

Title of the course: Graph Databases

Instructor: Bruno Oliveira (IPP)

Aims of the course:

Students will learn to use Graph Databases concepts using a well-known tool (Neo4J). The course aims to achieve the following objectives:

1. Understanding Graph Databases: Students will learn the fundamentals about graph databases and their fundamental concepts.
2. Neo4j Introduction: To familiarize students with Neo4j, one of the leading graph database management systems. Students will learn about the features, capabilities, and architecture of Neo4j, as well as its query language, Cypher.
3. Data Modelling with Graphs: Teach students how to model data using graphs. Students will learn about graph schema design.
4. Querying and Manipulating Data: Students will learn the skills to query and manipulate data stored in Neo4j. They will learn the basics of Cypher, Neo4j's query language, and how to perform various operations such as creating, updating, and deleting nodes and relationships.

Structure: In the first part, the fundamental topics about graph databases and specifically Neo4j. The second part involves the exploration of an existing graph database and performing some exercises to create and explore data.

Topics: Graph Databases, Neo4j, Data Modelling, Querying and manipulating Graph Data.

Assignments: Practical exercises to be solved using a computer.

Technical Prerequisites: Students can follow the course using a Neo4j local installation, using the AuraDB (<https://neo4j.com/cloud/platform/aura-graph-database/>) service with Neo4j Desktop installed (<https://neo4j.com/download/>) or using a Neo4j sandbox (<https://neo4j.com/sandbox/>). This last scenario does not require any software installation.