# 1. OVERVIEW

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|---|---|
| **Subject area** | Integration project: Big Data I and II |
| **Degree** | Bachelor's Degree in Data Science |
| **School/Faculty** | Faculty of Science, Engineering and Design |
| **Year** | Third-party |
| **ECTS** | 9 ECTS (first semester); 9 ETCS (second semester) |
| **Type** | Core |
| **Language(s)** | Spanish |
| **Delivery Mode** | On campus |
| **Semester** | First and second semester |

# 2. INTRODUCTION

In the Big Data Integration Project, students present a single project where they apply the knowledge learnt on the Big Data course and other subjects such as Skills Development. This project is divided into two parts - “Project: Big Data I' and 'Project: Big Data II' which include the content below.

The project will be set by a coordinating professor in the subject with the help of specialist professors in related subjects. The aim is for students to put into practice the knowledge acquired in the third year subjects of the syllabus. This project has a basic common syllabus made up of the content described. However, additional content may be included if a particular project requires it. Students will be able to propose a specific field of application.

For the final assessment students will present a record of the project, describing the work done and the prototype developed. It will also be necessary to defend the project to the subject coordinator and possibly other panel members. These may include professors from related subjects.

# 3. SKILLS AND LEARNING OUTCOMES

**Basic skills (CB, by the acronym in Spanish):**

- CB1: Students have shown their knowledge and understanding of a study area originating from general secondary school education, and are usually at the level where, with the support of more advanced textbooks, they may also demonstrate awareness of the latest developments in their field of study.
- CB2: Students can apply their knowledge to their work professionally and possess the necessary skills, usually demonstrated by forming and defending opinions, as well as resolving problems within their study area.
- CB3: Students must have the ability to gather and interpret relevant data (usually within their study area) to form opinions which include reflecting on relevant social, scientific or ethical matters.
- CB4: Students can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.
- CB5: Students have developed the learning skills necessary to undertake further study in a much more independent manner.

**Cross-curricular skills (CT, by the acronym in Spanish):**

- CT01: Ethical values: Ability to think and act in line with universal principles based on the value of a person, contributing to their development and involving commitment to certain social values.
- CT03 - Teamwork: ability to integrate and collaborate actively with other people, areas and/or organisations to reach common goals.
- CT04 - Written/spoken communication: ability to communicate and gather information, ideas, opinions and viewpoints to understand and be able to act, spoken through words or gestures or written through words and/or graphic elements.
- CT05 - Analysis and problem-solving: be able to critically assess information, break down complex situations, identify patterns and consider different alternatives, approaches and perspectives in order to find the best solutions and effective negotiations.
- CT06 - Adapting to change: be able to accept, consider and integrate different perspectives, adapting your own approach as required by the situation at hand, and to work effectively in ambiguous situations.
- CT07. Leadership: be able to direct, motivate and guide others by identifying their skills and abilities, in order to effectively manage their development and common interests.
- CT08. Entrepreneurial spirit: ability to take on and carry out activities that generate new opportunities, foresee problems or lead to improvements.

**Specific skills (CE, by the acronym in Spanish):**

- CE9. Ability to apply safety assessment criteria and methods and safety certification, as well as compliance with current legislation on personal data, privacy and the rights of the general public.
- CE11. Ability to apply computational learning techniques in order to design and implement applications and systems that use them, including those dedicated to the automatic extraction of information and knowledge from large volumes of data.
- CE17. Ability to organise, complete and defend a project in the field of data science.

**Learning outcomes (RA, by the acronym in Spanish):**

• Undertake a group project applying Big Data to a real case which includes learning technologies and the visualisation tools necessary, taking into account security and current legislation.
• Draw up and interpret technical documents regarding large data volume systems.
• Gather information relative to the project field and analyse and synthesise it to understand its field of application.
• Apply agile methods to develop projects, plan tasks, assign responsibility, deadlines and end products.
• Hold work meetings where students use critical thinking to reflect on where they and their colleagues stand and propose innovative
solutions and develop objective arguments which lead to consensus decisions.
• Adapt to new situations by reconsidering ideas and reformulating them to reach the final objective in the most suitable way.
• Generate a well-structured report which explains conclusions and includes social and ethical implications.
• Present the results to a specialised audience.
• Defend the quality of the project before a non-specialised audience using explanatory videos of very short duration.
• Present the results to a specialised audience.
• Defend the quality of the project before a non-specialised audience using explanatory videos of very short duration.

The following table shows how the skills developed in the subject area match up with the intended learning outcomes:

| Skills | Learning outcomes |
|---|---|
| CT03, CT08, CB04, CB01, CE09, CE11 | • Undertake a group project applying Big Data to a real case which includes learning technologies and the visualisation tools necessary, taking into account security and current legislation. |
| CE11, CB03, CT05 | • Draw up and interpret technical documents regarding large data volume systems. |
| CB03, CB04, CE17 | • Gather information relative to the project field and analyse and synthesise it to understand its field of application. |
| CE17, CT04, CT08 | • Apply agile methods to develop projects, plan tasks, assign responsibility, deadlines and end products. |
| CT07, CT06, CT03 | • Hold work meetings where students use critical thinking to reflect on where they and their colleagues stand and propose innovative |
| CT06, CT07, CT08 | solutions and develop objective arguments which lead to consensus decisions. |
| CT06 | • Adapt to new situations by reconsidering ideas and reformulating them to reach the final objective in the most suitable way. |
| CB03, CB04 | • Generate a well-structured report which explains conclusions and includes social and ethical implications. |
| CB03, CB04 | • Present the results to a specialised audience. |
| CB04, CT04 | • Defend the quality of the project before a non-specialised audience using explanatory videos of very short duration. |
| CB04, CT04 | • Present the results to a specialised audience. |
| CT05, CT04, CB04 | • Defend the quality of the project before a non-specialised audience using explanatory videos of very short duration. |

# 4. CONTENTS

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# 5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- Collaborative learning: students learn to work with other people (colleagues and professors) to find creative, comprehensive and constructive solutions to questions and problems that arise from the given case studies, using relevant knowledge and available resources in relation to each subject.
- Problem-based learning: students face problems they must solve either working as a team or independently.
- Master Lecture: presentations by the professor using the appropriate technological tools to facilitate understanding of the subject matter.
- Directed academic activities: more independent tasks (individual or in groups), involving search for information, written summaries, debates and public defence of work.
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## 6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

**On campus:**

| Learning activity | Number of hours |
|---|---|
| Master classes | 45 |
| Problem-solving and case studies | 15 |
| Seminars, debates and discussions | 15 |
| Integration projects | 210 |
| Field work | 12 |
| Learning contract | 4 |
| Independent working | 109 |
| Tutorials | 40 |

## 7. ASSESSMENT

The assessment methods, plus their weighting in the final grade for the subject area, are as follows:

**On campus:**

| Assessment system | Weighting |
|---|---|
| Attitude assessment tests (attitude assessment rubrics, class participation) | 10.0 |
| Self- and co-assessment (learning contract, learning outcomes) | 20.0 |
| Project journals (integrated projects, etc.) | 50.0 |
| Presentations and oral defence of projects | 40.0 |

On the Virtual Campus, when you open the subject area, you can see all the details of your assessment activities and the deadlines and assessment procedures for each activity.

## 8. BIBLIOGRAPHY

The reference publication to accompany this subject area is:

- HERE YOU NEED TO PUT THE MOST SUITABLE READING FOR YOUR SUBJECT AREA