Course guides
310603 - 310603 - Geographic Information and Cartography

Unit in charge: Barcelona School of Building Construction
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.
Degree: BACHELOR’S DEGREE IN GEOSTRUCTURAL AND GEOMATICS ENGINEERING (Syllabus 2016).
(Compulsory subject).

Academic year: 2020 ECTS Credits: 6.0 Languages: Spanish

LECTURER

Coordinating lecturer: ROGELIO LOPEZ BRAVO
Others: ROGELIO LOPEZ BRAVO

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE16EGG. Knowledge and application of methods and geometric techniques inside the scope of the different engineerings
CE9EGG. (ENG) Coneixement, utilització i aplicació de les tècniques de tractament. Anàlisi de dades espacials. Estudi de models aplicats a l'enginyeria i arquitectura. (Mòdul comú a la branca Topografia)
CE7EGG. Knowledge, using and application of instruments and appropriate topographic methods in order to carry out raisings and surveyings.

Generical:
CG6EGG. Reunite and interpret information of the ground and all of this geographic and economically related with the ground.
CG5EGG. Determine, measure, evaluate and represent the ground, tridimensional objects, points and trajectories.

Transversal:
CT3. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

Basic:
CB2EGG. The students must know how to apply their knowledge to the work or vocation in a professional way and possess the competences that are used to be demonstrated by the elaboration and defense of arguments and the resolution of problems inside their own field of study.
CB1EGG. The students have demonstrated possess and comprehend knowledge in a field of study that comes from high school, and is used to a level that, while is supported in advanced textbooks, it also includes some aspects that involve knowledge from the field of study in the vanguard.

TEACHING METHODOLOGY

Combination of masterful class, participatory with practices of individual and cooperative character. It also includes a part of self-sufficient learning. In the medium groups it will be done exercises related with the subject.
LEARNING OBJECTIVES OF THE SUBJECT

Conocer los conceptos fundamentales en Cartografía.
Entender las principales superficies topográficas y su presentación así como los diferentes elementos geográficos.
Conocer los procesos de la Generalización Cartográfica
Normativa y calidad en Cartografía
Difusión de la Cartografía

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>24,0</td>
<td>16.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>36,0</td>
<td>24.00</td>
</tr>
</tbody>
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Total learning time: 150 h

CONTENTS

**C1 FUNDAMENTAL CONCEPTS**

**Description:**
Introduction to basic concepts in cartography and its relationship with the rest of the subjects of the Degree in Geomatics and Surveying

**Specific objectives:**
Knowledge of the basics of cartography (scale, plan ...)

**Related activities:**
Exercises and related scales, slopes, profiles and practical reference systems

**Full-or-part-time:** 21h
Theory classes: 3h
Practical classes: 6h
Self study: 12h

**C2 GEOGRAPHIC ELEMENTS.**

**Description:**
Determination of the main reference systems on the Earth's surface.

**Specific objectives:**
Learn the use of concepts related to geographic coordinates
Basic knowledge of the need of the most representative cartographic projections

**Related activities:**
Laboratory practices in developing some map projections in its graphical representation.
Exercises related to geographic coordinates

**Full-or-part-time:** 23h
Theory classes: 4h
Practical classes: 5h
Laboratory classes: 2h
Self study: 12h
C3 GRAPHIC SEMIOLOGY

Description:
Cartography as a means of communication through the cartographic design. Study of visual perception and visual mapping variables used.

Specific objectives:
Correct use of language mapping

Related activities:
Laboratory practices using visual variables

Full-or-part-time: 23h
- Theory classes: 4h
- Practical classes: 2h
- Laboratory classes: 3h
- Guided activities: 1h
- Self study: 13h

C4 THE MAPPING PROCESS

Description:
Exposure of the different phases comprising the mapping process

Specific objectives:
The student knows the tasks within each phase of the mapping process

Related activities:
Mapping project approach

Full-or-part-time: 19h
- Theory classes: 3h
- Practical classes: 1h
- Laboratory classes: 2h
- Guided activities: 1h
- Self study: 12h

C5 CARTOGRAPHIC GENERALIZATION

Description:
Study of all processes performed when changing graphic scale or purpose of the map

Specific objectives:
Knowledge of the sequence of operations performed in the process of generalization.

