Course : Databases, modeling and technical choices

Practical course - 4d - 28h00 - Ref. CBC
Price : 2760 CHF E.T.

★★★★½ **4,3 / 5**

This course provides a comprehensive overview of today's essential knowledge of databases, from the design process to actual use. It analyzes architectures and application domains, evaluates the market offer and examines practical implementation approaches.

Teaching objectives

At the end of the training, the participant will be able to:

- ✓ Understanding relational DBMS logic
- ✓ Create a conceptual database model using UML
- ✓ Moving from conceptual to logical models
- ✓ Understanding schematic normalization and denormalization
- ✓ Switch from logical to physical model and implement with SQL

Intended audience

Developers, architects, IT managers, project managers, IT decision-makers.

Prerequisites

No special knowledge required.

Course schedule

1 DBMS logic

- Review of the theories underlying relational databases.
- Data models (hierarchical, network, etc.).
- DBMS typology. Relational DBMS objectives.
- Features (Codd rules, transactions, indexing, backups, restores).
- Architecture.

Hands-on work
User creation, rights assignment, transactions, database queries.

PARTICIPANTS

Developers, architects, IT managers, project managers, IT decision-makers.

PREREQUISITES

No special knowledge required.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

2 Modeling techniques

- The conceptual model.
- Needs analysis.
- Basic concepts (entities, associations, etc.).
- Functional dependencies.
- Conceptual level with Merise and UML.
- The process.
- Take into account business rules and constraints.

Hands-on work
Study of several real-life cases, Merise and UML modeling using a tool.

3 Logical data model

- Logical model. Table and constraint structure.
- Relational model (concepts, notations, terminology).
- From conceptual to logical.
- Tree modeling.
- Normal forms (1st to 5th, BCNF).
- Denormalization.
- Volume calculations.

Hands-on work
Real-life case studies, normalization and denormalization exercises, schematic generation using a tool.

4 Implementation with SQL

- Transactions.
- SQL standards (SQL1, SQL2, SQL:1999, SQL:2003).
- From the logical to the physical.
- Data quality.
- Views and materialized views.
- Access rights and roles.
- Catalogued procedures and triggers.
- Interfaces with programming languages.

Hands-on work
Database creation and manipulation, reverse engineering, performance measurement (demonstrations).

5 Key parameters for server selection

- Study SQL server parameters.
- Technical components (disks and network interfaces).
- Application modules (administration tools, etc.).
- High-availability solutions, data security.
- Technical criteria.
- Total cost of ownership.
- Market offer.

Dates and locations

REMOTE CLASS

2026 : 19 May, 7 July, 15 Sep., 17 Nov.