

COURSE NAME

Name: **MINERALS TREATMENT**

Code: 101204

Curriculum: **DEGREE IN ENERGY ENGINEERING AND MINERAL RESOURCES**

Year: 3

Name of the module to which it belongs: SPECIFIC TO MINING

Subject: MINERALURGIC TECHNOLOGY

Nature: OBRIGATORY Duration: SECOND SEMESTER

ECTS Credits: 6

Classroom hours: 60

Face-to-face classroom percentage: 40%

Non-contact hours: 90

FACULTY DETAILS

Name: HERNANDO FERNÁNDEZ, JOSÉ LUIS (Coordinador)

Department: MECHANISC

Area: MINING OPERATIONS

Location of the office: Principal building, 1st floor

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SKILLS

- CB1 Have and understand specific knowledge of the field of study of mining engineering.
- CB3 Be able to apply the knowledge acquired in professional contexts and to elaborate and defend arguments in the field of knowledge of mining engineering.
- CB4 Solve problems within the study area of Mining Engineering.
- CEEM11 Design, operation and maintenance of plants for the preparation and treatment of minerals, industrial rocks, ornamental rocks and waste.
- CEEM12 Design, operation and maintenance of construction materials manufacturing plants.

OBJECTIVES

The aim is for students to acquire the skills necessary to design, operate, maintain and manage treatment plants (both for preparation and concentration) for rocks and minerals of mining interest, as well as plants for manufacturing construction materials and recycled and inert waste. Emphasis will be placed on how this subject relates to the concepts of Circular Mining and Sustainable Mining.

CONTENTS:

1. Theoretical contents

- Topic 1. Mineralurgy. Preparation and concentration of minerals.
- Topic 2. Desilting and removal of spoil. Plants.
- Topic 3. Primary grinding.
- Topic 4. Secondary and tertiary grinding. The closed grinding circuit.
- Topic 5. Pre-screening and screening.
- Topic 6. Wet Track. Fine grinding.

Topic 7. The hydrocyclone.

Topic 8. Gravity concentration and fines treatment.

Topic 9. Dense media.

Topic 10. Mineral flotation.

Topic 11. Other concentration methods and control machinery.

Practical contents.

Flow diagrams. Solid balances. Closed circuit calculations. Water balances. Slurry balances. Granulometric curves and granulometric representations. Fractions and separations. Recovery and yield curves. Process control.