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## **2373 – Programming with Microsoft Visual Basic .NET**

**5 Day**

The goal of this course is to provide Microsoft Visual Basic developers with the knowledge and skills needed to develop Microsoft .NET-based applications by using Visual Basic .NET. Visual Basic .NET is a significant upgrade to Visual Basic and incorporates many new features and framework goals of the .NET architecture. These changes will allow Visual Basic developers to create enterprise applications for the .NET Platform and to create more traditional Visual Basic applications that can take advantage of the enhancements to the language.

### **WHO SHOULD ATTEND**

This course is intended primarily for developers who use Visual Basic 4.0 or later as their primary language, who use Microsoft technologies such as Microsoft ActiveX Data Objects (ADO) and Active Server Pages (ASP) to develop applications, and who plan to use Visual Basic .NET for future application development.

### **PREREQUISITES**

Before attending this course, students must meet the following prerequisites:

- Experience developing applications with Visual Basic 4.0 or later
- Successful completion of Course 1013, Mastering Microsoft Visual Basic 6 Development, or equivalent knowledge

OR

- Successful completion of Course 1016, Mastering Enterprise Development Using Microsoft Visual Basic 6, or equivalent knowledge
- Familiarity with basic concepts of object-oriented programming
- Familiarity with Extensible Markup Language (XML) concepts
- Familiarity with Microsoft's .NET strategy as described on Microsoft's .NET Web site: <http://www.microsoft.com/net/>
- Familiarity with the .NET Framework as described on the following Web sites:
  - <http://msdn.microsoft.com/msdnmag/issues/0900/Framework/default.asp>
  - <http://msdn.microsoft.com/msdnmag/issues/1000/Framework2/default.asp>



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## AT COURSE COMPLETION

After completing this course, students will be able to:

- List the major elements of the .NET Framework and describe some of the major enhancements to the new version of Visual Basic.
- Describe the basic structure of a Visual Basic .NET project and use the main features of the integrated development environment (IDE).
- Use the new language features and syntax in Visual Basic .NET.
- Explain the basic concepts and terminology of object-oriented design specifically for Visual Basic .NET.
- Explain and use the basic concepts and terminology of object-oriented programming in Visual Basic .NET.
- Create applications by using Microsoft Windows Forms.
- Create Internet applications that use Web Forms and Web Services.
- Create applications that use ADO.NET.
- Create components in Visual Basic .NET.
- Set up and deploy various types of Visual Basic .NET-based applications.
- Prepare existing Visual Basic-based applications for upgrade to Visual Basic .NET.

## LESSON TOPICS

### Module 1: Overview of the Microsoft .NET Platform

The following topics are covered in this module:

- What Is the Microsoft .NET Platform?
- What Is the .NET Framework?
- What Are the .NET Framework Components?
- What Are the Visual Basic .NET Enhancements?

After completing this module, you will be able to:

- List the main elements of the .NET Platform.
- Describe the .NET Framework and its components.
- List the major enhancements to Visual Basic .NET.



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## **Module 2: Development Environment Features**

The following topics are covered in this module:

- Describing the Integrated Development Environment
- Creating Visual Basic .NET Projects
- Using Development Environment Features
- Debugging Applications
- Compiling in Visual Basic .NET

After completing this module, you will be able to:

- Describe the overall benefits of the new IDE.
- Describe the different types of Visual Basic .NET projects and their structures, including their file structures.
- Reference external applications from your project.
- View and set the properties of a project.
- Use the various windows in the IDE, including Server Explorer, the Object Browser, and the Task List.
- Debug a simple application.
- Build and compile a simple application.

## **Module 3: Language and Syntax Enhancements**

The following topics are covered in this module:

- Data Types
- Using Variables
- Functions, Subroutines, and Properties
- Exception Handling

After completing this module, you will be able to:

- Describe the changes to data types in Visual Basic .NET.
- Declare and initialize variables and arrays.
- Use shorthand syntax to assign values to variables.
- Implement functions and subroutines.
- Call the default properties of an object.



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- Use the new Try...Catch...Finally statement to implement structured exception handling.

#### **Module 4: Object-Oriented Design for Visual Basic .NET**

The following topics are covered in this module:

- Designing Classes
- Object-Oriented Programming Concepts
- Advanced Object-Oriented Programming Concepts
- Using Microsoft Visio

After completing this module, you will be able to:

- Describe the basics of object-oriented design.
- Explain the concepts of encapsulation, inheritance, interfaces, and polymorphism.
- Create classes based on use cases.
- Model classes for use in Visual Basic .NET by using Visio.

#### **Module 5: Object-Oriented Programming in Visual Basic .NET**

The following topics are covered in this module:

- Defining Classes
- Creating and Destroying Objects
- Inheritance
- Interfaces
- Working with Classes

After completing this module, you will be able to:

- Define classes.
- Instantiate and use objects in client code.
- Create classes that use inheritance.
- Define interfaces and use polymorphism.
- Create shared members.
- Create class events and handle them from a client application.



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## **Module 6: Using Windows Forms**

The following topics are covered in this module:

- Why Use Windows Forms?
- Structure of Windows Forms
- Using Windows Forms
- Using Controls
- Windows Forms Inheritance

After completing this module, you will be able to:

- Describe the benefits of Windows Forms.
- Use the new properties and methods of Windows Forms.
- Write event-handling code.
- Use the new controls and control enhancements.
- Add and edit menus.
- Create a form that inherits from another form.

## **Module 7: Building Web Applications**

The following topics are covered in this module:

- Introduction to ASP.NET
- Creating Web Form Applications
- Building Web Services
- Using Web Services

After completing this module, you will be able to:

- Explain and take advantage of the benefits of ASP.NET and its various libraries in application development.
- Create Web Form applications.
- Use HTML server controls and Web server controls.
- Create Web Services.
- Use Web Services from a browser or from another client application.



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## **Module 8: Using ADO.NET**

The following topics are covered in this module:

- ADO.NET Overview
- .NET Data Providers
- The DataSet Object
- Data Designers and Data Binding
- XML Integration

After completing this module, you will be able to:

- List the benefits of ADO.NET.
- Create applications by using ADO.NET.
- List the main ADO.NET objects and their functions.
- Use Visual Studio .NET data designers and data binding.
- Explain how XML integrates with ADO.NET.

## **Module 9: Developing Components in Visual Basic .NET**

The following topics are covered in this module:

- Components Overview
- Creating Serviced Components
- Creating Component Classes
- Creating Windows Forms Controls
- Creating Web Forms User Controls
- Threading

After completing this module, you will be able to:

- Create components that can be used by managed and unmanaged client applications.
- Create serviced components.
- Create component classes.
- Create Windows Forms controls.
- Create Web user controls.
- Use threading to create multithreaded applications.



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## **Module 10: Deploying Applications**

The following topics are covered in this module:

- Describing Assemblies
- Choosing a Deployment Strategy
- Deploying Applications

After completing this module, you will be able to:

- Describe an assembly.
- List the different types of application deployment.
- Deploy a component assembly.
- Deploy an application based on Windows.
- Deploy a Web-based application.

## **Module 11: Upgrading to Visual Basic .NET**

The following topics are covered in this module:

- Deciding Whether to Upgrade
- Options for Upgrading
- Recommendations
- Performing the Upgrade

After completing this module, you will be able to:

- Make an informed decision about whether to upgrade an application.
- Describe the various upgrade options available to you.
- Use the Upgrade Wizard