



Program Name: SQL Server 2014/2016 Database Development, BI and Data Analytics

This program is designed to produce mid-level SQL Server Database Developers, Architects, BI developers and Data Analytics Personnel. It is composed of six courses, course-based projects and one senior project

Total Duration: 100+ Hours Courses + project

Entry Criteria: At least Associate Degree (Diploma) in any field; or two years of College/University (higher education) study; At least of one-year professional experience in any field

Must have taken Introduction to IT course and familiar with, Microsoft Office Word, Excel, Access; must have understanding of basics of Software, Application Architecture – Client Server Architecture (multi-tier architecture); basics of database and software design

Course 0

Introduction to IT (Computers) (10hrs)

- Hardware components of a Computer
 - RAM, CPU, Hard Disk Drive, Communication Bus, Computer Ports and how they work together
- Computer data representation
 - How RAM is organized – ON/OFF -> to bits
 - Counting in Decimal and Binary and Binary Arithmetic
 - ASCII-7/8
 - Let's put our names on the RAM
- Software
 - From Instruction Set to Software
 - Operating System Vs Applications
- Components of the OS and how the OS manages our computer
- Computer Networking
 - Network defined, Networking devices
 - LAN/WAN and Internet
 - IP Addressing – IPV4
 - Construct IP Address Classes using 32-bit IP addresses
 - Private and Public IP addresses
 - Some commands
 - Some Network related commands
 - RDP and VPN

Course 1

Relational Database Management Fundamentals and Querying SQL Server 2014 (40hrs)

At the end of the course trainees will be able to create and manipulate relational database objects using SQL Server 2014

- Overview of RDBMS, standard SQL Vs T-SQL, DDL, DML, DQL and DCL
- SQL Server Instances Vs Databases; other DBMSs
- SQL Server 2014 Quick Install
- Database Design Basics
 - The database design process
 - Requirements analysis: identifying the purpose of the database
 - Database structure: the building blocks of a database
 - Creating relationships between entities
 - Database normalization – 1NF, 2NF, 3NF
- Creating and Altering tables, relationships and constraints
 - Understanding Data Types
 - Creating Tables
 - Constraints – NOT NULL, PRIMARY KEY, FOREIGN KEY, DEFAULT, CHECK
 - Altering tables
 - Add, drop or modify Column and Constraint definitions
 - Advanced table relationship management – Cascading effect of FK definition for DELETE and UPDATE
- DML – Data Manipulation Language INSERT, DELETE, UPDATE
- Data retrieval – SELECT Statement
 - Structure of SELECT statement
 - Filter Conditions
 - Grouping and Aggregate values
 - Subqueries - Correlated and Uncorrelated Subqueries
 - Retrieving data from multiple Tables
 - JOIN – CROSS JOIN, INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN
- Working with other database objects Stored Procedures, Views, Functions and Triggers
 - Advantages and basics Stored Procedures
 - Creating parametrized stored procedures for SELECT and DML
 - Views
 - Functions – User Defined Functions, Table Valued Vs Scalar Valued
 - DML Triggers
 - FOR/AFTER INSERT, DELETE, UPDATE
 - INSTEAD OF INSERT, DELETE, UPDATE

Course 2

SSIS (SQL Server Integration Services) (16 hrs.)

- Import and Export data in SSMS and SSIS
- Introduction to SSIS
- Connection managers in SSIS
- Use of Control flow task
- Use of Data Flow task
- Use variables in the package
- Event handlers
- Package explorer
- Precedent constraints
- Use of Containers
- Introduction to data flow task
- Set different data flow sources
- Data Transformation
- Set Data flow destinations
- Control flow task
- Deployment of package
- Move package from one server to another, deployment methods and security
- Executing the package
- Different ways and places a package can be executed
- Configure a schedule for package execution

Course 3

SQL Server Analysis Service (4 hrs.)

- Data warehouse
- Creating OLAP Cube
- How to create Cube Dimensions
- Cube Dimension Vs Database Dimension
- How to create Named Calculations
- Creating Measure and Groups

Course 4

SSRS (SQL Server Reporting Services) (14 hrs.)

- Introduction to BI concept
- Creating basic report using SSRS
- Creating report using Report server wizard and report server template
- Creating Tabular and matrix report
- Add filters and parameters to a report
- Adding cascading parameters to a report
- Difference between filters and parameters

- Difference between tabular and matrix report
- Explanation of Textbox properties
- List report, Sub report, Drill through report
- Use of Image, Rectangle and Charts in creating reports
- Use Expressions to dynamically design your reports
- Deploying reports
- Manage reports using report Manager

Course 5

Tableau Desktop Fundamentals (16 hrs.)

- Connecting to Data
- Visual Analytics
- Mapping
- Calculations
- Dashboards and stories

OR

Course 5

Microsoft Power BI Fundamentals (16 hrs.)

- Introduction to Power BI
- Connect to Data Source
- Basic transformation
- Modeling data
- Data visualization in Power BI
- Power BI services