

Course guide

330465 - OSUB - Underground Works

Last modified: 12/06/2025

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

Degree: 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: 2025 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Bascompta Massanès, Marc

Others: Puig Mengual, Jordi

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the Design and Excavation of Tunnels and Cavities subject, the student must be able to:

- Identify the different types of terrain, their characteristics and the influence on possible excavations.
- Recognize the distortions produced by excavations in the stress state of the ground.
- Know the basic excavation and maintenance techniques and when they should be applied depending on the terrain and the work to be done.
- Know risk control techniques during excavation and monitoring of ground deformation and other parameters.

STUDY LOAD

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

Total learning time: 150 h

CONTENTS

title english

Description:

content english

Full-or-part-time: 7h

Practical classes: 2h

Self study : 5h

title english

Description:

content english

Full-or-part-time: 32h

Practical classes: 4h

Laboratory classes: 8h

Self study : 20h

title english

Description:

content english

Full-or-part-time: 25h

Practical classes: 6h

Laboratory classes: 4h

Self study : 15h

title english

Description:

content english

Full-or-part-time: 26h

Practical classes: 6h

Laboratory classes: 5h

Self study : 15h

title english

Description:

content english

Full-or-part-time: 36h

Practical classes: 12h

Laboratory classes: 4h

Self study : 20h

title english

Description:

content english

Full-or-part-time: 25h

Practical classes: 6h

Laboratory classes: 4h

Self study : 15h



ACTIVITIES

name english

Full-or-part-time: 16h

Self study: 8h

Laboratory classes: 8h

name english

Full-or-part-time: 10h

Self study: 4h

Laboratory classes: 6h

name english

Full-or-part-time: 9h

Self study: 5h

Laboratory classes: 4h

name english

Full-or-part-time: 12h

Self study: 10h

Theory classes: 2h

name english

Full-or-part-time: 12h

Self study: 10h

Theory classes: 2h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Gonzalez Vallejo, Luís I. et al.. Ingeniería geológica [on line]. Madrid: Prentice-Hall, 2002 [Consultation: 31/05/2023]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=1237. ISBN 8420531049.
- Ferrer, Mercedes; González de Vallejo, Luis I. Manual de campo para la descripción y caracterización de macizos rocosos en afloramientos [on line]. 2a. ed. Madrid: Instituto Geológico y Minero de España, 2007 [Consultation: 20/07/2023]. Available on: https://search-ebsohost-com.recursos.biblioteca.upc.edu/login.aspx?direct=true&AuthType=ip,uid&db=nlebk&AN=865640&site=ehost-live&ebv=EB&ppid=pp_Cover. ISBN 8478407081.
- López Jimeno, Carlos. Manual de túneles y obras subterráneas. Madrid: E.T.S.I. Minas - Universidad Politécnica de Madrid, 2011. ISBN 9788496140370.
- Hoek, Evert; Brown, Edwin T. Excavaciones subterráneas en roca. México D.F.: McGraw-Hill, 1985. ISBN 9684516975.
- Chapman, David N; Metje, Nicole; Stärk, Alfred. Introduction to tunnel construction [on line]. London ; New York: Spon Press, 2010 [Consultation: 06/06/2024]. Available on: <https://www-taylorfrancis-com.recursos.biblioteca.upc.edu/books/mono/10.1201/9781315120164/introduction-tunnel-construction-david-chapman-nicole-metje-alfred-stark>. ISBN 9780415468411.