COURSE NAME

Name: **MATERIALS TECHNOLOGY**
Code: 101132
Curriculum: **DEGREE IN CIVIL ENGINEERING** Year: 2
Name of the module to which it belongs: COMMON MODULE FOR THE CIVIL BRANCH
Subject: MATERIALS SCIENCE AND TECHNOLOGY
Nature: OBRIGATORY Duration: SECOND SEMESTER
ECTS Credits: 6 Classroom hours: 60
Face-to-face classroom percentage: 40% Non-contact hours: 90

FACULTY DETAILS

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SKILLS

CB1	Have and understand specific knowledge of the study area of the Degree that gives skills for the exercise of the profession of Technical Civil Engineering.
CB2	Have and understand updated and cutting-edge knowledge related to the field of study of the degree of Technical Civil Engineering.
CB3	Be able to apply the knowledge acquired to their work or vocation in a professional manner. Prepare and defend arguments in the relevant knowledge area.
CU2	Know and refine the user level of ITs.
CEC2	Theoretical and practical knowledge of the chemical, physical, mechanical and technological properties of the most used materials in construction.
CEC3	Ability to apply knowledge of construction materials to structural systems. Knowledge of the relationship between the structure of materials and the mechanical properties associated with their structure.

OBJECTIVES

- Learn the physical, mechanical and technological properties of the main construction materials used in engineering works.
- Learn the standardized tests that must be applied in each case, and interpret the results.
- Obtain a basic overview of a laboratory analysis of construction materials.
- Concrete dosing.

SDG:

- Ensure inclusive and equitable quality education and promote life-long learning opportunities for all. Ensure sustainable consumption and production methods
- Build resilient infrastructures, promote sustainable and inclusive industrialization and foster innovation
- Ensure access to affordable, reliable, sustainable, and modern energy for everyone

CONTENTS:

1. Theoretical contents

Topic 1. Technological properties of materials.
Topic 2. Stone materials
2.1 Rocks.
2.2 Aggregates.
2.3 Soils.
2.4 Properties of stone materials.
Topic 3. Metallic materials
Topic 4. Binding materials
4.1 Bituminous materials.
4.2 Plasters.
4.3 Limes.
4.4 Cement.
Topic 5. Geosynthetics, ceramics and other materials
5.1 Synthetic materials.
5.2 Ceramic materials.
5.3 New materials used in construction.
Topic 6. Concrete
6.1 Ready-mixed concrete.
6.2 Hardened concrete.
Topic 7. Concrete dosage

2. Practical contents.

- Quartering of aggregates
- Aggregate granulometry
- Density and absorption of aggregates. Pycnometer method
- Los Angeles test
- Modified Proctor test
- CBR
- Marshall test on bituminous mat.
- Identification and breaking of steel bars
- Manufacture and consistency of concrete
- Tests on hardened concrete