

## **ITMT 2071**

### **Course Syllabus**

**1. Name of Course:** Implement & Maintain Analysis Services for Microsoft SQL Server 2005 Business Intelligence Solutions

**2. Number of Clock Hours:** 24

**3. Course Description:**

This course teaches students how to implement an Analysis Services solution in an organization. The course discusses how to use the Analysis Services development tools to create an Analysis Services database and an OLAP cube, and how to use the Analysis Services management and administrative tools to manage an Analysis Services solution. MOC 2791.

**Prerequisites:** Experience using a Microsoft Windows Operating System and Microsoft SQL Server 2005.

**4. Course Objectives**

After completing this course, students will be able to:

Describe how SQL Server Analysis Services can be used to implement analytical solutions.

Create multidimensional analysis solutions with SQL Server Analysis Services.

Implement dimensions in an Analysis Services solution.

Implement measures and measure groups in an Analysis Services solution.

Query a multidimensional Analysis Services solution.

Customize an Analysis Services cube.

Deploy and Secure an Analysis Services database.

Maintain a multidimensional Analysis Services solution.

Implement a Data Mining solution.

**5. Rationale:**

Upon completion of this course, students will have a better understanding of Microsoft SQL Server 2005, a power database system.

**6. Required Materials:**

Microsoft Official Curriculum, MOC 2791, included.

## **7. Evaluation**

Those who participate in class discussions, complete course lab work, and miss no more than three class meetings will be awarded 2.4 continuing education units.

## **8. Course Outline**

Module 1: Introduction to Microsoft SQL Server 2005 Analysis Services

This module introduces common analysis scenarios and describes how Analysis Services provides a powerful platform for multidimensional OLAP solutions and data mining solutions. The module then describes the main considerations for installing Analysis Services.

Lessons

Overview of Data Analysis Solutions

Overview of SQL Server 2005 Analysis Services

Installing SQL Server 2005 Analysis Services

After completing this module, students will be able to:

Describe data analysis solutions.

Describe the key features of SQL Server 2005 Analysis Services.

Install SQL Server 2005 Analysis Services.

Module 2: Creating Multidimensional Analysis Solutions

This module introduces the development tools you can use to create an Analysis Services multidimensional analysis solution, and describes how to create data sources, data source views, and cubes.

Lessons

Developing Analysis Services Solutions

Data Sources and Data Source Views

Creating a Cube

Lab : Creating a Multidimensional Analysis Solution

Creating a Data Source

Creating and Modifying a Data Source View

Creating and Modifying a Cube

After completing this module, students will be able to:

Develop Analysis Services solutions.

Create a data source and a data source view.

Create a cube.

### Module 3: Working with Dimensions

This module describes how to edit dimensions and to configure dimensions, attributes, and hierarchies.

#### Lessons

Configuring Dimensions

Defining Hierarchies

Sorting and Grouping Attributes

#### Lab : Defining Dimensions

Configuring Dimensions

Defining Relationships and Hierarchies

Sorting and Grouping Dimension Attributes

After completing this module, students will be able to:

Configure dimensions.

Define hierarchies.

Sort and group attributes.

### Module 4: Working with Measures and Measure Groups

This module explains how to edit and configure measures and measure groups.

#### Lessons

Working with Measures

Working with Measure Groups

#### Lab : Configuring Measures and Measure Groups

Configuring Measures

Defining Dimension Usage and Relationships

## Configuring Measure Group Storage

After completing this module, students will be able to:

Work with measures.

Work with measure groups.

## Module 5: Querying Multidimensional Analysis Solutions

This module introduces multidimensional expressions (MDX) and describes how to implement calculated members and named sets in an Analysis Services cube.

Lessons

MDX Fundamentals

Adding Calculations to a Cube

Lab : Querying a Cube

Querying a Cube by Using MDX

Creating a Calculated Member

Defining a Named Set

After completing this module, students will be able to:

Describe Multidimensional Expression (MDX) fundamentals.

Add calculations to a cube.

## Module 6: Customizing Cube Functionality

This module explains how to customize a cube by implementing key performance indicators (KPIs), actions, perspectives, and translations.

Lessons

Implementing Key Performance Indicators

Implementing Actions

Implementing Perspectives

Implementing Translations

Lab : Customizing a Cube

Implementing a KPI

Implementing an Action

Implementing a Perspective

Implementing a Translation

After completing this module, students will be able to:

Implement Key Performance Indicators (KPIs).

Implement actions.

Implement perspectives.

Implement translations.

#### Module 7: Deploying and Securing an Analysis Services Database

This module describes how to deploy an Analysis Services database to a production server, and how to implement security in an Analysis Services multidimensional solution.

Lessons

Deploying an Analysis Services Database

Securing an Analysis Services Database

Lab : Deploying and Securing an Analysis Services Database

Deploying an Analysis Services Database

Securing an Analysis Services Database

After completing this module, students will be able to:

- Deploy an Analysis Services database.
- Secure an Analysis Services database.

#### Module 8: Maintaining a Multidimensional Solution

This module discusses the maintenance tasks associated with an Analysis Services solution, and describes how administrators can use the Analysis Services management tools to perform them.

Lessons

- Configuring Processing Settings
- Logging, Monitoring, and Optimizing an Analysis Services Solution
- Backing Up and Restoring an Analysis Services Database

Lab : Maintaining an Analysis Services Database

- Configuring Processing

- Implementing Logging and Monitoring
- Backing Up and Restoring an Analysis Services Database

After completing this module, students will be able to:

- Configure processing settings.
- Log, monitor, and optimize an Analysis Services solution.
- Back up and restore an Analysis Services database.

