

# Course guide 310635 - 310635 - Big Data for Geoservices

Last modified: 21/11/2023

Unit in charge:	Barcelona School of Buildin	ng 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: 2023	ECTS Credits: 6.0	Languages: Catalan, Spanish

### **LECTURER**

Coordinating lecturer: Gonzalez Gonzalez, Juan Carlos

Others:

### **PRIOR SKILLS**

Databases

#### **DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES**

#### Specific:

CE22EGG. Aptitude and capacity to develope analysis and territorial plannification and territorial sustainability to the work with interdisciplinary teams.

CE3EGG. Basic knowledge about the use and programation of computers, operative systems, dtabase and software programmes with appplication in engineering.

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

#### Generical:

CG4EGG. Capacity to take decisions, leadership, management of human ressources 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, developement 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 relevan data (normally inside the field of study) to emet judgements that include a reflexion into relevant social, cientific or ethic 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**

Participative expositive classes Practical classes Attendance to technical journeys

## LEARNING OBJECTIVES OF THE SUBJECT

1. Types of databases oriented to Big Data management.

2. Geographical Information Systems and application to Big Data management.

## **STUDY LOAD**

Туре	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

#### **Big Data & Data Analytics**

## **Description:**

- 1. Introduction
- 2. Technology foundations
- 3. Big Data management
- 4. Analytics & Big Data
- 5. Big Data implementation
- 6. Big Data solutions in the Real World

#### Specific objectives:

- 1. Key issues dealing with Big Data.
- 2. Database tipologies for Big Data scenarios.
- 3. Design of Big Data systems.

#### **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 settings of a Big Data open source solution.
- 2. Integration 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 (each with a weight of 30%), one theoretical and one practical (each with a weight of 20%). Students could apply for re-evaluation exams in case they exceed the 3.5 average grade on the matter. The exams will allow the recovery of mid-term exams that are not approved.

## **BIBLIOGRAPHY**

#### **Basic:**

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