

Information Systems Management: Focus on SQL

Managing corporate data, databases and information-processing systems



PROGRAMME
Master 1

SEMESTER
Semester 1

CREDITS
3 ECTS

CONTACT HOURS
21h Lectures

Course Description

This course introduces the principles and methods used to manage data within organizations. It examines how corporate data are structured, stored, processed and protected, with a particular focus on relational databases and SQL.

Students learn how information systems support operational and managerial activities, how standardized databases are designed and implemented, and how different forms of information—including data, images and text—can be processed within computerized environments. The course also introduces key issues in data protection and organizational responses to data-related security incidents.

Learning Outcomes

- Explain the role of information systems and data management in organizations.
- Design a standardized relational database from a set of business requirements.
- Implement and manage database structures using SQL.
- Formulate queries to retrieve, filter, aggregate and update data.
- Design computerized processing for different types of information.
- Identify major risks affecting organizational data.
- Recommend basic measures for data protection and incident response.
- Analyse a data-security situation and communicate appropriate recommendations.

Indicative Content

1. **Information systems in firms:** data flows, business processes and managerial uses.
2. **Relational database principles:** entities, attributes, relationships and normalization.
3. **Database design:** translating organizational needs into structured data models.
4. **SQL fundamentals:** tables, keys, constraints and data types.
5. **Data querying:** selection, joins, grouping, aggregation and nested queries.
6. **Data manipulation:** inserting, updating and deleting records.
7. **Information processing:** handling structured and unstructured information.
8. **Data protection:** vulnerabilities, attacks, prevention and organizational response.

Teaching & Learning Approach

The course combines conceptual inputs, database-design exercises, guided SQL practice and applied problem solving. Students progressively move from basic data modelling to the implementation of complete database tasks and the analysis of data-protection scenarios.

Assessment

Written examination
Applied project