

## Visual Basic<sup>®</sup> Programming for .NET: Hands-On - 4 Days

*Course 503 Overview*

- You Will Learn How To**
- Build multitier .NET applications in Visual Basic from reusable software components
  - Design object-oriented components with inheritance and polymorphism
  - Exploit advanced language features, including interfaces, generics and exceptions
  - Build middle-tier components that access data with ADO.NET and LINQ
  - Design and code Windows and Web user interfaces
  - Deploy applications via the Internet with ClickOnce

**Course Benefits** Visual Basic enables programmers to effectively exploit the .NET runtime environment. This course provides the knowledge and techniques needed to build distributed Visual Basic applications. You develop the skills required to take advantage of a combination of component- and object-oriented syntax in VB to achieve increased reusability.

**Who Should Attend** Anyone interested in .NET programming with Visual Basic. Familiarity with a modern programming language such as Visual Basic (any version), C#, Java or C++ is assumed. Course 502, "Programming with .NET Introduction", provides the appropriate introduction.

**Hands-On Training** Throughout the course, you work with advanced VB functions and features to gain in-depth hands-on experience. Exercises include:

- Designing object-oriented software in VB
- Leveraging the RAD tools in Visual Studio
- Building a multitier application that accesses data with ADO.NET and LINQ
- Creating data-driven Web and Windows UIs
- Coding UI-independent data access components
- Exploiting OO features of Visual Basic: encapsulation, inheritance and polymorphism
- Deploying Windows and Web applications with Visual Studio 2008

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

## Course 503 Outline

### Developing Multitier Applications

- Dividing logical layers into multiple components
- Reusing components with different UIs
- Persisting component data into databases

### The .NET Framework

#### Common Language Runtime (CLR)

- CLR architecture and services
- Compiling VB code into Intermediate Language

#### Framework Class Library (FCL)

- Windows and Web Forms and controls
- File I/O
- Regular Expressions
- Data access with ADO.NET
- Heterogeneous and generic collections

### Key Visual Basic Advantages

#### User interface design

- Web and Windows Forms and controls
- Automating data-driven application construction
- Leveraging data binding with binding sources
- Web Forms with ASP.NET
- Validating Web Forms declaratively

#### VB productivity enhancements

- Documenting with XML code comments
- Edit and continue debugging
- Code snippets
- Debugger visualisation
- My namespace characteristics
- Integrated unit testing

#### VB language enhancements

- Type inference and anonymous types
- XML literals

### Object-Oriented Programming

#### Encapsulation

- Designing classes with the Class Designer
- Protecting private data with properties
- Comparing constructors and object initialisers
- Creating shared, overloaded and extension methods

#### