



Course guides

250305 - GEOGEN - General Geology

Last modified: 04/12/2018

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.

Degree: BACHELOR'S DEGREE IN GEOLOGICAL ENGINEERING (Syllabus 2010). (Compulsory subject).

Academic year: 2018 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: ELISABET PLAYA POUS

Others: CARLES FERRÀNDEZ CAÑADELL, MARTA GUINAU SELLES, ELISABET PLAYA POUS

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

4052. Basic knowledge of geology and terrain morphology and their application to engineering problems. Climatology

Transversal:

591. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.

597. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

600. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

TEACHING METHODOLOGY

The course consists of 5 hours per week of classroom activity (3 hours -theoretical concepts- and 2 hours -laboratory-).

The complete course is divided in:

- Theoretical concepts.
- Laboratory.
- Field trips. Two full day and one half day (morning) field trips.
- Visits. One half day (morning) visit to the Institut Cartogràfic i Geològic de Catalunya.
- Directed work. Individual or collective work which must be performed by the student out of the lecture rooms.

LEARNING OBJECTIVES OF THE SUBJECT

Students will acquire a general understanding of geology and learn to apply this knowledge to specific scientific and technical problems and to geological engineering in general.

- Upon completion of the course, students will be able to:
1. Analyse basic geological maps;
 2. Recognise the principal types of rocks, minerals and fossils;
 3. Construct basic geological cross-sections and profiles and understand the geological history of a specific area.

Geological sciences; Topographic and geological cartography; Mineralogy, petrology, geomorphology, tectonics, stratigraphy and palaeontology; Geological field methods

Basic knowledge of general geology and capacity to application to the scientific-technologic topics and to engineering geology.

- 1 To analyze a basic geological map.
- 2 To recognize the principal types of rocks, minerals and fossils.
- 3 To do basic geological profiles, and to understand their geological history.

Basic knowledge of Geological Sciences. Basic knowledge of topography and geological mapping. Basic knowledge of mineralogy, petrology, geomorphology, tectonics, stratigraphy and paleontology. Basic knowledge of field trip working method in Geology.

STUDY LOAD

Type	Hours	Percentage
Hours large group	26,0	17.33
Guided activities	6,0	4.00
Hours medium group	20,0	13.33
Self study	84,0	56.00
Hours small group	14,0	9.33

Total learning time: 150 h

CONTENTS

Lesson 0. Course presentation

Description:

Presentation

Full-or-part-time: 2h 24m

Theory classes: 1h

Self study : 1h 24m

Lesson 1. Introduction to the Geology

Description:

Item 1. Introduction to Geology

Full-or-part-time: 2h 24m

Theory classes: 1h

Self study : 1h 24m



Lesson 2. Geological materials

Description:

Geological materials
Igneous rocks
Sedimentary rocks
Metamorphic rocks

Full-or-part-time: 38h 24m

Theory classes: 8h
Laboratory classes: 8h
Self study : 22h 24m

Lesson 3. Geologic time and dating

Description:

Lesson 3. Geologic time and dating

Full-or-part-time: 2h 24m

Theory classes: 1h
Self study : 1h 24m

Lesson 4. Earth structure and processes

Description:

Earth structure and processes.
Introduction to topography
Graphic representation of geologic elements.

Full-or-part-time: 43h 12m

Theory classes: 8h
Practical classes: 10h
Self study : 25h 12m

Lesson 5. Earth and life history

Description:

Earth and life history
Paleontology. Fossils recognition.

Full-or-part-time: 16h 48m

Theory classes: 3h
Laboratory classes: 4h
Self study : 9h 48m

Resources in the Library of Geology

Description:

Library facilities

Full-or-part-time: 4h 48m

Practical classes: 2h
Self study : 2h 48m



Evaluation

Description:

Evaluation test

Full-or-part-time: 4h 48m

Laboratory classes: 2h

Self study : 2h 48m

Fieldwork

Description:

Field trip to Igualada

Field trip. Figaró

Field trip. Barcelona Hills

Visit. Geologic Institute of Catalonia

Full-or-part-time: 28h 47m

Laboratory classes: 12h

Self study : 16h 47m

GRADING SYSTEM

The final qualification of this course is the sum of the partial grades obtained from:

- Three written tests of theoretical content of the course (10% and 35%, respectively).
- Two written tests of practical content: description and identification of rocks and fossils (10%).
- Individual work, including the delivery of several tasks requested by teachers (30%).
- Work-group (15%), which includes the bibliographic research on a topic assigned by teachers of engineering and geological interest.

Students will be entitled to a reevaluation and extraordinary evaluation processes that will follow the specific rules of Engineering Geology degree.

UNIQUE EVALUATION. It must be applied before three weeks to the responsible of the course. The student will be evaluated from a final test (70% of final mark) and from the field trip notebook, the complete description of the studied rocks, one report of a selected field trip and an exercise of the Library of Geology resources (30 % of the final mark); these exercises and notebooks must be presented the day of the final exam compulsory. The presence in the field trips and laboratory classes (Mineralogy, Petrology and Paleontology lessons) is also obligatory.

Criteria for re-evaluation qualification and eligibility: Students that failed the ordinary evaluation and have regularly attended all evaluation tests will have the opportunity of carrying out a re-evaluation test during the period specified in the academic calendar. Students who have already passed the test or were qualified as non-attending will not be admitted to the re-evaluation test. The maximum mark for the re-evaluation exam will be five over ten (5.0). The non-attendance of a student to the re-evaluation test, in the date specified will not grant access to further re-evaluation tests. Students unable to attend any of the continuous assessment tests due to certifiable force majeure will be ensured extraordinary evaluation periods.

These tests must be authorized by the corresponding Head of Studies, at the request of the professor responsible for the course, and will be carried out within the corresponding academic period.



EXAMINATION RULES.

Those exercises presented by a student who does not attend the field trip or practice will not be evaluated.
Failure to perform a continuous assessment activity in the scheduled period will result in a mark of zero in that activity.

BIBLIOGRAPHY

Basic:

- Banda, E.; Torné, M. Geologia: batxillerat: matèria optativa: crèdits 1-2. Barcelona: Grup Promotor : Santillana, 1999. ISBN 8479119527.
- Marshak, S. Earth: portrait of a planet. 3rd ed., International student ed. New York ; London: W. W. Norton, 2008. ISBN 9780393930368.
- Monroe, J.S.; Wicander, R.; Pozo, M. Geología: dinámica y evolución de la Tierra. 4a ed. Madrid: Paraninfo, 2008. ISBN 9788497324595.
- Tarbuck, E.J.; Lutgens, F.K. Ciencias de la tierra: una introducción a la geología física. 8a ed. Madrid: Prentice Hall, 2005. ISBN 8420544000.

Complementary:

- González de Vallejo, L.I. Ingeniería geológica. Madrid: Prentice Hall, 2002. ISBN 84-205-3104-9.
- López Marinas, J.M.. Geología aplicada a la ingeniería civil. 3a ed. Madrid: Cie Inversiones Editoriales Dossat 2000, 2006. ISBN 9788496437517.
- Kehew, A.E. Geology for engineers and environmental scientists. 2nd edition. Essex: Pearson, 2014. ISBN 9781292039107.