

## Visual Basic® Programming for .NET: Hands-On - 4 Days

### Course 503 Overview

- You Will Learn How To**
- Construct business applications that fully exploit Visual Basic (VB) and .NET
  - Model business logic by coding classes with fields, properties, methods and events
  - Apply advanced VB object-oriented (OO) programming skills with inheritance, interfaces and polymorphism
  - Design Windows and ASP.NET Web user interfaces with Visual Basic
  - Harness the Entity Framework, LINQ and lambda functions for sophisticated data access
  - Simplify deployment with Click Once and ASP.NET Web Deploy
- Course Benefits** Visual Basic enables developers to rapidly assemble well-architected applications that run on the Microsoft .NET framework. This course provides the knowledge and techniques needed to write sophisticated Windows or ASP.NET applications with Visual Basic. You develop the skills to leverage the object-oriented capabilities of Visual Basic to build business applications.
- Who Should Attend** Anyone interested in .NET programming with VB. Some experience with a language such as VB6 or earlier, VBScript, VBA, C, or Pascal is assumed. Those with only COBOL, RPG, SQL, HTML or similar experience should consider taking Course 502, "Programming with .NET Introduction," before this course.
- Hands-On Training** Throughout the course, you work with advanced VB functions and features to gain in-depth hands-on experience. Exercises include:
- Architecting a business application with Visual Basic
  - Coding business logic classes with Visual Studio
  - Employing OO features of Visual Basic
  - Creating data-driven Web and Windows UIs
  - Creating well-designed ASP.NET Web and Windows User Interfaces
  - Integrating SQL Server data access into Visual Basic with LINQ and EF
  - Deploying Windows and ASP.NET Web applications

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### Course 503 Outline

#### Developing .NET Business Applications

- Preparing an effective layered application architecture
- Implementing a Visual Basic solution with Visual Studio
- Separating application concerns into Visual Basic projects and assemblies
- Strong naming assemblies with Visual Studio

#### Object-Oriented Programming with Visual Basic

##### Designing classes with encapsulation

- Coding classes with fields and public properties, methods and events
- Instantiating objects with constructors and object initializers
- Linking objects with associations
- Crafting classes visually with the Visual Studio class designer
- Creating shared, overloaded and extension methods

##### Applying inheritance

- Identifying when to use inheritance
- Coding inheritance hierarchies with Inherits
- Overriding base class functionality with Protected, Overridable and Overrides

##### Employing polymorphism

- Creating abstractions with interfaces and MustInherit classes
- Attaching the Implements clause or MustOverride modifier
- Invoking polymorphic behaviour
- Implementing INotifyPropertyChanged and IDataErrorInfo

#### Engaging the .NET Framework Common Language Runtime (CLR)

- CLR architecture and services
- Managing memory and garbage collection
- Compiling Visual Basic into Intermediate Language
- Handling errors with Try/Catch/ Finally
- Throwing exceptions to enforce correct client behaviour

#### Surveying the .NET Framework Class Library (FCL)

- Visual Basic primary types: String, Integer, Double, Date, Boolean, Object
- Comparing value and reference types

- Representing sets of data with .NET arrays and generic collections: List(Of T), BindingList(Of T)
- Leveraging data annotation attributes for EF and UI validation
- Matching complex patterns with Regular Expressions

#### Programming .NET user interfaces

- Designing ASP.NET Web pages and adding controls
- Working with the ASP.NET page life cycle and events
- Employing key ASP.NET features: Master Pages, Security and Validation
- Integrating data access into ASP.NET with data source controls

#### Constructing .NET desktop applications

- Laying out Windows Forms and controls
- Responding to user interface events
- Implementing master/detail data binding
- Displaying data entry errors with Error Provider

#### Accessing Data with Entity Framework and LINQ

##### Connecting to databases with ADO.NET

- Working with Connection, Command and DataReader
- Integrating data access into ASP.NET Entity Framework
- Releasing disposable objects

##### Mapping objects to databases with ADO.NET Entity Framework

- Demystifying the database, model and code-first approaches
- Automating object-relational mapping with DbContext and DbSet
- Representing associations with foreign key mappings
- Lazy and eager loading-related objects
- Persisting an object graph into the database

##### Integrating query into Visual Basic with LINQ

- Constructing LINQ statements
- Filtering, sorting, grouping and reshaping data: Where, Order By, Group By and Select
- Building custom objects from LINQ queries with anonymous classes

- Working with expression and lambda function LINQ syntax
- Harnessing LINQ with collections and Entity Framework

#### Deploying Visual Basic Applications

- Employing .NET configuration and Visual Basic My.Settings
- Packaging ASP.NET Web applications with Visual Studio
- Publishing Windows applications with Click Once