



# ETL WITH SQL SERVER INTEGRATION SERVICES (SSIS)

Course ID : SQL-BI-ETL



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**Duration: 3 Days**

(18 Hours) 09:00 AM – 04:00 PM



**Price: 12,900 THB**

\* (excluding VAT 7%)

\* Eligible for 200% tax deduction



**Training Schedule**

[www.9experttraining.com](http://www.9experttraining.com)

## Category: Data

This course provides comprehensive knowledge and hands-on experience in ETL (Extract, Transform, Load) processes for building dimensional models (data warehouses) to support data analytics using SQL Server Integration Services (SSIS). SSIS is a powerful platform for enterprise-level data preparation that significantly reduces the need for manual coding. Participants will engage in workshops and case studies, guided by experienced instructors, to master practical ETL techniques.

## Objectives

1. Understand the functionalities of Microsoft SQL Server Business Intelligence tools.
2. Gain foundational knowledge in dimensional modeling.
3. Develop proficiency in SSIS project development.
4. Learn how to deploy and configure SSIS for automated operations in accordance with best practices.

## Target Audience

1. Data engineers seeking ETL tools and hands-on experience with SSIS.
2. Data analysts preparing data in SQL Server for use with Power BI.
3. Business analytics professionals involved in building data warehouses.
4. Chief Data Officers (CDOs).
5. Directors and Managers.
6. Individuals interested in data integration and ETL processes.

## Prerequisites

1. Basic knowledge of the SQL query language.
2. Prior experience with Microsoft SQL Server is beneficial.

## System Requirements

1. Operating System : Windows 11 or Windows 10
2. CPU : A Minimum 1.6 GHz or faster processor
3. RAM : 8GB or more
4. An Internet connection
5. Microsoft Remote Desktop client for Windows

## TRAINING TOPICS

### DAY 1 Morning Session

9:00 AM – 12:00 PM

#### 1. Business Intelligence with Microsoft SQL Server

- Overview of Microsoft SQL Server Business Intelligence tools :
  - SQL Server Database Engine
  - SQL Server Integration Services (SSIS)
  - SQL Server Analysis Services (SSAS)
  - SQL Server Reporting Services (SSRS) / Power BI Report Server
- Introduction to dimensional model design :
  - Star schema and snowflake schema
  - Bus matrix
  - Types of dimension tables
  - Types of fact tables
- Overview of SSIS workflows
- SSIS development environment in Visual Studio

### DAY 1 Afternoon Session

1:00 PM – 4:00 PM

#### 2. Data Understanding and Data Flow Utilization

- Exploring source data using SSIS tasks
- Introduction to alternative data tools

- Using the Data Flow Task :
  - Connection Manager
  - Data Flow Task
  - Data Source
  - Categories of data Transformations
  - Data Destinations
- Optimizing Data Flow performance

## DAY 2 Morning Session

9:00 AM – 12:00 PM

### 3. Control Flow in SSIS Packages

- Utilizing various Control Flow groups:
  - Understanding Precedent Constraints
  - Grouping and annotation
  - Integrating multiple packages
- Creating dynamic packages :
  - Variables
  - Parameters
  - Expressions
- Using Containers :
  - Sequence Containers
  - For Loop Containers
  - Foreach Loop Containers
- Ensuring process continuity:
  - Handling failures
  - Declaring transactions
  - Using checkpoints

## DAY 2 Afternoon Session

1:00 PM – 4:00 PM

### 4. Debugging SSIS Packages

- Key debugging concepts
- Monitoring events during package development
- Using breakpoints and tracking variable values
- Monitoring data flow using the Data Viewer
- Logging events
- Error handling in SSIS packages :
  - Managing errors in control flow
  - Managing errors in data flow

## DAY 3 Morning Session

9:00 AM – 12:00 PM

### 5. Data Extraction and Loading

- Planning data extraction
- Incrementing incremental ETL : extracting only changed data from sources systems.
  - Extraction using Timestamps
  - Extraction using Change Data Capture (CDC)
  - Extraction using Change Tracking
- Planning data loading

- Using SSIS for incremental load :
  - Loading data from CDC result tables
  - Using Lookup Transformation for loading data from timestamp and change tracking result tables
- Slowly Changing Dimension Transformation

## 6. Deploying and Configuring SSIS Packages

- Understanding SSIS deployment models :
  - Package Deployment Model
  - Project Deployment Model
- Deploying with SSIS Project Deployment Model :
  - Creating SSIS Catalog
  - Environments and variables in SSIS Catalog
  - Deployment methods : Wizard, Remote, Offline
- Scheduling SSIS package execution :
  - Running via SQL Server Agent
  - Related security considerations



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