



## Course guide

### 310635 - 310635 - Big Data for Geoservices

**Last modified:** 09/05/2025

**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:** 2025    **ECTS Credits:** 6.0    **Languages:** Catalan, Spanish

#### LECTURER

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**Coordinating lecturer:** MARÍA AMPARO NÚÑEZ ANDRÉS

**Others:** Pallàs Del Río, Jordi

#### PRIOR SKILLS

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Databases

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

CE22EGG. Aptitude and capacity to develop analysis and territorial planning and territorial sustainability to the work with interdisciplinary teams.

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

CE11EGG. Design, production and diffusion of the basic cartography; implementation, management and exploitation of Geographic Information Systems (SIG).

**Generical:**

CG4EGG. Capacity to take decisions, leadership, management of human resources and direction of interdisciplinary teams related with the special information.

CG6EGG. Reunite and interpret information of the ground and all of this geographic and economically related with the ground.

CG7EGG. Management and execution of investigation projects, development and innovation inside the scope of this engineering.

**Transversal:**

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.

CT5. FOREIGN LANGUAGE: Achieving a level of spoken and written proficiency in a foreign language, preferably English, that meets the needs of the profession and the labour market.

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:**

CB3EGG. The students must have the capacity to gather and interpret relevant data (normally inside the field of study) to emit judgements that include a reflection into relevant social, scientific or ethical contents.

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.



## TEACHING METHODOLOGY

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Participative expositive classes.  
Practical classes.  
Attendance to technical days.

## LEARNING OBJECTIVES OF THE SUBJECT

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1. Types of databases oriented to Big Data management.
2. Geographical Information Systems and application to Big Data management.

## STUDY LOAD

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Type	Hours	Percentage
Self study	90,0	60.00
Hours medium group	36,0	24.00
Hours large group	24,0	16.00

**Total learning time:** 150 h

## CONTENTS

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### Big Data & Data Analytics

**Description:**

1. Introduction
2. Technological foundations
3. Big Data management
4. Data Analysis
5. Implementation of systems
6. Real World Solutions

**Specific objectives:**

1. Key issues of Big Data.
2. Specific database typologies.
3. Design of Big Data solutiona.

**Related activities:**

Activity 1

**Full-or-part-time:** 55h

Theory classes: 12h  
Practical classes: 18h  
Self study : 25h



## GIS & Big Data

### Description:

1. Geographical Information Systems on the realm of Big Data.
2. Hadoop platform for implementing Big Data solutions.
3. ArcGIS for Desktop integration with Hadoop

### Specific objectives:

1. Installation and configuration of an open source platform for Big Data.
2. Integration of this platform with a Geographical Information System.

### Related activities:

Activity 2

**Full-or-part-time:** 46h 40m

Theory classes: 12h

Practical classes: 18h

Self study : 16h 40m

## GRADING SYSTEM

Two mid-term exams 60% (each with a weight of 50%), a project (worth 30%, 70% the project itself and 30% the presentation and oral defense), class exercises 10%.

There is the possibility for re-evaluation exams in case the student exceeds a 3.5 average grade in the class. The exams allow the recovery of the failed mid-terms.

## BIBLIOGRAPHY

### Basic:

- Hurwitz, Judith et al.. Big Data for Dummies [on line]. Hoboken: John Wiley & Sons, Inc., 2013 [Consultation: 07/05/2020]. Available on: <https://ebookcentral.proquest.com/lib/upcatalunya-ebooks/detail.action?docID=1160914>. ISBN 978-1-118-64401-0.