

Postgraduate Diploma in Big Data Management and Analytics

Objectives

Big Data Management and Analytics

Today, competition has led companies to identify their ability to make informed decisions as a key to success. Technology has played a very important role in this regard, enabling us to record the operational data of the company's daily activities and to analyze it afterwards. These types of systems are known as decisional systems, and data warehouses are the most widely used architecture for implementing them. However, thanks in part to the success of this type of system, the paradigm of analysis is changing, and a new type of data is being created, which is no longer only associated with the company's day to day activities, but also considers its "environment": social networks, logs, open data, etc.

The requirements of these new data types differ from those of the old ones, and have shown the limitations of traditional architectural solutions. For all these reasons, the term Big Data is currently used to refer to this new type of system and the challenges they entail. The most popular definition of the term Big Data is based on the three Vs, which represent its three main challenges: volume (large volumes of data), variety (heterogeneous data sources) and velocity (referring to processing and response times).

To address these three major challenges, Big Data today is based on the principle of "divide-and-conquer" according to which the problems have been formalized into sub-problems that can be executed simultaneously. For this reason, most Big Data solutions are based on "Cloud Computing" and on developing distributed systems in the cloud.

Big Data systems are computer systems that are based on similar design plans to all the others. We can therefore talk about the management of data in Big Data systems (Big Data Management) and using these data to extract knowledge relevant to the organization with Data Mining and Machine Learning algorithms (Big Data Analytics). Unlike traditional systems, however, there is not so much justification to separate the data exploitation management part, as there is no universal solution for storing data and exploiting them in a Big Data environment. Instead, the architectural solution depends on the specific case of use (exploitation) being considered.

This Postgraduate programme provides an overview of Big Data ecosystem and considers both aspects in depth: management (Big Data Management) and exploitation of data (Big Data Analytics), while providing applicability and a business vision within this system.

Aims:

- Understanding the problems of managing Big Data.
- Identifying the most important characteristics in Big Data management which govern the choice of an

architectural solution.

- Understanding the open data paradigm.
- Practising with the main Big Data management tools currently on the market (Hadoop, MongoDB, Neo4J, Storm, etc.).
- Understanding when a business problem can be formalized as a machine learning problem.
- Identifying the statistical or machine learning models that are most suitable for a given problem.
- Being able to perform pre-processing of data.
- Being able to evaluate the success rate of the proposed models.
- Acquiring specific knowledge about the use of Big Data for decision-making in business.
- Identifying best practices in the application of Big Data when creating a business.
- Using business modelling tools.
- Understanding the economic, ethical and legal principles of the operation of a business

Details:

Credits: 15 ECTS (120 teaching hours)

Start date: October 2017

Timetable: Wednesday 18:00 to 21:00 and Friday 18:00 to 21:00

Language of Instruction: Spanish

Award: Postgraduate diplomas issued by the Universitat Politècnica de Catalunya. To obtain this award it is necessary to have an official or recognized university degree equivalent to a bachelor's degree or diploma. Otherwise, the Fundació Politècnica de Catalunya will award a certificate of completion.

[Academic Staff](#)

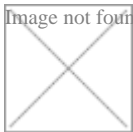
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BSC lecturers on the course: Anna Queralt, Alberto Abelló Gamazo, Alberto Gutierrez Torre, Petar Jovanovic, Rizkallah Touma

[Further information](#)

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Contact Us:

Further Details and registration through the [course website](#).

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