



# Implementing a SQL Data Warehouse

Microsoft Official Curriculum (MOC 20767)

**Course Length:** 5 days

**Course Delivery:** Traditional Classroom • Online Live

## Course Overview

This 3-day instructor-led course provides students with the knowledge and skills to provision a Microsoft SQL Server 2016 database. The course covers SQL Server 2016 provision both on-premise and in Azure, and covers installing from new and migrating from an existing install.

## Audience

The primary audience for this course are database professionals who need to fulfil a Business Intelligence Developer role. They will need to focus on hands-on work creating BI solutions including Data Warehouse implementation, ETL, and data cleansing.

## Prerequisites

This course requires that you meet the following prerequisites:

- Basic knowledge of the Microsoft Windows operating system and its core functionality.
- Working knowledge of relational databases.
- Some experience with database design

## Objectives

After completing this course, students will be able to:

- Provision a Database Server
- Upgrade SQL Server
- Configure SQL Server
- Manage Databases and Files (shared)

## Course Details

### Module 1: Introduction to Data Warehousing

Describe data warehouse concepts and architecture considerations.

### Lessons



- Overview of Data Warehousing
- Considerations for a Data Warehouse Solution

### **Lab: Exploring a Data Warehouse Solution**

After completing this module, you will be able to:

- Describe the key elements of a data warehousing solution
- Describe the key considerations for a data warehousing solution

## **Module 2: Planning Data Warehouse Infrastructure**

This module describes the main hardware considerations for building a data warehouse.

### **Lessons**

- Considerations for Building a Data Warehouse
- Data Warehouse Reference Architectures and Appliances

### **Lab: Planning Data Warehouse Infrastructure**

After completing this module, you will be able to:

- Describe the main hardware considerations for building a data warehouse
- Explain how to use reference architectures and data warehouse appliances to create a data warehouse

## **Module 3: Designing and Implementing a Data Warehouse**

This module describes how you go about designing and implementing a schema for a data warehouse.

### **Lessons**

- Logical Design for a Data Warehouse
- Physical Design for a Data Warehouse

### **Lab: Implementing a Data Warehouse Schema**

After completing this module, you will be able to:

- Implement a logical design for a data warehouse
- Implement a physical design for a data warehouse

## **Module 4: Columnstore Indexes**



*"The Clever Advantage"*

This module introduces Columnstore Indexes.

### Lessons

- Introduction to Columnstore Indexes
- Creating Columnstore Indexes
- Working with Columnstore Indexes

### Lab: Using Columnstore Indexes

After completing this module, you will be able to:

- Create Columnstore indexes
- Work with Columnstore Indexes

### Module 5: Implementing an Azure SQL Data Warehouse

This module describes Azure SQL Data Warehouses and how to implement them.

### Lessons

- Advantages of Azure SQL Data Warehouse
- Implementing an Azure SQL Data Warehouse
- Developing an Azure SQL Data Warehouse
- Migrating to an Azure SQ Data Warehouse

### Lab: Implementing an Azure SQL Data Warehouse

After completing this module, you will be able to:

- Describe the advantages of Azure SQL Data Warehouse
- Implement an Azure SQL Data Warehouse
- Describe the considerations for developing an Azure SQL Data Warehouse
- Plan for migrating to Azure SQL Data Warehouse

### Module 6: Creating an ETL Solution

At the end of this module you will be able to implement data flow in a SSIS package.

### Lessons

- Introduction to ETL with SSIS
- Exploring Source Data
- Implementing Data Flow



*"The Clever Advantage"*

### **Lab: Implementing Data Flow in an SSIS Package**

After completing this module, you will be able to:

- Describe ETL with SSIS
- Explore Source Data
- Implement a Data Flow

### **Module 7: Implementing Control Flow in an SSIS Package**

This module describes implementing control flow in an SSIS package. **Lessons**

- Introduction to Control Flow
- Creating Dynamic Packages
- Using Containers

### **Lab: Implementing Control Flow in an SSIS Package**

#### **Lab: Using Transactions and Checkpoints**

After completing this module, you will be able to:

- Describe control flow
- Create dynamic packages
- Use containers

### **Module 8: Debugging and Troubleshooting SSIS Packages**

This module describes how to debug and troubleshoot SSIS packages.

#### **Lessons**

- Debugging an SSIS Package
- Logging SSIS Package Events
- Handling Errors in an SSIS Package

### **Lab: Debugging and Troubleshooting an SSIS Package**

After completing this module, you will be able to:

- Debug an SSIS package
- Log SSIS package events
- Handle errors in an SSIS package

### **Module 9: Implementing an Incremental ETL Process**



*"The Clever Advantage"*

This module describes how to implement an SSIS solution that supports incremental DW loads and changing data.

### **Lessons**

- Introduction to Incremental ETL
- Extracting Modified Data
- Temporal Tables

### **Lab: Extracting Modified Data**

### **Lab : Loading Incremental Changes**

After completing this module, you will be able to:

- Describe incremental ETL
- Extract modified data
- Describe temporal tables

### **Module 10: Enforcing Data Quality**

This module describes how to implement data cleansing by using Microsoft Data Quality services.

### **Lessons**

- Introduction to Data Quality
- Using Data Quality Services to Cleanse Data
- Using Data Quality Services to Match Data

### **Lab: Cleansing Data**

### **Lab: De-duplicating Data**

After completing this module, you will be able to:

- Describe data quality services
- Cleanse data using data quality services
- Match data using data quality services
- De-duplicate data using data quality services

### **Module 11: Using Master Data Services**

This module describes how to implement master data services to enforce data integrity at source.



## Lessons

- Master Data Services Concepts
- Implementing a Master Data Services Model
- Managing Master Data
- Creating a Master Data Hub

## Lab: Implementing Master Data Services

After completing this module, you will be able to:

- Describe the key concepts of master data services
- Implement a master data service model
- Manage master data
- Create a master data hub

## Module 12: Extending SQL Server Integration Services (SSIS)

This module describes how to extend SSIS with custom scripts and components.

## Lessons

- Using Custom Components in SSIS
- Using Scripting in SSIS

## Lab: Using Scripts and Custom Components

After completing this module, you will be able to:

- Use custom components in SSIS
- Use scripting in SSIS

## Module 13: Deploying and Configuring SSIS Packages

This module describes how to deploy and configure SSIS packages.

## Lessons

- Overview of SSIS Deployment
- Deploying SSIS Projects
- Planning SSIS Package Execution

## Lab: Deploying and Configuring SSIS Packages

After completing this module, you will be able to:



- Describe an SSIS deployment
- Deploy an SSIS package
- Plan SSIS package execution

## Module 14: Consuming Data in a Data Warehouse

This module describes how to debug and troubleshoot SSIS packages.

### Lessons

- Introduction to Business Intelligence
- Introduction to Reporting
- An Introduction to Data Analysis
- Analyzing Data with Azure SQL Data Warehouse

### Lab: Using Business Intelligence Tools

After completing this module, you will be able to:

- Describe at a high level business intelligence
- Show an understanding of reporting
- Show an understanding of data analysis
- Analyze data with Azure SQL data warehouse



To register or for more information call our office **(208) 898-9036** or email [register@leapfoxlearning.com](mailto:register@leapfoxlearning.com)



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