310617 - Gis Databases

Coordinating unit: 310 - EPSEB - Barcelona School of Building Construction
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering
Academic year: 2018
Degree: BACHELOR'S DEGREE IN GEOINFORMATION AND GEOMATICS ENGINEERING (Syllabus 2016).
   (Teaching unit Compulsory)
ECTS credits: 6

Teaching languages: Spanish

Teaching staff
Coordinator: 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 develop geomatic and topographic projects.
CG8EGG. Planification, project, direction, execution and management of measurements processes, information systems, image exploitaiton, positioning and navegation; modeling, representation and visualization of the territorial information in, under and above the ground surface.
CG11EGG. Planification, project, direction, execution and mangement of processes and products of application in the information society inside the geomatic field
CG12EGG. Planification, project, direction, execution and mangement of processes and products of application in the register, ordination of territory and valoration 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.
# 310617 - Gis Databases

## 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>Total learning time: 150h</th>
<th>Hours large group: 24h</th>
<th>16.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 36h</td>
<td>24.00%</td>
</tr>
<tr>
<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
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</tbody>
</table>
## Content

### Introduction to Database.

<table>
<thead>
<tr>
<th>Learning time: 18h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory classes: 3h</td>
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<tr>
<td>Practical classes: 3h</td>
</tr>
<tr>
<td>Laboratory classes: 2h</td>
</tr>
<tr>
<td>Self study: 10h</td>
</tr>
</tbody>
</table>

**Description:**
Architecture of a Database. External, conceptual and internal levels.
System of Management of a Database (DBMS). Functions of a DBMS.
Data models: Entity-Relation Model, Relational Model. Object oriented model.

**Related activities:**
Activity 1.

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

### Structured Query Language

<table>
<thead>
<tr>
<th>Learning time: 46h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory classes: 6h</td>
</tr>
<tr>
<td>Practical classes: 6h</td>
</tr>
<tr>
<td>Laboratory classes: 4h</td>
</tr>
<tr>
<td>Self study: 30h</td>
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</tbody>
</table>

**Description:**
Introduction to SQL.

**Related activities:**
Activity 2.

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

**Learning time:** 30h
- Theory classes: 6h
- Practical classes: 4h
- Self study: 20h

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

**Related activities:**
- Activity 3.

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

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### Design of Database for SIG

**Learning time:** 36h
- Theory classes: 6h
- Practical classes: 6h
- Laboratory classes: 4h
- Self study: 20h

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

**Related activities:**
- Activity 4

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

**Learning time:** 14h  
- Theory classes: 1h 30m  
- Practical classes: 1h 30m  
- Laboratory classes: 1h  
- Self study: 10h  

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

**Related activities:**  
Activity 5  

**Specific objectives:**  
Queries to remote database.
## Planning of activities

| Activity 1 | Hours: 2h  
Laboratory classes: 2h |
|---|---|
| **Description:**  
MySQL interface | |
| **Support materials:**  
Software MySQL | |
| **Descriptions of the assignments due and their relation to the assessment:**  
Report 1. | |
| **Specific objectives:**  
Elements of databases.  
Schema of databases | |

| Activity 2 | Hours: 6h  
Laboratory classes: 6h |
|---|---|
| **Description:**  
Introduction to SQL. | |
| **Support materials:**  
Software MySQL | |
| **Descriptions of the assignments due and their relation to the assessment:**  
Report 2. | |
| **Specific objectives:**  
Learning basics commands of SQL | |

| Activity 3 | Hours: 6h  
Laboratory classes: 6h |
|---|---|
| **Description:**  
E-R Model.  
Relational Model | |
| **Support materials:**  
Software MySQL | |
| **Descriptions of the assignments due and their relation to the assessment:**  
Report 3. | |
| **Specific objectives:**  
E-R "Entity relationship"  
Transformation to Relational model | |

| Activity 4 | Hours: 6h  
Laboratory classes: 6h |
|---|---|
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**Description:**
Design of a overall Database

**Support materials:**
Software MySQL

**Descriptions of the assignments due and their relation to the assessment:**
Report 4

**Specific objectives:**
Design Database.

<table>
<thead>
<tr>
<th>Activity 5</th>
<th>Hours: 1h</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Laboratory classes: 1h</td>
</tr>
</tbody>
</table>

**Description:**
Links to WMS. IDES. WFS, etc.

**Support materials:**
Searching mapping data.

**Descriptions of the assignments due and their relation to the assessment:**
Report 5

**Specific objectives:**
Report and exposition in English.
It will be the last week.

**Qualification system**

Week 3: Test 5%. Theme 1.
Week 8: Practical exam. 25% Theme 2.
Week 12: Theoric and practical exam. 20% Theme 3.
Week 15: Practical exam. 30% Theme 4.
The actvity 1 has 5% and the activity 5 has 10%.
The rest, 5%, attendance, delivery practise, ...
Week 20: Reevaluation.

**Regulations for carrying out activities**

All tests are mandatory.
### Bibliography

**Basic:**


**Complementary:**


**Others resources:**

- Software free MySQL

**Audiovisual material**

  **Nom recurs**

  **Resource**