# COURSE SYLLABUS

# Data Management

**2324-1-FDS01Q001-FDS01Q001M**

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## Aims

At theend of the module students will be able define and realize a complete data pipeline from data acquisition to data storage (relational or not) according to their application needs

Students will be able to evalute for each step the approrpiate tool to use

## Contents

Introduction to data management in big data context

data life cycle
data acquisition techniques
data modelling and storage
data preparation, cleansing, quality and explorative data analysis
advance data management concepts

## Detailed program

1. **Data life cycle**
2. **data acquisition**
3. web scraping
4. rest api
5. real time data acquisition
6. use of LLM

7. **data storage and modelling**
8. Introduction to NoSQL models
9. key value and columnar models
10. Document based system
11. Graph db

    6.**data preparation, cleansing, quality and explorative data analysis**

12. Data integration
13. Data quality
14. **Advanced data management concepts**
15. data warehouse
16. data lake

## Prerequisites

knowledge of relational model

## Teaching form

Lectures and exercises in the classroom and on virtual lab

Lectures with the support of slideware, discussion of practical cases through the forum, discussion of practical home-work projects.

Someelf-assessment tests, not considered for the final evaluation will be provided

## Textbook and teaching resource

G. Harrison Next Generation Databases, Apress, 2015

A. Rezzani Big data analytics Apogeo 2017

Yau, N. (2011). *Visualize this: the FlowingData guide to design, visualization, and statistics*. John Wiley & Sons.

Ware, C. (2012). Information visualization: perception for design. Elsevier.

Scientific articles and class pack provided by the lecturers.

## Semester

first semester

## Assessment method

The exam is divided into two parts

Data Management (50% of the final evaluation): Written exam and a project related to the topic of the module

Data visualization(50% of the final evaluation): test and a project related to the topic of the module

## Office hours

Please send an e-mail to teachers to arrange an appointment

## Sustainable Development Goals

QUALITY EDUCATION | INDUSTRY, INNOVATION AND INFRASTRUCTURE