

# Analyzing Requirements and Defining Microsoft .NET Solution Architectures

Course 2710—Five days—Instructor-led

## Introduction

This five-day, instructor-led course provides students with the knowledge and skills needed to design Microsoft .NET-connected solutions to business problems.

## Audience

This course is intended for:

- Experienced developers moving into a role that requires the skills to bridge business and technology environments.
- Experienced developers, including those with the Microsoft Certified Application Developer (MCAD) credential, pursuing the Microsoft Certified Solution Developer (MCSD) credential.

## Prerequisites

Before attending this course, students must have:

- A general understanding of the software development life cycle.
- Practical working knowledge of .NET development technologies.
- Familiarity with the Microsoft Solutions Framework (MSF) Process Model.
- Basic familiarity with object modeling and data modeling methodologies.
- Experience working with Microsoft Visio Professional 2000.
- One year experience as part of a software development team.

In addition, it is recommended, but not required, that students complete [Course 1846](#): Microsoft Solutions Framework Essentials, before taking this course.

## At Course Completion

After completing this course, students will be able to:

- Gather and analyze information for designing a business solution.
- Create a vision/scope document.
- Create the conceptual design for a business solution.
- Create the logical design for a business solution.
- Create the physical design for a business solution.
- Design the presentation layer of an application.
- Design the data layer of an application.
- Create a functional specifications document.
- Create a technical specifications document.
- Create a security plan.
- Create a test plan.
- Create a deployment plan.

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## Microsoft Certification exams

- [Exam 70-300](#): Analyzing Requirements and Defining Microsoft .NET Solution Architectures

## Course Materials

The student kit includes a comprehensive workbook and other necessary materials for this class.

## Course Outline

### Module 1: Introduction to Designing Business Solutions

This module describes the MSF Process Model and the key activities in designing an application model. It also introduces the case study that will be used throughout the course.

#### Lessons

- Overview of Microsoft Solutions Framework
- Phases in the MSF Process Model
- Introducing the Case Study—Adventure Works Cycles Application

After completing this module, students will be able to:

- Describe the MSF Process Model and the MSF Team Model.
- Describe the MSF disciplines: risk management, readiness management, and project management.
- Describe the key activities of each phase in the MSF Process Model and the deliverables associated with each phase.
- Describe the Adventure Works Cycles case study that will be used throughout this course.

### Module 2: Gathering and Analyzing Information

This module describes the various types of information that you need to gather, sources of information, and some techniques for gathering information.

#### Lessons

- Using Modeling Notations
- Creating Use Cases and Usage Scenarios
- Gathering Information
- Analyzing Information

## **Activity: Gathering and Analyzing Information**

- Preparing for an Interview
- Deriving Use Case Statements for the Sales Automation Project and for the Web Enhancement Project
- Developing Draft Requirements from Initial Information Gathering
- Developing a Usage Scenario

After completing this module, students will be able to:

- Describe modeling notations, such as Unified Modeling Language (UML) and Object Role Modeling (ORM).
- Describe the techniques for gathering information.
- Describe the sources from which you gather information.
- Create an information gathering strategy.
- Analyze and refine requirements by using use cases and usage scenarios.
- Create internal project documents.

## **Module 3: Envisioning the Solution**

This module describes the responsibilities of team members during this phase, how to define the vision of a project, and how to analyze risks associated with a project.

### **Lessons**

- The Envisioning Phase
- Creating a Vision/Scope Document
- Creating the Project Structure Document
- Analyzing Risks

## **Activity: Developing a Vision/Scope Document**

- Writing Problem Statements
- Writing a Vision Statement
- Developing Project Goals

After completing this module, students will be able to:

- Describe the envisioning phase of the MSF Process Model in terms of its purpose, activities, and deliverables.
- Identify the components of a vision/scope document.
- Identify the components of a project structure document.
- Analyze risks in a project.

## **Module 4: Creating the Conceptual Design**

This module explains the purpose of the planning phase and the three design processes that occur during the planning phase: conceptual, logical, and physical design. It will also explain the purpose and benefits of the functional specification and the conceptual design process.

