

Introduction to SQL Programming Basics

Explore RDBMS Basics, SQL Language and Tools Essentials, Querying Basics, ANSI Joins, Functions & More

Course Snapshot

- **Course:** Introduction to SQL | SQL Programming Basics (TTSQL002)
- **Duration:** 3 days
- **Audience & Skill-Level:** This is an **introductory-level** course geared for end users, data scientists, business analysts, application developers and database administrators new to SQL.
- **Hands-on Learning:** This hands-on course combines engaging expert lessons, demos and group discussions with real-world, skills-focused machine-based labs and exercises. Student machines are required.
- **Delivery Options:** This course is available for **onsite private classroom presentation, live online virtual presentation**, or can be presented in a **blended learning format**. Please also ask about our **Self-Paced / Video / QuickSkills** or **Mini-Camp / Short Course** flexible delivery options.
- **Public Schedule:** This course has active dates on our live-online open enrollment **Public Schedule**.
- **Customizable:** This course agenda, topics and labs can be further adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

Overview

A company's success hinges on responsible, accurate database management. Organizations rely on highly available data to complete all sorts of tasks, from creating marketing reports and invoicing customers to setting financial goals. Data professionals like analysts, developers and architects are tasked with creating, optimizing, managing and analyzing data from databases – with little room for error. When databases aren't built or maintained correctly, it's easy to mishandle or lose valuable data. Our SQL Programming and Database Training Series provides students with the skills they require to develop, analyze and maintain data and in correctly structured, modern and secure databases. A full presentation of the basics of relational databases and their use are also covered.

NOTE: This course provides a complete, hands-on introduction to SQL including the use of both SQL Developer and SQL*Plus, however Oracle tooling is not the focus of the course, and other tooling or database options may be available. Please advise if you want to use another tool in class and we can coordinate on options with you in advance of the delivery.

Learning Objectives

This course combines expert lecture, real-world demonstrations and group discussions with machine-based practical labs and exercises. Working in a hands-on learning environment led by our expert practitioner, attendees will explore:

- Basic RDBMS Principles
- The SQL Language and Tools
- Using SQL Developer
- SQL Query Basics
- WHERE and ORDER BY
- Functions
- ANSI 92 Joins
- ANSI 99 Joins
- GROUP BY and HAVING
- Subqueries
- Regular Expressions
- Analytics

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer additional SQL, database, data analytics and other related courses which may be blended with this course for a track that best suits your development objectives.

Audience & Pre-Requisites

This is an introductory- level SQL course, appropriate for anyone needing to interface with an Oracle database or those needing a general understanding of Oracle database functionality. That would include end users, business analysts, application developers and database administrators. Basic computer skills are required. A basic knowledge of databases is desired but not required.

Related Courses | SQL Training Suite

- TTSQL002 SQL Programming Basics – 3 days
- TTSQL003 Writing SQL Queries – 3 days
- TTSQL004 Next Level SQL | Advanced SQL Programming – 2 days
- TTSQL005 SQL Tuning – 3 days

Take After: Our core training courses provide students with a solid foundation for continued learning based on role, goals, or their areas of specialty. Our learning paths offer a wide variety of follow-on courses such as:

- Database or tooling topics (SQL Server, Oracle, OBIEE, TOAD, etc)
- Database security topics
- Data Analytics / Big Data training – Spark, Hadoop, etc.
- Please contact us for recommended next steps tailored to your longer-term education, project, role or development objectives.

Enhanced Learning Services: Please also ask about our **Pre-Training Class OnRamp & Prep / Primer** offerings, **Skills Gap Assessment Services, Case Studies, Knowledge Check Quizzes, Skills Immersion Programs & Camps, Collaborative Mentoring Services and Extended Learning Support & Post Training** services.

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation.

1. Basic RDBMS Principles

- Relational design principles
- Accessing data through a structured query language
- Entity relationship diagrams
- Data Domains
- Null values
- Indexes
- Views
- Denormalization
- Data Model Review

2. The SQL Language and Tools

- Using SQL*Plus
 - Why Use SQL*Plus When Other Tools Are Available?
 - Starting SQL*Plus
 - EZConnect
 - SQL Commands
 - PL/SQL Commands
 - SQL*Plus Commands
- The COLUMN Command
 - The HEADING Clause
 - The FORMAT Clause
 - The NOPRINT Clause
 - The NULL Clause
 - The CLEAR Clause
- Predefined define variables
- LOGIN.SQL
- Command history
- Copy and paste in SQL*Plus

- Entering SQL commands
- Entering PL/SQL commands
- Entering SQL*Plus commands
- Default output from SQL*Plus
- Entering Queries
- What about PL/SQL?

