60434 - Economic and applied mineralogy

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	541 - Master's in Geology: Techniques and Applications
ECTS	5.0
Course	1
Period	Second semester
Subject Type	Optional
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

Economic and Applied Mineralogy is the science aiming to study problems related to the use of mineral resources at the service of mankind and to study the impact of human activities on the mineral world. Of particular interest are those problems related to the exploration, exploitation and processing of mineral resources on one hand and the problems related to health, mineral waste disposal and geomaterials alteration on the other hand.

5.2.Learning activities

Activity 1.- to acquire the theoretical knowledge on Economic and Applied Mineralogy (24 hours, attendance required)

Activity 2.- Problem-solving practices (8 hours, attendance required)

Activity 3.- Laboratory practices (10 hours, attendance required)

Activity 4.- Field practices (8 hours)

5.3.Program

Activity 1.- to acquire the theoretical knowledge on Economic and Applied Mineralogy (24 hours, attendance required)

S1.- Introduction to Environmental Mineralogy. Environmental impacts on mine site. Mining and Remediation. Atmosphere, hydrosphere and soils.

S2.- Acid mine drainage (AMD) and related mineral phases: the Iberian Pyrite Belt example. Suitability minerals for controlled landfill and waste mines

S3.- Industrial minerals and his applications

S4.- Human health impacts of minerals

S5.- Biominerals

S6.- Crystalline synthesis

Practical sessions

Activity 2.- Problem-solving practices (8 hours, attendance required)

P1.- Identification of mineral phases related with AMD (DRX) and AMD assessment.

Activity 3.- Laboratory practices (10 hours, attendance required)

P1.- Identification of industrial minerals

P2.- Synthesis of crystals in laboratory

Activity 4.- Field practices (8 hours)

5.4.Planning and scheduling

The course will consist of 6 lectures of 4 hours each, that will be held on the laboratory 18 from Crystalography and

60434 - Economic and applied mineralogy

Mineralogy of the Building C, on Tuesday from 9.00 to 13.00. Practical sessions (3 practices of 4 hours each) will be held on Tuesday from 9.00 to 13.00 on laboratory 18 from Crystalography and Mineralogy and classroom 3.

At the end of each practice, students ought to give the own report.

5.5.Bibliography and recomended resources

- Carretero León, María Isabel. Mineralogía aplicada : salud y medio ambiente / María Isabel Carretero León, Manuel Pozo Rodríguez Madrid [etc.] : Thomson-Paraninfo, D.L. 2007
- Chang, L. L. Y.. Industrial mineralogy : materials, processes and uses / Luke L. Y. Chang, Bs., Ph. D. New Jersey : Prentice Hall , cop. 2002.
- Mineralogía aplicada / editor, Emilio Galán Huertos ; Manuel Regueiro González-Barros... [et al.] Madrid : Síntesis, D.L. 2003
- Jambor, J.L.. Environmental aspects of mines wastes. Mineralogical Association of Canada. 2003
- Vaughan, D.J. Environmental Mineralogy. The Mineralogical Society UK. 2000
- Industrial minerals and rocks : commodities, markets, and users / edited by Jessica Elzea Kogel... [et al.] . - 7th ed. New York : Society for Mining, Metallurgy, and Exploration, cop. 2006
- Manning, D.A.C.. Introduction to industrial minerals / D.A.C. Manning. . - 1st ed. London [etc.] : Chapman & Hall, 1995.