### **Lessons**

- An Introduction to the Planning Phase
- An Overview of the Functional Specification
- An Overview of the Conceptual Design Process
- Building the Conceptual Design
- Optimizing the Conceptual Design

### **Activity: Analyzing Requirements**

- Refining Use Cases and Requirements
- Viewing a Conceptual Model Diagram

After completing this module, students will be able to:

- Describe the purpose of the planning phase of the MSF Process Model.
- Describe the role of the functional specification in the planning phase.
- Describe the purpose of conceptual design.
- Analyze a conceptual design.
- Optimize a conceptual design.
- Describe the benefits of logical design.
- Create a logical design model for a business solution.
- Document the outputs of logical design.
- Optimize a logical design.

## **Module 5: Creating the Logical Design**

This module describes how to create the logical design for a business solution and how to use tools and techniques for documenting the output. It also covers how to optimize the logical design.

### **Lessons**

- An Overview of Logical Design
- Creating a Logical Design
- Documenting Logical Design Output
- Optimizing Logical Design

## **Activity: Identifying Objects for the Logical Design**

- Identifying Objects from Use Cases
- Creating a Services Matrix
- Creating a Sequence Diagram

After completing this module, students will be able to:

- Describe the benefits of logical design.
- Create a logical design model for a business solution.
- Document the outputs of logical design.
- Optimize a logical design.

## **Module 6: Creating the Physical Design**

This module explains the purpose of the physical design, and the steps involved in completing the physical design.

### **Lessons**

- An Overview of Physical Design
- Physical Design Analysis
- Physical Design Rationalization
- Physical Design Implementation

## **Activity: Working on the Physical Design**

- Creating a Class Model
- Creating a Component Model Diagram

After completing this module, students will be able to:

- Describe the role of physical design in the MSF Process Model.
- Describe the steps of physical design.
- Create a preliminary services topology.
- Select candidate technologies for a solution.
- Distribute and package components into different layers.
- Design a programming model.

## **Module 7: Designing the Presentation Layer**

This module defines and explains how to design the two parts of the presentation layer.

### **Lessons**

- Basics of User Interface Design
- Designing the User Interface
- Designing User Process Components

### **Activity: Creating the User Interface**

- Designing a User Interface Prototype

After completing this module, students will be able to:

- Explain the function of the presentation layer for a business solution.
- Design a user interface that accommodates user needs and business requirements.

## **Module 8: Designing the Data Layer**

This module explains how to design the data layer for a solution, how to optimize data access, and how to validate data.

### **Lessons**

- Designing the Data Store
- Optimizing Data Access
- Implementing Data Validation

### **Activity: Creating a Data Schema**

- Creating a Data Schema

After completing this module, students will be able to:

- Design the data store for a solution.
- Optimize data access for a solution.
- Implement data validation for a solution.

## **Module 9: Designing Security Specifications**

This module explains how to design security for an application.

### **Lessons**

- Overview of Security in Application Development
- Planning for Application Security
- Using the .NET Framework Security Features
- Designing Authorization, Authentication, and Auditing Strategies

## **Activity: Threat Modeling and Mitigation**

- Identifying Potential Threats
- Applying Mitigation Technologies

After completing this module, students will be able to:

- Identify some of the security challenges and vulnerabilities for an application.
- Plan security strategies for an application.
- Explain the security features provided by .NET.
- Design authorization, authentication, and auditing strategies for the application tiers.

## **Module 10: Completing the Planning Phase**

This module explains the tasks and plans required to complete the planning phase.

### **Lessons**

- Incorporating Design Considerations
- Planning for Administrative Features
- Planning for Future Phases
- Creating the Technical Specifications

## **Activity: Reviewing a Test Plan and Technical Specification**

- Reviewing a Test Plan
- Reviewing a Technical Specification

After completing this module, students will be able to:

- Create plans and specifications to incorporate design considerations in the solution.
- Create plans and strategies for the subsequent phases of the project.
- Create plans for adding administrative features to the solution.
- Create technical specifications for the solution.

## **Module 11: Stabilizing and Deploying the Solution**

This module explains how to stabilize and deploy a solution.

### **Lessons**

- The MSF Stabilizing Phase
- Testing and Piloting for Stabilization
- The MSF Deploying Phase
- Deploying to a Production Environment

## **Activity: Prioritizing Bugs**

- Categorizing and Prioritizing Bugs

After completing this module, students will be able to:

- Explain the goal, milestones, and deliverables of the MSF stabilizing phase.
- Describe the tasks involved in testing and piloting a solution.
- Explain the goal, milestones, and deliverables of the MSF deploying phase.
- Describe the steps for deploying the solution to a production environment.
- Describe the recommended activities involved in completing a project.

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