250331 - CARTGEOL - Geological Mapping

Coordinating unit: 250 - ETSECCPB - Barcelona School of Civil Engineering
Teaching unit: 1004 - UB - (ENG)Universitat de Barcelona
Academic year: 2017
Degree: BACHELOR’S DEGREE IN GEOLOGICAL ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
ECTS credits: 6
Teaching languages: Catalan, Spanish, English

Teaching staff

Coordinator: MIGUEL LÓPEZ BLANCO
Others: PAU ARBUÉS CAZO, PATRICIA CABELLO LÓPEZ, MIGUEL GARCES CRESPO, GALDERIC LASTRAS MEMBRIVE, MIGUEL LÓPEZ BLANCO

Opening hours

Timetable: To be agreed between the student and the teacher.

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.
4061. Knowledge of topography, photogrammetry and cartography

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.
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Teaching methodology

The course is practical and it is divided into two different parts: Office practical and a field course.

The Office classes are organized in sessions of two hours (two sessions per week) in which the student has to work the exercises that are raised. A conceptual and brief theoretical introduction will be added at beginning of some of the sessions. Teachers will resolve the doubts that appear and guide the student.

The Field course is organized a 5-day intensive camp. The first day consists of an introduction to practice field geological mapping (using the topographic map, elementary techniques of mapping, geological interpretation, etc.). The other days, students work in small groups with an area to be mapped together. The last day will be an individual field exam.

During the course the students will find supporting material available at the Virtual Campus page (University of Barcelona).

Learning objectives of the subject

Students will acquire an understanding of geological mapping and learn how this technique applies to technological scientific problems and applied technological problems.

Upon completion of the course, students will be able to: 1. Interpret geological maps and use them to create geological cross sections and produce reports on the geological history of a give region; 2. Use field and geometric techniques to produce simple surface geological maps; 3. Produce a geological field plan and construct a geological map from field data.

Basic field and laboratory methodologies and techniques for the production of geological maps; Techniques for interpreting the origins and characteristics of contacts between geological units from geometric and lithological information; Interpretation of the spatial orientation and geometry of surfaces represented in geological maps; Creation of geological cross sections from blank and conventional geological maps; Standard symbols for geological maps and cross sections; Legends for geological maps and cross sections; Interpretation of geological history from geological maps.

The main objectives of this course can be summarized in two: 1) The initiation to geological map reading, interpretation and explanation. 2) Learning the basic methods and techniques useful for the construction of geological maps.

Study load

<table>
<thead>
<tr>
<th>Study load</th>
<th>Total learning time: 150h</th>
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<tbody>
<tr>
<td>Hours large group:</td>
<td>26h</td>
</tr>
<tr>
<td>Hours medium group:</td>
<td>20h</td>
</tr>
<tr>
<td>Hours small group:</td>
<td>14h</td>
</tr>
<tr>
<td>Guided activities:</td>
<td>6h</td>
</tr>
<tr>
<td>Self study:</td>
<td>84h</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>150h</td>
<td></td>
</tr>
<tr>
<td>Large group</td>
<td>26h</td>
<td>17.33%</td>
</tr>
<tr>
<td>Medium</td>
<td>20h</td>
<td>13.33%</td>
</tr>
<tr>
<td>Small</td>
<td>14h</td>
<td>9.33%</td>
</tr>
<tr>
<td>Guided</td>
<td>6h</td>
<td>4.00%</td>
</tr>
<tr>
<td>Self study</td>
<td>84h</td>
<td>56.00%</td>
</tr>
</tbody>
</table>

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## Content

<table>
<thead>
<tr>
<th>Theory</th>
<th>Learning time: 12h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 5h</td>
</tr>
<tr>
<td></td>
<td>Self study: 7h</td>
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</tbody>
</table>

**Description:**
There will be some short theoretical introduction at the beginning of some of the Office practice sessions.

<table>
<thead>
<tr>
<th>Office practice</th>
<th>Learning time: 84h</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 35h</td>
</tr>
<tr>
<td></td>
<td>Self study: 49h</td>
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</tbody>
</table>

**Description:**
These are organized in two hour sessions (two session a week) where the students will work on the problems set.

<table>
<thead>
<tr>
<th>Field course</th>
<th>Learning time: 48h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 20h</td>
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<tr>
<td></td>
<td>Self study: 28h</td>
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</table>

**Description:**
Is organized in a five-day intensive course.
CONTINUOUS EVALUATION
Evaluation of Office classes:
All exercises will be collected and returned to the student once corrected. This way you can evaluate the evolution of learning and the strengths and weaknesses of this. During the course partial tests will be done to assess the degree of achievement of competencies and liberate some of the subjects facing the final exam.
At the end of the course there will be a test of interpretation of a map similar to studied in class.
The note of this section will be based on this examination and partial tests (90%), tempered by the history of practices delivery and classes attendance (10%).

Evaluation of Field Course:
Furthermore than accompanying students in the field and seeing their "in situ" performance, at the end of each day will be a session for groups to explain that the work done during the day and the problems encountered. The professor will propose the work to make the next day and will evaluate the progress of students every day. At the end of the course a field examination consistent in carrying out the geological mapping of one or more areas will be done. Weeks after the end of the course students will present a of group work resulting from field work conducted during the camp.
The note of the section will be based on the examination (90-80%) and group work (10-20%).

The final qualification is based on the office note (65%) and Field note (35%) using a geometric average.

UNIQUE EVALUATION
Students must apply for this type of assessment before the expiry of three weeks from the start of classes. This application involves the renunciation of continuous evaluation. Students to benefit from this option will get their qualification from a single final exam. Students to benefit from the unique evaluation also must assist to the field course.
The field note is based on the qualification of the exam (90-80%) and group work (10-20%).

The final qualification is based on the office note (65%) and Field note (35%) using a geometric average.

RE-EVALUATION and EXTRAORDINARY EVALUATION
Criteria for Re-evaluation and Extraordinary Evaluation qualification and eligibility will be governed by the specific regulation of the Grau d’Enginyeria Geològica.

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.

Regulations for carrying out activities
Failure to perform a laboratory or continuous assessment activity in the scheduled period will result in a mark of zero in that activity.
If any proof of qualification (or essential part of the test) does not reach the rating of 4, it will result in a mark of 0 of it to be considered in the average.
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Bibliography

Basic:


Complementary:
