questions and proposed works: The profesteacher sor will propose exercises, problems, practical cases, theoretical questions, etc. to be solved individually in class or through moodle.

Individual activities in class: This activity will be materialized in the presentation and discussion of a PPT work, in class and directed to their classmates.

Laboratory practices: They will not be included in the final grade, but they must be taken in order to be eligible for this type of assessment.

Evaluation/weighting activity:

Individual in-class tests and exams on theory and practical exercises, theoretical questions and proposed papers (PPT presentations). 50%. It will be necessary to score at least 4 out of 10 points to mediate with the exam as of the date of call.

Written final exam of theory and problems: 50 %. A minimum of 4 out of 10 pointswill be required in the total computation of the test in order to mediate with the previous test.

Laboratory practices: 0 %.

- Global assessment test.

For those students who decide to opt for this second system or do not comply with the requirements of the continuous assessment.

Written theory test as of the date of call: 50 %.

Written test problems at the date of call: 50 %

The subject will have been passed based on the sum of the scores obtained in the different activities developed, each one of them contributing with a minimum of 50%. Each of the tests

(theoretical/problems) will contribute to 50% of the grade, being indispensable to obtain at least 40% in each of them