

# Course : SQL Server, advanced SQL programming

versions 2022 to 2012

*Practical course - 2d - 14h00 - Ref. PAV*

**Price : 1360 € E.T.**

★★★★★ 4,2 / 5

BEST

In this course, you'll learn about advanced SQL expressions and operators, and how to use them effectively to solve complex data extraction problems. You'll learn how to group, analyze, sample and retrieve hierarchical data.

## Teaching objectives

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

- ✓ Writing subqueries and combined queries
- ✓ Use decision grouping functions
- ✓ Implement analytical and windowing functions
- ✓ Writing recursive queries
- ✓ Use complex update commands with the MERGE instruction

## Intended audience

Developers, administrators and advanced users who need to implement complex SQL Server queries.

## Prerequisites

Good knowledge of the basics of the SQL language, or knowledge equivalent to that provided by the course "SQL Server, SQL programming" (ref. PSQ).

## Practical details

### Hands-on work

This course alternates the presentation of concepts and syntax with numerous application exercises.

### Teaching methods

Participants will be able to retrieve the examples and practical exercises, as well as the common thread. Web and bibliographical references are provided for further information on each topic.

## Course schedule

### PARTICIPANTS

Developers, administrators and advanced users who need to implement complex SQL Server queries.

### PREREQUISITES

Good knowledge of the basics of the SQL language, or knowledge equivalent to that provided by the course "SQL Server, SQL programming" (ref. PSQ).

### 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.

## 1 Reminder of multi-table queries

- Set operators UNION, INTERSECT and EXCEPT.
- Reminder of internal and external joins.
- Master subqueries in different parts of SQL statements.
- Nested query correlations.
- Intra-join operations with APPLY (CROSS, OUTER) for XML functions and fragments.

### Hands-on work

Case studies of queries involving several tables.

## 2 Individual operators

- Usefulness of the Cartesian product (CROSS JOIN).
- Relational division.
- Decision-making grouping with CUBE, ROLLUP and GROUPING SET.
- Analytical and windowing functions: scheduling and aggregation with OVER and WINDOW clauses.
- Crosstabs with PIVOT and UNPIVOT.
- Sample data with TABLESAMPLE.

### Hands-on work

Solving relational split cases. Use of decision grouping functions. Use analytical functions.

## 3 Table expressions

- Common Table Expression (CTE) or non-persistent view.
- Use of the WITH keyword to specify a CTE.
- The different tree querying techniques.
- Solving graph problems with recursive queries.
- Use tally tables to solve complex queries.

### Hands-on work

Express queries in the form of recursive CTE.

## 4 Writing data

- Update and delete data with subqueries.
- Use of extended update and delete syntax with joins.
- Insert, update or delete operations based on the results of a join, the MERGE operator.
- Retrieve added, modified or deleted data, using the OUTPUT clause.

### Hands-on work

Write complex update commands using the MERGE statement and subqueries.

### TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

### TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

### ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

## Dates and locations

### REMOTE CLASS

2026 : 23 Feb., 23 Apr., 25 June, 27 Aug., 29 Oct., 17 Dec.

### PARIS LA DÉFENSE

2026 : 23 Feb., 23 Apr., 25 June, 27 Aug., 29 Oct., 17 Dec.