Related activities:
Directed laboratory practices

Full-or-part-time: 22h
- Theory classes: 4h
- Practical classes: 1h
- Laboratory classes: 3h
- Guided activities: 1h
- Self study: 13h
C6 THEMATIC CARTOGRAPHY

Description:
Study of data sources and application. Creating thematic maps

Specific objectives:
Development of thematic mapping and linking with visual variables

Related activities:
Laboratory practices aimed at creating thematic maps

Full-or-part-time: 23h
- Theory classes: 4h
- Laboratory classes: 4h
- Guided activities: 1h
- Self study: 14h

C7 LAWS AND REGULATIONS. BROADCAST QUALITY AND MAPPING

Description:
Different regulations cartographic standardization

Specific objectives:
Study of different regulations affecting the cartographic product

Related activities:
Research and presentation of different regulations

Full-or-part-time: 19h
- Theory classes: 2h
- Laboratory classes: 1h
- Guided activities: 2h
- Self study: 14h

ACTIVITIES

A1 FUNDAMENTAL CONCEPTS

Description:
Realization of exercises about scales, slopes, equidistances, etc. It will be done in groups of 3 people and individually

Specific objectives:
The student must be capable of resolving basic exercises of Cartography

Material:
The documentation of the students will be done across Atenea or at the library of the school

Delivery:
It will be delivered on the date fixed by the teacher

Full-or-part-time: 8h
- Practical classes: 6h
- Self study: 2h
### A2 GEOGRAPHIC ELEMENTS

**Description:**
Realization of exercises about geographic coordinates. It will be done in groups of 3 people and individually.

**Specific objectives:**
The student must be capable of resolving basic exercises of Cartography

**Material:**
The documentation of the students will be done across Atenea or at the library of the school

**Delivery:**
It will be delivered on the date fixed by the teacher

**Full-or-part-time:** 5h
Practical classes: 3h
Self study: 2h

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### A3 CARTOGRAPHIC PROJECTIONS

**Description:**
Graphic development of some cartographic projections. Individual project

**Specific objectives:**
Know and develop cartographic projections of geometric character and its drawing in CAD

**Material:**
The practice will be developed in the computing room

**Delivery:**
It won't be necessary the delivery of the practice but it's mandatory the assistance and development of

**Full-or-part-time:** 6h
Practical classes: 2h
Laboratory classes: 2h
Self study: 2h

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### A4 GRAPHIC SEMIOLOGY

**Description:**
Application of the visual variables explained in the unit. Individual project.

**Specific objectives:**
Knowledge and application of the visual variables

**Material:**
It will be facilitate across Atenea

**Delivery:**
It will be done a delivery for its revision and evaluation, in case it is necessary, at the date fixed by the teacher.

**Full-or-part-time:** 10h
Practical classes: 2h
Laboratory classes: 3h
Guided activities: 1h
Self study: 4h
A5 CARTOGRAPHIC PROCESS

Description:
Developement of flux diagrams of the cartographic product. Search of processes in different ofical organisms. Work in group

Specific objectives:
The student must know the different steps of the cartographic processes. The student will start its own project.

Delivery:
Presentation in class in prefix days

Full-or-part-time: 14h
Practical classes: 1h
Laboratory classes: 2h
Guided activities: 1h
Self study: 10h

A6 GENERALIZATION

Description:
From a selected cartography it will be done a change of scale or graphic object. Individual project

Specific objectives:
Practical knowledge of the different operations that are done in the cartographic generalization

Material:
The material will be shown across Atenea

Delivery:
The last day of class will be carried out a delivery for its evaluation.

Full-or-part-time: 10h
Practical classes: 1h
Laboratory classes: 3h
Guided activities: 1h
Self study: 5h

A7 THEME CARTOGRAPHIC

Description:
Carrying out different theme maps. Individual project

Specific objectives:
Knowledge and application of the different products of theme cartography and the application software.

Material:
The practice will be carried out in the computing room with different software

Delivery:
The last day of class will be carried out a delivery for its evaluation in case it is necessary.

Full-or-part-time: 12h
Laboratory classes: 4h
Guided activities: 1h
Self study: 7h
**A8 LEGISLATION AND REGULATIONS**

**Description:**
Oral exposition in class of the regulations of official institutions. Group project.

**Specific objectives:**
Knowledge of official institutions, web pages and regulations.

**Material:**
The student will look for information in the bibliography and the institutions.

**Delivery:**
It will be carried out a brief oral exposition in class

**Full-or-part-time:** 13h
Laboratory classes: 1h
Guided activities: 2h
Self study: 10h

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**GRADING SYSTEM**

It will be done two partial test, once in the middle of the course and the other one at the end with a valuation of 30% of the final mark each one.

Laboratory activities and individual projects: 30% of the final mark
Group projects: exposition and contents: 10% of the final mark
To pass the subject the marks of the previous activities have to be over 3.5.

At the end of the course it will be a re-evaluation exam for the students with final mark over 3,5, where all the contents of the subject will be evaluated.

The attendance and work in class will be valued.

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**EXAMINATION RULES.**

Continuous attendance to class. All the evaluation activities will be mandatory.

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**BIBLIOGRAPHY**

**Basic:**