# AIBT103 - Big data processing

From the Advanced Master AIBT

(Artificial Intelligence & Business Transformation)

## Key elements

Period: **Mid-March**

Estimated duration: **35 hours**

For whom:
**recent graduates, jobseekers and experienced employees**

Location:
**ISAE-SUPAERO, Toulouse**

Language: **English**

## Highlights

- Introduction to Big Data processing
- Virtualization & could computing
- Practical course

Harnessing the complexity of large amounts of data is a challenge in itself. But Big Data is more than that: originally characterized by the 3 Vs of Volume, Velocity and Variety, it often requires dedicated computing solutions, which will be explored in this module.

## Learning objectives

After completing this course, participants will be able to:

- Implement the distribution of simple operations via the Map/Reduce principle in Spark;
- Explain the difference between CPU and GPGPU computation;
- Connect on a cloud computing engine (e.g. Google Cloud Platform) and launch a simple task;
- Understand the usefulness of containers
- Deploy a Docker container.

## Prerequisites

- Engineering Degree on Computer Science or a related domain (telecommunications, etc).
  OR
- Engineering Degree on another subject with a major on Computer Science.
  OR
- Work experience on Computer science.

## Information and registration

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## Course Content

Distributed computing with Spark:

- History
- MapReduce paradigm
- Hadoop Stack
- Hadoop Distributed File System
- MLlib Machine Learning library

Virtualization and cloud computing:

- Different approaches to virtualization
- Economical models
- Technical benefits (snapshots, dynamic deployment and migration, failover...)
- cloud engines (principles, deployment examples, node choices)

Docker:

- History,
- Fundamental differences w.r.t. virtualization
- Docker components
- Tools

## Teaching methods

| Teaching methods | Yes |
|---|---|
| Lectures / tutorial | X |
| Collaborative learning | |
| Flipped classroom | |
| Blended learning (online and face to face) | |
| Learning by doing | |
| Project-based | X |
| Simulation | |
| Case study | X |

## Assessment

- Hands-on evaluation on a computer (100 %)