

## Course guide

### 330431 - UE - Use of Explosives

Last modified: 25/04/2024

**Unit in charge:** Manresa School of Engineering  
**Teaching unit:** 750 - EMIT - Department of Mining, Industrial and ICT Engineering.

**Degree:** BACHELOR'S DEGREE IN MINING ENGINEERING (Syllabus 2016). (Compulsory subject).  
BACHELOR'S DEGREE IN MINERAL RESOURCE ENGINEERING AND MINERAL RECYCLING (Syllabus 2021). (Compulsory subject).  
BACHELOR'S DEGREE IN ENVIRONMENTAL ENGINEERING / BACHELOR'S DEGREE IN MINERAL RESOURCE ENGINEERING AND MINERAL RECYCLING (Syllabus 2024). (Compulsory subject).  
BACHELOR'S DEGREE IN MINERAL RESOURCE ENGINEERING AND MINERAL RECYCLING / BACHELOR'S DEGREE IN ENVIRONMENTAL ENGINEERING (Syllabus 2024). (Compulsory subject).

**Academic year:** 2024    **ECTS Credits:** 6.0    **Languages:** Catalan

#### LECTURER

**Coordinating lecturer:** Sanmiquel Pera, Lluís  
**Others:** Cámara Zapata, Eduardo

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

**Specific:**

1. (ENG) Disseny de voladures a cel obert i d'interior. Voladures de precaució.
2. (ENG) Capacitat per interpretar els resultats i realitzar modificacions per aconseguir els objectius previstos.

**Transversal:**

3. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.
4. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
5. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
6. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

#### TEACHING METHODOLOGY

#### LEARNING OBJECTIVES OF THE SUBJECT

#### STUDY LOAD

| Type               | Hours | Percentage |
|--------------------|-------|------------|
| Hours medium group | 60,0  | 40.00      |
| Self study         | 90,0  | 60.00      |

**Total learning time:** 150 h



## CONTENTS

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### title english

**Description:**

content english

**Full-or-part-time:** 30h

Theory classes: 6h

Laboratory classes: 4h

Self study : 20h

### title english

**Description:**

content english

**Full-or-part-time:** 14h

Theory classes: 4h

Laboratory classes: 2h

Self study : 8h

### title english

**Description:**

content english

**Full-or-part-time:** 49h

Theory classes: 16h

Laboratory classes: 7h

Self study : 26h

### title english

**Description:**

content english

**Full-or-part-time:** 30h

Theory classes: 10h

Self study : 20h

### title english

**Description:**

content english

**Full-or-part-time:** 27h

Theory classes: 9h

Laboratory classes: 2h

Self study : 16h



## ACTIVITIES

### name english

**Full-or-part-time:** 3h

Self study: 1h

Theory classes: 2h

### name english

**Full-or-part-time:** 3h

Self study: 1h

Laboratory classes: 2h

### name english

**Full-or-part-time:** 9h

Self study: 2h

Theory classes: 7h

## GRADING SYSTEM

## BIBLIOGRAPHY

### Basic:

- Gustafsson, Rune. Técnica sueca de voladuras. Suecia: SPI, Nova, 1977.
- López Jimeno, Carlos; López Jimeno, Emilio; García Bermúdez, Pilar. Manual de perforación y voladura de rocas [on line]. Madrid: Carlos López Jimeno, 2003 [Consultation: 13/06/2024]. Available on: [https://search-ebscohost-com.recursos.biblioteca.upc.edu/login.aspx?direct=true&AuthType=ip,uid&db=nlebk&AN=865624&site=ehost-live&ebv=EB&ppid=pp\\_Cover](https://search-ebscohost-com.recursos.biblioteca.upc.edu/login.aspx?direct=true&AuthType=ip,uid&db=nlebk&AN=865624&site=ehost-live&ebv=EB&ppid=pp_Cover). ISBN 8496140032.
- Langefors, U.; Kihlström, B. Técnica moderna de voladura de rocas. 2ª ed. Bilbao: Urmo, 1987. ISBN 8431404701.

### Complementary:

- Bauer, A.; Crosby, W. A. "Blasting". Kennedy, Bruce A., ed. Surface mining. Littleton: Society for Mining, Metallurgy, and Exploration, 1990. p. 540-564.
- Konya, Calvin J.; Walter, Edward J. Surface blast design. Englewood Cliffs, N.J.: Prentice-Hall, cop. 1990. ISBN 0138779945.
- Ash, R. L. "Design of blasting rounds". Kennedy, Bruce A., ed. Surface mining [on line]. Littleton: Society for Mining, Metallurgy, and Exploration, 1990. p. 565-583 [Consultation: 05/06/2024]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=655791>.
- Manuales técnicos [on line]. Madrid: MAXAM, 2018- [Consultation: 03/02/2020]. Available on: <https://www.maxamcorp.com/es>.
- Menéndez Arias, Juan Bautista. Detonadores y explosivos: su aplicación en las explotaciones mineras y en la obra pública. Manresa: EUPM. EMRN, 2000. ISBN 8488894678.
- Muñoz García, Javier, col. Guía de buenas prácticas en el diseño y ejecución de voladuras en banco [on line]. Madrid: Ministerio de Energía, Turismo y Agenda Digital, 2015 [Consultation: 17/12/2020]. Available on: <https://docplayer.es/59183803-Guia-de-buenas-practicas-en-el-diseno-y-ejecucion-de-voladuras-en-banco.html>.