Course guide

310617 - 310617 - Gis Databases

Unit in charge: Barcelona School of Building Construction
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.
Degree: BACHELOR'S DEGREE IN GEOINFORMATION AND GEOMATICS ENGINEERING (Syllabus 2016).
(Compulsory subject).
Academic year: 2022  ECTS Credits: 6.0  Languages: Spanish

LECTURER

Coordinating lecturer: Mercedes Sanz Conde
Others: Mercedes Sanz Conde

PRIOR SKILLS

Basic tools of informatics.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE3EGG. Basic knowledge about the use and programation of computers, operative systems, database and software programmes with application in engineering.

Generical:
CG5EGG. Determine, measure, evaluate and represent the ground, tridimensional objects, points and trajectories.
CG1EGG. Design and develope geomatic and topographic projects.
CG8EGG. Planification, project, direction, execution and management of measures processes, information systems, image exploitation, positioning and navigation; modeling, representation and visualization of the territorial information in, under and above the ground surface.
CG11EGG. Planification, project, direction, execution and management of processes and products of application in the information society inside the geomatic field
CG12EGG. Planification, project, direction, execution and management of processes and products of application in the register, ordination of territory and valuation inside the geomatic field.

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.

CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

TEACHING METHODOLOGY

Master classes.
Laboratory practice.
Autonomous work.
Teamwork.
LEARNING OBJECTIVES OF THE SUBJECT

Learn about the structures of BB. DD and the use of appropriate tools for your treatment.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group</td>
<td>36,0</td>
<td>24.00</td>
</tr>
<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>
</tbody>
</table>

**Total learning time:** 150 h

CONTENTS

Introduction to Database.

**Description:**

**Specific objectives:**
Describe the elements that make up the database.
Describe the types of databases.

**Related activities:**
Activity 1.

**Full-or-part-time:** 18h
Theory classes: 3h
Practical classes: 3h
Laboratory classes: 2h
Self study: 10h

Structured Query Language

**Description:**
Introduction to SQL.

**Specific objectives:**
To create a base with SQL and a SGBD. To design and to manage the base.

**Related activities:**
Activity 2.

**Full-or-part-time:** 46h
Theory classes: 6h
Practical classes: 6h
Laboratory classes: 4h
Self study: 30h
### Relationship Model

**Description:**
- Introduction
- Entity/ Relationship model
- Relational model
- Transformation E/R to Relational

**Specific objectives:**
- To describe the keys concepts of data models.
- Operations with Relational BB.DD.

**Related activities:**
- Activity 3

**Full-or-part-time:** 30h
- Theory classes: 6h
- Practical classes: 4h
- Self study: 20h

### Design of Database for SIG

**Description:**
- Database Design in logic level.

**Specific objectives:**
- To describe the elements of the design of a database.

**Related activities:**
- Activity 4

**Full-or-part-time:** 36h
- Theory classes: 6h
- Practical classes: 6h
- Laboratory classes: 4h
- Self study: 20h

### Internet Database

**Description:**
- Mapping Database
- SIG and Database
- New trends in Database

**Specific objectives:**
- Queries to remote database.

**Related activities:**
- Activity 4

**Full-or-part-time:** 14h
- Theory classes: 1h 30m
- Practical classes: 1h 30m
- Laboratory classes: 1h
- Self study: 10h
## ACTIVITIES

### Activity 1

**Description:**
MySQL interface

**Specific objectives:**
- Elements of databases.
- Schema of databases

**Material:**
Software MySQL

**Delivery:**
Report 1.

**Full-or-part-time:** 2h
Laboratory classes: 2h

### Activity 2

**Description:**
Introduction to SQL.

**Specific objectives:**
- Learning basics commands of SQL.

**Material:**
Software MySQL

**Delivery:**
Report 2.

**Full-or-part-time:** 6h
Laboratory classes: 6h

### Activity 3

**Description:**
E-R Model.
Relational Model.

**Specific objectives:**
- E-R "Entity relationship"
- Transformation to Relational model.

**Material:**
Software MySQL Workbench.

**Delivery:**
Report 3.

**Full-or-part-time:** 6h
Laboratory classes: 6h
Activity 4

Description:
Design of an overall Database.

Specific objectives:
Design Database.

Material:
Software MySQL.

Delivery:

Full-or-part-time: 6h
Laboratory classes: 6h

GRADING SYSTEM

Week 3: Test 10%. Theme 1.
Week 7: Practical exam. 30% Theme 2.
Week 12: Theoric and practical exam. 20% Theme 3.
Week 15: Practical exam. 30%. Theme 4. Final exam.
The rest, 10%, attendance, delivery practise, ...
Week 19: Reevaluation.

EXAMINATION RULES.

All tests are mandatory.

BIBLIOGRAPHY

Basic:

Complementary:
RESOURCES

Computer material:
- MySQL. Resource
- Workbench. Resource

Other resources:
Software free Workbench