

Course guide

330602 - EEM - Mining Economics

Last modified: 20/05/2026

Unit in charge: Manresa School of Engineering
Teaching unit: 732 - OE - Department of Management.

Degree: MASTER'S DEGREE IN MINING ENGINEERING (Syllabus 2013). (Compulsory subject).

Academic year: 2026 **ECTS Credits:** 5.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: Fortuny Santos, Jordi

Others: Franch Parella, Jorge
Fortuny Santos, Jordi

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. (ENG) Coneixement adequat d'avaluació de projectes i anàlisi de risc. Direcció, organització i manteniment. Economia i gestió d'empreses. Qualitat. Legislació del medi natural. Gestió del coneixement.

TEACHING METHODOLOGY

Lectures from the instructors and problem solving in the classroom.

This subject allows the use of generative artificial intelligence (GAI) for different purposes, from auxiliary support to co-creation to explore alternatives or contrast solutions. The level of assistance allowed may vary depending on the task and will be communicated in the instructions for each activity. The student always keeps intellectual direction and final technical responsibility, having to validate the veracity, rigor and absence of bias. In case of using GAI tools, a note must be included specifying which tool and version has been used, and for what purpose:

Declaration of use of GAI tools

Tool used:

Tasks performed:

Human validation:

LEARNING OBJECTIVES OF THE SUBJECT

The aims of this course are based on Order CIN/310/2009 of February 9 (BOE of February 18, 2009) which states that graduate students should possess "Adequate knowledge of project evaluation and risk analysis. Management, organizing and upkeeping. Economics and business management. Quality. Legislation of the natural environment. Knowledge management."

To be capable of identifying the macroeconomic and microeconomic elements that affect business activity, especially what refers to the supply and demand of natural resources in the market and the effects of government policy.

To be capable of applying management models and tools, as managers of a company or a project, taking into account the importance of aspects such as quality, environmental law or knowledge management.

To be capable of evaluating a project, taking into account its risk and measuring its profitability.

STUDY LOAD

Type	Hours	Percentage
Hours large group	45,0	36.00
Self study	80,0	64.00

Total learning time: 125 h

CONTENTS

1. Applied Economics

Description:

Study of macroeconomic and microeconomic elements related to business activity. Supply and demand of natural resources in the market. Effects of government policy.

- 1.1. Introduction to Economics. Definition and method.
- 1.2. Demand and supply. The markets. Natural resources.
- 1.3. Government intervention.
- 1.4. Macroeconomic aspects.
- 1.5. The international financial crisis and its effects on mining.

Related activities:

Exercises.
Assignment 1.
Written examination.

Related competencies :

. (ENG) Coneixement adequat d'avaluació de projectes i anàlisi de risc. Direcció, organització i manteniment. Economia i gestió d'empreses. Qualitat. Legislació del medi natural. Gestió del coneixement.

Full-or-part-time: 51h

Practical classes: 21h
Self study : 30h

2. Business management

Description:

Study of useful tools for the management of mining companies or specific projects, taking into account quality, environmental laws and knowledge management.

2.1 Management of the mining company. Economic and financial aspects.

2.2. Evaluation of investment projects and risk analysis.

2.3. Project management, organization and upkeeping tools. The SWOT matrix and the PERT chart.

2.4. Quality.

2.5. Knowledge management.

2.6. Environmental laws

Related activities:

Exercises.

Assignment 2.

Written examination

Related competencies :

. (ENG) Coneixement adequat d'avaluació de projectes i anàlisi de risc. Direcció, organització i manteniment. Economia i gestió d'empreses. Qualitat. Legislació del medi natural. Gestió del coneixement.

Full-or-part-time: 74h

Practical classes: 24h

Self study : 50h

ACTIVITIES

Exercises

Description:

Throughout the course, students will have the chance to solve problems and case studies in the classroom.

Specific objectives:

To reflect on the principles behind the contents of the course and use the corresponding quantitative tools to achieve the learning outcomes and skills of the course.

Material:

Lecture notes and selected references.

Delivery:

The exercises are designed to achieve, consolidate and deepen the contents of the course, but they are not intended to be handed in and assessed but to be discussed and corrected in the classroom.

Related competencies :

. (ENG) Coneixement adequat d'avaluació de projectes i anàlisi de risc. Direcció, organització i manteniment. Economia i gestió d'empreses. Qualitat. Legislació del medi natural. Gestió del coneixement.

Full-or-part-time: 10h

Practical classes: 10h

Written examination

Description:

Students take two written exams: one in the middle of the course (midterm) and another before the end (last week). Each exam includes the content studied in its half of the course. The exams are made up of short questions and short numerical exercises.

Specific objectives:

To consolidate and review the contents of the course.

