



Course guides

250321 - GEOMORF - Geomorphology

Last modified: 12/12/2019

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 1004 - UB - (ENG)Universitat de Barcelona.

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

Academic year: 2019 **ECTS Credits:** 7.5 **Languages:** Catalan

LECTURER

Coordinating lecturer: MARIA ORTUÑO CANDELA

Others: MARIA ORTUÑO CANDELA

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

4043. Production of detailed cartography

4044. Students will learn to apply geographic information techniques to the design and production of thematic maps.

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

Transversal:

592. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.

595. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

599. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

602. 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.

584. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

Students will acquire an understanding of geomorphology and learn how this discipline applies to technological scientific problems and applied technological problems. Students will acquire an understanding of photograph interpretation and remote sensing and learn how these disciplines apply to basic and applied technological problems.

Upon completion of the course, students will be able to:

1. Analyse the geomorphological processes that occur in different spatial and temporal contexts and characterise their dynamics and the resulting surface forms and formations;
2. Collect, process and interpret field data and other information to solve geomorphological problems;
3. Use a range of techniques (including photograph interpretation and remote sensing) to produce geomorphological maps, cross sections and schematic diagrams.

Principal geomorphological systems (processes, forms and resulting materials): Meteorisation, slope modelling, fluvial, glacial, periglacial, eolian and coastal; Origins and evolution of the Earth's relief: Structural, climatic and anthropic factors; Quaternary geology; Basic principles of photograph interpretation and remote sensing

Partial automatic translation without revision.

Referring to knowledge

1. Knowing how to use the basic principles applicable to all external geodynamics geomorphological systems. These principles include:
 - a) concept of external and Geodynamics Geomorphology,
 - b) notion of time and frequency of geomorphological systems,
 - c) concepts of rock and soil
 - d) rocks and even resistance to mobilization and transport
 - e) production of particles and mechanisms of mobilization, transport and sedimentation
2. Acquire some basic ideas of the dynamic factors of control and the resulting products (ie forms and materials) help to understand the main geomorphic systems
3. Understand the theoretical basis that is based on photo interpretation and remote sensing.

STUDY LOAD

Type	Hours	Percentage
Hours small group	18,0	9.60
Self study	105,0	56.00
Guided activities	7,5	4.00
Hours large group	30,0	16.00
Hours medium group	27,0	14.40

Total learning time: 187.5 h

CONTENTS

Automatic translation without revision Theory sessions

Description:

Automatic translation without revision. 1. Weathering, soils and surface formations. 2. The runoff and erosion. Erosion and soil loss. 3. Dynamics and alluvial forms: terraces and cones. 4. Processes and modeling aspects. The mass movements: types, causes and impact. 5. The geomorphological effects of torrential rains: floods, landslides and torrents 6. Geomorphological risk: danger, danger and vulnerability. 7. Morphodynamics of cold regions: Processes and glacial shapes and resulting sediment. Nival and periglacial processes, resulting shapes; danger and risk associated. 8. Wind processes: erosion, transport and accumulation forms. 9. Quaternary Geology. Factors that control over land: neotectonics, climate changes and human action.

Full-or-part-time: 57 h

Theory classes: 24h

Self study : 33h 35m



Automatic translation without revision Labour cabinet

Description:

Automatic translation without revision. Practice cabinet: Photointerpretation and geomorphological mapping, digital cartography, simplified or exercises on real cases, examples of remote sensing.

Full-or-part-time: 67 h

Laboratory classes: 28h

Self study : 39h 12m

Automatic translation without revision Fieldwork

Description:

Automatic translation without revision. River morphology and dynamics (1 day)

Automatic translation without revision. Regional Geomorphology. (2 days)

Automatic translation without revision. Geomorphology in mountain regions. (2 days)

Full-or-part-time: 48 h

Laboratory classes: 20h

Self study : 28h

Automatic translation without revision Evaluation

Full-or-part-time: 7 h

Laboratory classes: 3h

Self study : 4h 11m

GRADING SYSTEM

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.



BIBLIOGRAPHY

Basic:

- Bell, F.G. Environmental geology: principles and practice. Oxford [etc.]: Blackwell Science, 1998. ISBN 0865428751.
- Bennett, M.R.; Doyle, P. Environmental geology: geology and the human environment. Chichester [etc.]: Wiley, 1997. ISBN 0471974595.
- Huggett, R.J. Fundamentals of geomorphology. 4th ed. London: Routledge, 2017. ISBN 9781138940659.
- Pedraza, J. de. Geomorfología: principios, métodos y aplicaciones. Madrid: Rueda, 1996. ISBN 8472070875.
- Selby, M.J. Earth's changing surface: an introduction to geomorphology. Oxford, UK: Clarendon Press, 1985. ISBN 0198232527.
- Gutiérrez Elorza, M. Geomorfología. Madrid: Prentice Hall, 2008. ISBN 978-84-8322-389-5.
- Summerfield, M.A. Global geomorphology : an introduction to the study of landforms. Essex: Longman Scientific & Technical, 1991. ISBN 9780582301566.