



Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa

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COURSE BROCHURE

SQL Database Access Programming For Applications Training

Physical, Mathematical, Computer and Life Sciences / Information Technology and Computer Sciences

Unit Standard 114048 · NQF Level 5 · 9 Credits · 6 Days

COURSE OVERVIEW

This course equips learners with the skills to design, implement, and manage SQL database access for applications. It covers the creation of database objects, data manipulation, and security measures to ensure efficient and secure data retrieval and storage.

Category	Physical, Mathematical, Computer and Life Sciences
Subfield	Information Technology and Computer Sciences
Unit Standard	114048
Accreditation	SAQA Accredited · NQF Level 5 · 9 Credits
Duration	6 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply SQL statements to create and manage database objects such as tables, views, and indexes.
- Implement data manipulation operations including INSERT, UPDATE, DELETE, and SELECT queries.
- Analyze database security requirements and implement access controls and permissions.
- Evaluate and optimize SQL queries for performance and efficiency.
- Design and implement stored procedures, functions, and triggers for application integration.
- Demonstrate the ability to troubleshoot common database access issues.

WHO SHOULD ATTEND

- This course is intended for programmers, software developers, and IT professionals who need to integrate SQL databases into their applications.
- It is also suitable for individuals seeking to enhance their database programming skills.

COURSE OUTLINE

Day 1: Introduction to SQL and Database Fundamentals

- Overview of relational databases and SQL
- Database structure: tables, rows, columns, keys
- Basic SELECT syntax and fetching columns
- Filtering records with WHERE (comparison operators, logical operators)
- Sorting results with ORDER BY (ASC/DESC)
- Introduction to NULL handling

Day 2: Data Manipulation and Functions

- INSERT, UPDATE, DELETE syntax and best practices
- String functions: CONCAT, SUBSTRING, UPPER, LOWER
- Date functions: GETDATE, DATEADD, DATEDIFF
- Numeric functions: ROUND, ABS, COUNT, SUM, AVG, MIN, MAX
- GROUP BY and HAVING clauses
- NULL handling in aggregates

Day 3: Joins and Subqueries

- INNER JOIN syntax and examples
- LEFT and RIGHT OUTER JOINS
- FULL OUTER JOIN and self-joins
- Subqueries: single-row, multiple-row, and scalar
- Correlated subqueries and EXISTS/NOT EXISTS
- Set operations: UNION, INTERSECT, EXCEPT

Day 4: Advanced Query Techniques and Indexing

- Common Table Expressions (CTEs) and recursive CTEs
- Window functions: ROW_NUMBER, RANK, DENSE_RANK, LEAD, LAG
- Index types: clustered, nonclustered, unique
- Creating and dropping indexes
- Reading execution plans (basic)
- Query optimisation tips

Day 5: Stored Procedures, Functions, and Transactions

- Stored procedure syntax, parameters, and return values
- Scalar functions and inline table-valued functions
- Transaction control: BEGIN, COMMIT, ROLLBACK, SAVEPOINT
- Error handling with TRY...CATCH
- Dynamic SQL basics
- Security: granting EXECUTE permissions

Day 6: Integration with Applications and Final Project

- Database connection strings and drivers (ODBC, JDBC, ADO.NET)
- Parameterised queries to prevent SQL injection
- Retrieving and processing result sets in code
- Error handling in application code
- Final project: build a small application feature using SQL

- Review and Q&A;

ASSESSMENT & CERTIFICATION

Delegates are assessed through exercises and a final test. A mark of **50% or above** earns an **AATICD Certificate of Completion**, issued digitally with a unique verification code. This course carries **9 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 26,900.00	R 26,900.00
1	In-House	R 35,000.00	R 35,000.00
1	On-Campus (Pretoria)	R 40,300.00	R 40,300.00

UPCOMING SESSIONS

Start	End	Method	Venue
06 Aug 2026	13 Aug 2026	On-Campus	Cape Town, South Africa
07 Aug 2026	14 Aug 2026	On-Campus	Dubai, UAE
10 Aug 2026	17 Aug 2026	On-Campus	Abu Dhabi, UAE
11 Aug 2026	18 Aug 2026	On-Campus	Durban, South Africa
11 Aug 2026	18 Aug 2026	On-Campus	Mauritius
12 Aug 2026	19 Aug 2026	On-Campus	Cape Town, South Africa
13 Aug 2026	20 Aug 2026	On-Campus	Dubai, UAE
14 Aug 2026	21 Aug 2026	On-Campus	Pretoria, South Africa

Contact us if no suitable date is listed – on-demand sessions can be arranged for groups.

HOW TO GET A QUOTE OR APPLY

1. **Get an instant quotation online:** visit www.aaticd.co.za, open the page for this course (Unit Standard 114048) and click **Get A Quote / Apply**. Select your training method and number of delegates – your quotation is generated immediately and emailed to you with the course brochure attached.
2. **Apply by email:** send the course title, your preferred training method (Online, In-House or On-Campus Pretoria), the number of delegates and your preferred dates to apply@aaticd.co.za – our team will reply with a formal quotation.
3. **Apply by phone or WhatsApp:** call **+27 12 004 8389** or WhatsApp **+27 65 077 6310** and we will prepare your quotation and reserve your seats.
4. **Confirm your booking:** accept the quotation and settle the invoice. As soon as payment is confirmed your delegates are enrolled and receive their AATICD LMS login details by email, along with joining instructions for their chosen training method.

Group discounts apply automatically – the more delegates you enrol, the lower the price per delegate. No payment is required to request a quotation.

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