Material:

Lecture notes and selected references

Delivery:

The answers to the exams must be handed in because they are part of the course evaluation.

Related competencies :

. (ENG) Coneixement adequat d'avaluació de projectes i anàlisi de risc. Direcció, organització i manteniment. Economia i gestió d'empreses. Qualitat. Legislació del medi natural. Gestió del coneixement.

Full-or-part-time: 70h

Practical classes: 4h

Self study: 66h

Assignments

Description:

Students will have to complete two written assignments: one handed in by the middle of the course and the other by the end. The first assignment includes contents from block 1 (Economics) and the second assignment has contents from block 2 (Management). Each assignment will be solved individually or in groups, as indicated by the instructor.

Specific objectives:

Each task must be submitted in writing through ATENEA on the set dates.

Each assignment has a weight of 20% in the course grade.

The assessment is based on the content but also on the presentation (design, spacing, spelling, grammar and syntax...)

Material:

Lecture notes and selected references

Related competencies :

. (ENG) Coneixement adequat d'avaluació de projectes i anàlisi de risc. Direcció, organització i manteniment. Economia i gestió d'empreses. Qualitat. Legislació del medi natural. Gestió del coneixement.

Full-or-part-time: 10h

Self study: 10h

GRADING SYSTEM

Any academic fraud, plagiarism or use or possession of unauthorised means in an assessment activity leads to a mark of zero (0) for the affected test or assignment. Furthermore, in accordance with the University's regulations, if disciplinary proceedings are initiated the subject is recorded as "Pending Assessment" until a decision is reached. These incidents are managed in accordance with the [Action Framework for Academic Integrity in Assessment at the UPC](#).

The final grade (continuous assessment) is the weighted average of the following tasks throughout the course :

First written exam (E1): 30%

Second written exam (E2): 30%

Assignment 1 (T1): 20%

Assignment 2 (T2): 20%

Grade = $0.3E1 + 0.3E2 + 0.2T1 + 0.2T2$

If students do not pass the course, they can take a final examination (EF). In that case, the final grade is:

Grade = $\text{Max} (EF, 0.6EF + 0.2T1 + 0.2T2, 0.3E1 + 0.3E2 + 0.2T1 + 0.2T2)$

ASSESSMENT SYSTEM.....WEIGHT

EV1.- Partial and/or global exams, or synthesis tests.....60%

EV2.- Lab work and/or practical computer work0%

EV3.- Written reports.....0%

EV5.- Oral presentations.....0%

EV6.- Assignments related to the subject matter.....40%

Total.....100%

EXAMINATION RULES.

Written exams are individual and without lecture notes.

BIBLIOGRAPHY

Basic:

- Baguer Alcalá, A.; Zárraga Rodríguez, M. Dirige: manual de conceptos prácticos y necesarios para la gestión empresarial. Madrid: Díaz de Santos, 2002. ISBN 9788479785413.
- Cepeda, I., i altres. Economía para ingenieros. Madrid: Thomson Paraninfo, 2004. ISBN 8497323017.
- Franch Parella, Jordi. Economía. Madrid: Unión Editorial, cop. 2012. ISBN 9788472095700.

Complementary:

- Hartman, H. L., ed. SME mining engineering handbook. Vol. 1 [on line]. 2nd ed. Littleton: Society for Mining, Metallurgy and Exploration, 1992 [Consultation: 24/05/2022]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=655790>. ISBN 0873351002.
- Arteaga, R., i altres. Manual de evaluación técnico-económica de proyectos mineros de inversión. Madrid: Instituto Tecnológico Geominero de España, 1997. ISBN 8478403051.
- Arteaga, R., i altres. Estudios de viabilidad en proyectos mineros. Madrid: Secretaría General de la Energía y Recursos Minerales, 1993. ISBN 847840158X.
- Porret, M. Gestión de personas: manual para la gestión del capital humano en las organizaciones. 5ª ed. Madrid: ESIC Editorial, 2012. ISBN 9788473568791.
- Rudenno, V. The mining valuation handbook: mining and energy valuation for investors and management [on line]. 4th ed. New York: John Wiley & Sons, 2012 [Consultation: 31/05/2022]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?docID=918592>. ISBN 9780730377078.
- Runge, I. C. Mining economics and strategy [on line]. Englewood: Society for Mining, Metallurgy, and Exploration, 1998 [Consultation: 31/10/2025]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=464600>. ISBN 9780873351652.
- Taylor, J. B.; Weerapana, A. Economics. 7th ed. Mason: South-Western Cengage Learning, 2012. ISBN 9780538453608.
- Torries, T. F. Evaluating mineral projects: applications and misconceptions. Littleton: Society for Mining, Metallurgy, and Exploration,

1998. ISBN 0873351592.

RESOURCES

Other resources:

Handouts