**Module 34: RDBMS Fundamentals Concepts**

 Why RDBMS

 Architecture layers

 Different models (hierarchy, network, OO, relational)

 RDBMS concepts: tables, keys, relationships

 Data types

 Create tables, basic DDL

**Module 35: Creating Tables and Data Types**

 Table Architectures

 Designing Tables

 Working with SQL Table Scripts

 Column in Tables

 Exploring Data Types

 Character Data Types

 Numeric Data Types

 Date/Time Data Types

 TEXT/NTEXT Data Types

 Other Data Types

 Calculated Columns

**Module 36: Normalization Concepts**

 Overview of SQL architecture (server, instance, DB, tables, temp DB)

 ER model concepts: entities, attributes, relationships, cardinality

 ER model notations, examples

 ER diagram assignment

 Mapping relationships

 Redundancy and normalization

 Normalization forms

 Dependency diagrams

 Translation to physical model

**Module 37: SQL Server Overview**

 What is SQL Server

 Advantages of SQL Server 2012

 SQL Server architecture

 SQL Server security Model

 SQL Server System databases

**Module 38: SQL Server Tools**

 Server Tools

 SQL Server manager

 SQL Server Agent

 Server Network Utility

 Client Tools

 SQL Enterprise Manager

 SQL Query Analyzer

 Client Network Utility

 SQL Profiler

**Module 39: Creating Databases**

 Rules of Normalization

 Physical and logical database design

 Database File Concepts

 Configuring File Growth

 Using Multiple Files

 Using Filegroups

**Module 40: Enforce Data integrity**

 Types of data Integrity

 Entity Integrity

 Domain Integrity

 Referential Integrity

 User-Defined Integrity

 Creating Keys

 Primary Key Considerations

 Creating Primary Keys

 Creating foreign Keys

 Creating User Data Columns

 Column Constraints

**Module 41: Partitions and Rank Function**

**Module 42: Retrieving and Modifying Data**

 Select Data From a single Table

 Select Data from Multiple tables

 Select Options

 TOP N

 DISTINCT

 BITWISE

 CASE

 Working with Nulls

 Testing for Nulls

 Handling Nulls

 Scalar Functions

 Summing and Grouping Data

 Aggregate Functions

 Using the CUMPUTE and COMPUTE BY Clause

 Generating Totals

 Inserting Data

 Updating Data

 Deleting Data

 Potential Data Modification Obstacles

**Module 43: JOINS**

 Using Joins

 Inner Joins

 Outer Joins

 Self Joins

 Cross Joins

 Using Sub Queries

 Simple Sub Queries

 Correlated Sub queries

 Common Table Expression

 What is CTE

 When to use CTE

 Advantages of CTE

 CTE in Action

 Multiple CTE in one query

 Using Unions

 Intersection Unions

 Difference Unions

 Tuning queries

 Execution Plan Analysis

 Using SET Commands

 UNION Vs UNION ALL

 IN Vs. EXISTS Vs. JOIN

 NOT IN Vs. NOT EXISTS Vs. LEFT JOIN

 BETWEEN

 GROUP BY AND OREDRBY Clauses

** T-SQL PROGRAMMING**

 Variable Declarations

 Programming Constructs

 Conditional statements

 If-else

 Case

 While

 Break

 Continue

**Module 44: IMPLEMENTING FUNCTIONS**

 Creating Functions

 Implement Scalar Functions

 Create Table Valued Functions

**Module 45: IMPLEMENTING STORED PROCEDURES**

 What is Stored Procedure

 Creating Stored Procedures

 Executing Stored Procedures

 Creating Parameterized Stored Procedures

 Handle errors in a stored procedure

**Module 46: IMPLEMENTING TRIGGERS**

 What is Trigger in SQL Server

 Why and when to use a trigger

 Types of Triggers (DDL and DML Triggers)

 Creating and Applying After Trigger and Instead of Trigger

**Module 47: IMPLEMENTING INDEXES**

 What is Index

 Advantages of Index

 Types of Indexes (Clustered, Non-clustered, Unique, Filtered Indexes)

 Create, Delete and Modify Indexes

**Module 48: IMPLEMENTING CURSORS**

 What is Cursor

 Types of Cursors (Implicit and Explicit Cursor)

 Creating Cursors and Fetching Data from it

**Module 49: Transaction in SQL SERVER**

 What is Transaction

 Properties of Transaction

 Transaction Control

 Isolation Level in Transaction