#### Module 9: Introduction to Data Mining

This module introduces data mining, and describes how to implement data mining structures and models. It then explains how to validate data model accuracy.

Lessons

- Overview of Data Mining
- Creating a Data Mining Solution
- Validating Data Mining Models

#### Lab : Implementing Data Mining

- Creating a Data Mining Structure
- Adding a Data Mining Model
- Exploring Data Mining Models
- Validating Data Mining Models

After completing this module, students will be able to:

- Describe data mining.
- Create a data mining solution.
- Validate data mining models.

Before attending this course, students must have:

- Conceptual understanding of OLAP solutions.
- Experience navigating the Microsoft Windows Server environment.
- Experience with Windows services (starting and stopping).
- Experience creating service accounts and permissions.
- Experience with Microsoft SQL Server, including:
  - SQL Server Agent.
  - SQL Server query language (SELECT, UPDATE, INSERT, and DELETE).
  - SQL Server System tables.
  - SQL Server accounts (users and permissions).

Overview

About this Course

Elements of this syllabus are subject to change.

This three-day instructor-led course teaches students how to implement an Analysis Services solution in an organization. The course discusses how to use the Analysis Services development tools to create an Analysis Services database and an OLAP cube, and how to use the Analysis Services management and administrative tools to manage an Analysis Services solution.

#### Audience Profile

This course is intended for information technology (IT) professionals and developers who need to implement analysis solutions by using Microsoft SQL Server 2005 Analysis Services.

#### At Course Completion

After completing this course, students will be able to:

- Describe how SQL Server Analysis Services can be used to implement analytical solutions.
- Create multidimensional analysis solutions with SQL Server Analysis Services.
- Implement dimensions in an Analysis Services solution.
- Implement measures and measure groups in an Analysis Services solution.
- Query a multidimensional Analysis Services solution.
- Customize an Analysis Services cube.
- Deploy and Secure an Analysis Services database.
- Maintain a multidimensional Analysis Services solution.
- Implement a Data Mining solution.

#### Course Details

##### Course OutlineModule 1: Introduction to Microsoft SQL Server 2005 Analysis Services

This module introduces common analysis scenarios and describes how Analysis Services provides a powerful platform for multidimensional OLAP solutions and data mining solutions. The module then describes the main considerations for installing Analysis Services.

#### Lessons

- Overview of Data Analysis Solutions
- Overview of SQL Server 2005 Analysis Services
- Installing SQL Server 2005 Analysis Services

After completing this module, students will be able to:

- Describe data analysis solutions.
- Describe the key features of SQL Server 2005 Analysis Services.
- Install SQL Server 2005 Analysis Services.

##### Module 2: Creating Multidimensional Analysis Solutions

This module introduces the development tools you can use to create an Analysis Services multidimensional analysis solution, and describes how to create data sources, data source views, and cubes.

#### Lessons

- Developing Analysis Services Solutions
- Data Sources and Data Source Views
- Creating a Cube

#### Lab : Creating a Multidimensional Analysis Solution

- Creating a Data Source
- Creating and Modifying a Data Source View
- Creating and Modifying a Cube

After completing this module, students will be able to:

- Develop Analysis Services solutions.
- Create a data source and a data source view.
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This module describes how to edit dimensions and to configure dimensions, attributes, and hierarchies.

##### Lessons

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- Defining Hierarchies
- Sorting and Grouping Attributes

#### Lab : Defining Dimensions

- Configuring Dimensions
- Defining Relationships and Hierarchies
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After completing this module, students will be able to:

- Configure dimensions.
- Define hierarchies.
- Sort and group attributes.

#### Module 4: Working with Measures and Measure Groups

This module explains how to edit and configure measures and measure groups.

##### Lessons

- Working with Measures
- Working with Measure Groups

#### Lab : Configuring Measures and Measure Groups

- Configuring Measures
- Defining Dimension Usage and Relationships

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After completing this module, students will be able to:

- Work with measures.
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#### Module 5: Querying Multidimensional Analysis Solutions

This module introduces multidimensional expressions (MDX) and describes how to implement calculated members and named sets in an Analysis Services cube.

Lessons

- MDX Fundamentals
- Adding Calculations to a Cube

Lab : Querying a Cube

- Querying a Cube by Using MDX
- Creating a Calculated Member
- Defining a Named Set

After completing this module, students will be able to:

- Describe Multidimensional Expression (MDX) fundamentals.
- Add calculations to a cube.

#### Module 6: Customizing Cube Functionality

This module explains how to customize a cube by implementing key performance indicators (KPIs), actions, perspectives, and translations.

Lessons

- Implementing Key Performance Indicators
- Implementing Actions
- Implementing Perspectives
- Implementing Translations

Lab : Customizing a Cube

- Implementing a KPI
- Implementing an Action
- Implementing a Perspective
- Implementing a Translation

After completing this module, students will be able to:

- Implement Key Performance Indicators (KPIs).
- Implement actions.
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- Implement translations.

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This module describes how to deploy an Analysis Services database to a production server, and how to implement security in an Analysis Services multidimensional solution.

##### Lessons

- Deploying an Analysis Services Database
- Securing an Analysis Services Database

#### Lab : Deploying and Securing an Analysis Services Database

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After completing this module, students will be able to:

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##### Lessons

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- Logging, Monitoring, and Optimizing an Analysis Services Solution
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#### Lab : Maintaining an Analysis Services Database

- Configuring Processing
- Implementing Logging and Monitoring
- Backing Up and Restoring an Analysis Services Database

After completing this module, students will be able to:

- Configure processing settings.
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After completing this module, students will be able to:

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