Core Visual Basic Programming with Visual Studio 2005

Five days, Instructor-led

Introduction

Elements of this syllabus are subject to change

This five-day instructor-led course provides students with the knowledge and skills needed to understand the details of the Microsoft Visual Basic .NET 2.0 using Studio 2005. The course focuses on user interfaces, program structure, language syntax, and implementation, and upgrade details.

Audience

- This course of for developers who have been writing applications with versions 2002 and 2003 of Visual Basic .NET and want to learn all the new features in Visual Basic 2005 as quickly as possible.
- Visual Basic 6 programmers who are facing the daunting task of converting their skills and their applications to Visual Basic 2005 and the .NET Framework.

At Course Completion

After completing this course, students will understand how to:

- Describe the structure of Visual Basic .NET 2.0 projects and use the main features of the integrated development environment (IDE).
- 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 2.0.
- Set up and deploy various types of Visual Basic .NET 2.0-based applications.
- Prepare existing Visual Basic-based applications for upgrade to Visual Basic .NET 2.0 using Visual Studio 2005.

Prerequisites

Before attending this course, students must have:

- Familiarity with basic concepts of object-oriented programming. (This is taught in the *Microsoft Visual Basic .NET 2005 – Step up* class)
- The desire to become a better developer and be open to new ideas and techniques.
- Familiarity with Microsoft's .NET Framework and .NET strategy.
- Familiarity with Extensible Markup Language (XML) basic concepts.

Course Materials

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

Course Outline

Part I – Review of the Basics

- Microsoft .NET Framework
- Describe the .NET 2.0 Enhancements
- Using Visual Studio 2005
- Basic Language Concepts (Modules, Classes, Namespaces, and Variables)
- Control Flow and Error Handling

Part II – Object-Oriented Programming

- Class Fundamentals
  - Methods
    - Overloading and Coercion
    - Ambiguous Cases
  - Read-Only and Write-Only Properties
  - Different Scope for Get and Set Blocks
  - Constructors
  - Shared Members (Methods, Fields, Properties, and Factory Methods)
- Delegates and Events
- Object Lifetime and Inheritance
- Interfaces
  - Implementing the Interface
    - Structure of Windows Forms
    - Using Controls
    - Windows Forms Inheritance
  - Interface Reimplementation
  - Interface and Polymorphism
- Generics
  - The Need for Generics
    - The Traditional Solution
    - The Generics-Based Solution
  - Authoring Generic Types
    - Generic Parameters
    - Generic Constraints
  - Advanced Topics
    - Nullable Types
    - Support for Math Operators
    - Generics and Events
    - Object Pools

Part III – Working with the .NET Framework

- The *System.Object* Type
  - Public and Protected Methods
  - Boxing and Unboxing
- Datatypes and Data Manipulation (String, Numeric, DateTime, and Enums)
- Arrays and Collections
  - The Array Type (sorting, clearing, searching)
  - Jagged Arrays and Generic Methods
- The *System.Collections* Namespace
- Regular Expressions
- Files, Directories, and Streams
  - Directory and File Types
  - Working with Access Control Lists
- The My Namespace
  - Overview of the My Namespace
  - Extending and Customizing the My Namespace
- Assemblies and Resources
  - Creating .NET Class Library
    - Creating Hostable Components
    - Assemblies
  - Configuration Files
    - Setting the Runtime Version
    - The .NET Framework Configuration Tool
  - Using NGen Tool

Part IV – Database Programming

- Using ADO.NET and XML
- Design of Data-Centric Applications
- Connecting to Data Sources
  - Choosing a .NET Data Provider
  - Connecting to SQL Server 2005
- Performing Connected Database Operations
- Building Data Sets

Part V – Advanced Topics *(If time permits)*

- Reflection at Run Time
- Custom Attributes
- Threads
- Serialization
- PInvoke and COM Interop