Universidad Zaragoza

Academic Year/course: 2023/24

26444 - Mineral Deposits

Syllabus Information

Academic year: 2023/24
Subject: 26444 - Mineral Deposits
Faculty / School: 100 - Facultad de Ciencias
Degree: 296 - Degree in Geology
588 - Degree in Geology
ECTS: 5.0
Year: 4
Semester: Second semester
Subject type: Optional
Module:

1. General information

Mineral deposits has as its main objective that the student is able to establish the relationship between the processes that occur during the operation of plate tectonics and mineral deposits, basic tools for an exploration geologist. In addition, the economic evaluation of mineralization is fundamental for the realization of the feasibility studies required by mining companies. These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (https://www.un.org/sustainabledevelopment/es/), at specifically, the learning activities planned in this subject will contribute to the achievement of Goal 7 and Objectives 8.2 and 8.4; 9.2 and 9.4; 11.4 and 11c; 12.2 and 12.5; 13b; 14c

2. Learning results

1: Identify and describe the main characteristics of the different types of mineral deposits, relating them in space and time with global tectonics.

2: Recognize and understand reactions and processes of mineral formation.

3: Know the models of the different types of mineral deposits and their application in the exploration of deposits.

4: Carry out mineralogenetic reports based on textural and compositional studies of geological materials.

5. Perform economic feasibility calculations of a deposit

6. Work as a team, analysing each other's opinions and sharing information and knowledge to seek joint solutions

3. Syllabus

The THEORETICAL PROGRAM is divided into four modules:

I.- Introduction and key concepts: Structure and objectives of the subject. Definitions. Most commonly used classifications of the sites. Recommended bibliographic sources.

II.- Metallogenetic epochs through time: Geological evolution of the Earth and its relationship with the formation of the most important and characteristic deposits of the different epochs.

III.- Divergent Margins and Metallogeny.

IV.- Convergent Margins and Metallogeny.

4. Academic activities

Master classes: The contents of the subject will be presented, with a practical orientation towards prospecting and exploration of mineral resources (29 hours).

Seminars: Different calculations for the economic evaluation of mining projects will be performed (4 hours)

Laboratory practices (microscopy): Identification of different types of deposits based on mineralogy and textural relationships

of the mineralization and the host rock (8 hours)

Problem solving and case studies: Prospecting of deposits from geological maps (4 hours)

Special practices: 1 day in the field and preparation of the report (5 hours). The field day may be coordinated with other subjects.

Assessment tests. Completion of a theoretical-practical exam (5 hours)

5. Assessment system

The subject will be assessed in the **global** assessment modality by means of the following activities:

Individual written test: Consisting of theoretical and practical questions. The grade of this test will represent 60% of the final grade.

Evaluation of the practical exercises at the end of each practice session. Attendance to practices will be mandatory, to ensure that students acquire the necessary skills to perform them. These tests will represent 40% of the final grade.

Evaluation of field practices. Considering the organization of the field practices, attendance is optional. Reports and/or questionnaires will be collected from the attendees for subsequent evaluation (up to 1 point that will be added to the final grade in the appropriate cases).

The final grade of the global test will be obtained from the weighted average of the written test and the evaluation of the practical exercises, being necessary that the result of the weighted average is 5.0 points or higher. In order to be able to carry out the weighted average of theory and practices, both tests must be graded with a minimum grade of 5 out of 10 points.