3. Using SQL Developer

- Choosing a SQL Developer version
- Configuring connections
 - Creating A Basic Connection
 - Creating A TNS Connection
 - Connecting
- Configuring preferences
- Using SQL Developer
 - The Columns Tab
 - The Data Tab
 - The Constraints Tab
 - The Grants Tab
 - The Statistics Tab
 - Other Tabs
 - Queries In SQL Developer
 - Query Builder
 - Accessing Objects Owned By Other Users
 - The Actions Pulldown Menu
- Differences between SQL Developer and SQL*Plus
 - Reporting Commands Missing In SQL Developer

- General Commands Missing In SQL Developer
- Data Dictionary report
- User Defined reports
- Using scripts in SQL Developer

4. SQL Query Basics

- Understanding the data dictionary
 - Exporting Key Data Dictionary Information
- The Dictionary View
- Components of a SELECT Statement
 - The SELECT Clause
 - The FROM Clause
 - The WHERE Clause
 - The GROUP BY Clause
 - The HAVING Clause
 - The ORDER BY Clause
 - The START WITH And CONNECT BY Clauses
 - The FOR UPDATE Clause
 - Set Operators
- Column Aliases
- Fully Qualifying Tables and Columns
- Table Aliases
- Using DISTINCT and ALL in SELECT statements

5. WHERE and ORDER BY

- WHERE clause basics
- Comparison operators
- Literals and Constants in SQL
- Simple pattern matching
- Logical operations
- The DUAL table
- Arithmetic operations
- Expressions in SQL
- Character operators
- Pseudo columns
- Order by clause basics
- Ordering Nulls
- Accent and case sensitive sorts
- Sampling data
- WHERE and ORDER BY in SQL Developer
- All, Any, Some

6. Functions

- The basics of Oracle functions
- Number functions
- Character functions
- Date functions
- Conversion functions
- Other functions
- Large object functions
- Error functions
- The RR format mode;
- Leveraging your knowledge

7. ANSI 92 JOINS

- Basics of ANSI 92 Joins
- Using Query Builder with multiple tables
- Table Aliases
- Outer joins
 - Outer Joins In Query Builder
- Set operators

- Self-referential joins
- Non-Equijoins

8. ANSI 99 Joins

- Changes with ANSI99
- CROSS Join
- NATURAL Join
- JOIN USING
- JOIN ON
- LEFT / RIGHT OUTER JOIN
- FULL OUTER JOIN

9. GROUP BY and HAVING

- Introduction to GROUP functions
- Limiting Rows
 - Including NULL
 - Using DISTINCT With Group Functions
- GROUP function requirements
- The HAVING clause
- Other GROUP function rules
- Using Query Builder with GROUP clauses
- ROLLUP and CUBE
- The Grouping function
- Grouping Sets

10. Subqueries

- Why use subqueries?
- WHERE clause subqueries
- FROM clause subqueries
- HAVING clause subqueries
- CORRELATED subqueries
- SCALAR subqueries
- DML and subqueries
- EXISTS subqueries
- Hierarchical queries
- TOP N AND BOTTOM N queries

- Creating subqueries using Query Builder

11. Regular Expressions

- Available Regular Expressions
- Regular Expression Operators
- Character Classes
- Pattern matching options
- REGEX_LIKE
- REGEXP_SUBSTR
- REGEXP_INSTR
- REGEXP_REPLACE
- REGEXP_COUNT

12. Analytics

- The WITH clause
- Reporting aggregate functions
- Analytical functions
- User-Defined bucket histograms
- The MODEL clause
- PIVOT and UNPIVOT
- Temporal validity

13. More Analytics

- RANKING functions
- RANK
- DENSE_RANK
- CUME_DIST
- PERCENT_RANK
- ROW_NUMBER
- Windowing aggregate functions
- RATIO_TO_REPORT
- LAG / LEAD
- Linear Regression functions
- Inverse Percentile functions
- Hypothetical ranking functions
- Pattern Matching

Student Materials & Lab Environment

All course software (limited versions, for course use only), digital courseware files or course notes, labs / data sets and solutions (as applicable) are provided for you in our “easy access / no install required” high-speed remote lab environment. Our tech team works with every student to ensure everyone is set up with working access and ready to go prior to every course start date, ensuring a smooth delivery and great hands-on experience. Please ask for details.

For More Information

For more information about our dedicated training services, collaborative coaching services, courseware licensing options, public course schedule, training management services, partner programs, or to see our complete list of course offerings and special offers please visit us at www.triveratech.com, email Info@triveratech.com or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.