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## Implementing a Data Warehouse with Microsoft SQL Server

**Duration: 5 Days**    **Course Code: M20463**

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### Overview:

This course describes how to implement a data warehouse platform to support a BI solution. Students will learn how to create a data warehouse with Microsoft SQL Server 2014, implement ETL with SQL Server Integration Services, and validate and cleanse data with SQL Server Data Quality Services and SQL Server Master Data Services.

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### Target Audience:

Implementing a data warehouse. Developing SSIS packages for data extraction, transformation, and loading. Enforcing data integrity by using Master Data Services. Cleansing data by using Data Quality Services.

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### Objectives:

- Describe data warehouse concepts and architecture considerations.
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  - Select an appropriate hardware platform for a data warehouse.
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  - Design and implement a data warehouse.
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  - Implement Data Flow in an SSIS Package.
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  - Implement Control Flow in an SSIS Package.
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  - Debug and Troubleshoot SSIS packages.
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  - Implement an ETL solution that supports incremental data extraction.
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  - Implement an ETL solution that supports incremental data loading.
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  - Implement data cleansing by using Microsoft Data Quality Services.
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  - Implement Master Data Services to enforce data integrity.
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  - Extend SSIS with custom scripts and components.
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  - Deploy and Configure SSIS packages.
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  - Describe how BI solutions can consume data from the data warehouse.
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### Prerequisites:

- At least 2 years' experience of working with relational databases, including:
    - Designing a normalized database.
    - Creating tables and relationships.
    - Querying with Transact-SQL.
  - Some exposure to basic programming constructs (such as looping and branching).
  - An awareness of key business priorities such as revenue, profitability, and financial accounting is desirable.
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## Content:

### Module 1: Introduction to Data Warehousing

- Overview of Data Warehousing
- Considerations for a Data Warehouse Solution
- Lab : Exploring a Data Warehousing Solution
- Exploring Data Sources
- Exploring and ETL Process
- Exploring a Data Warehouse

### Module 2: Planning Data Warehouse Infrastructure

- Considerations for Data Warehouse Infrastructure
- Planning Data Warehouse Hardware
- Lab : Planning Data Warehouse Infrastructure
- Planning Data Warehouse Hardware

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

- Data Warehouse Design Overview
- Designing Dimension Tables
- Designing Fact Tables
- Physical Design for a Data Warehouse
- Lab : Implementing a Data Warehouse
- Implement a Star Schema
- Implement a Snowflake Schema
- Implement a Time Dimension

### Module 4: Creating an ETL Solution with SSIS

- Introduction to ETL with SSIS
- Exploring Data Sources
- Implementing Data Flow
- Lab : Implementing Data Flow in an SSIS Package
- Exploring Data Sources
- Transferring Data by Using a Data Flow Task
- Using Transformations in a Data Flow
- After completing this module, you will be able to:
- Describe the key features of SSIS.
- Explore source data for an ETL solution.
- Implement a data flow by using SSIS

### Module 5: Implementing Control Flow in an SSIS Package

- Introduction to Control Flow
- Creating Dynamic Packages
- Using Containers
- Managing Consistency
- Lab : Implementing Control Flow in an SSIS Package
- Using Tasks and Precedence in a Control Flow
- Using Variables and Parameters
- Using Containers
- Lab : Using Transactions and Checkpoints

### Module 6: Debugging and Troubleshooting SSIS Packages

- Debugging an SSIS Package
- Logging SSIS Package Events
- Handling Errors in an SSIS Package
- Lab : Debugging and Troubleshooting an SSIS Package
- Debugging an SSIS Package
- Logging SSIS Package Execution
- Implementing an Event Handler
- Handling Errors in a Data Flow

### Module 7: Implementing a Data Extraction Solution

- Planning Data Extraction
- Extracting Modified Data
- Lab : Extracting Modified Data
- Using a Datetime Column
- Using Change Data Capture
- Using the CDC Control Task
- Using Change Tracking

### Module 8: Loading Data into a Data Warehouse

- Planning Data Loads
- Using SSIS for Incremental Loads
- Using Transact-SQL Loading Techniques
- Lab : Loading a Data Warehouse
- Loading Data from CDC Output Tables
- Using a Lookup Transformation to Insert or Update Dimension Data
- Implementing a Slowly Changing Dimension
- Using the MERGE Statement

### Module 9: Enforcing Data Quality

- Introduction to Data Quality
- Using Data Quality Services to Cleanse Data
- Using Data Quality Services to Cleanse Data
- Lab : Cleansing Data
- Creating a DQS Knowledge Base
- Using a DQS Project to Cleanse Data
- Using DQS in an SSIS Package

### Module 10: Master Data Services

- Introduction to Master Data Services
- Implementing a Master Data Services Model
- Managing Master Data
- Creating a Master Data Hub
- Lab : Implementing Master Data Services
- Creating a Master Data Services Model
- Using the Master Data Services Add-in for Excel
- Enforcing Business Rules
- Loading Data Into a Model
- Consuming Master Data Services Data

### Module 11: Extending SQL Server Integration Services

- Using Scripts in SSIS
- Using Custom Components in SSIS
- Lab : Using Custom Scripts
- Using a Script Task

### Module 12: Deploying and Configuring SSIS Packages

- Overview of SSIS Deployment
- Deploying SSIS Projects
- Planning SSIS Package Execution
- Lab : Deploying and Configuring SSIS Packages
- Creating an SSIS Catalog
- Deploying an SSIS Project
- Running an SSIS Package in SQL Server Management Studio
- Scheduling SSIS Packages with SQL Server Agent

### Module 13: Consuming Data in a Data Warehouse

- Introduction to Business Intelligence
- Enterprise Business Intelligence
- Self-Service BI and Big Data
- Lab : Using a Data Warehouse
- Exploring an Enterprise BI Solution
- Exploring a Self-Service BI Solution

- Using Transactions
  - Using Checkpoints
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### Further Information:

For More information, or to book your course, please Email us on:

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