



Course : SQL Programming

Course Description

This course presents the basics of Relational Database Management Systems and SQL – the Structured Query Language. The course, based on Microsoft SQL Server DB engine, teaches how to query for data, using standard SQL syntax, data types and functions, how to customize the data read from the RDBMS, and how to manipulate the data in the RDBMS.

Course Duration

32 Academic Hours (4 Days)

Prerequisites

None

Course Topics

Module 1 : Theory and Concepts

- Basics of UML
- The Role of Data Base in an Information System
- Definitions of Relations , Tables and Operators
- Queries Types (DML , DDL)
- Data Normalization (3NF)

Module 2 : Getting Started with Databases and SQL Server 2016

- Overview of SQL Server 2016
- Overview of SQL Server Databases
- Overview and Syntax Elements of T-SQL
- Working with T-SQL Scripts

Module 3 : Querying and Filtering Data

- Overview of SQL Server 2016
- Overview of SQL Server Databases
- Overview and Syntax Elements of T-SQL
- Working with T-SQL Scripts

Module 4 : Grouping and Summarizing Data

- Summarizing Data by Using Aggregate Functions
- Summarizing Grouped Data
- Ranking Grouped Data
- Creating Crosstab Queries

Module 5 : Joining Data from Multiple Tables

- Querying Multiple Tables by Using Joins
- Applying Joins for Typical Reporting Needs
- Combining and Limiting Result Set

Module 6 : Working with Subqueries

- Writing Basic Subqueries
- Writing Correlated Subqueries
- Comparing Subqueries with Joins and Temporary Tables
- Using Common Table Expressions

Module 7 : Modifying Data in Tables

- Inserting Data into Tables
- Deleting Data from Tables
- Updating Data in Tables
- Overview of Transactions

Module 8 : Using Programming Objects for Data Retrieval

- Overview of Views
- Overview of User-Defined Functions
- Overview of Stored Procedures
- Overview of Triggers
- Writing Distributed Queries

Module 9 : Using Advanced Querying Techniques

- Considerations for Querying Data
- Working with Data Types
- Cursors and Set-Based Queries
- Dynamic SQL
- Maintaining Query Files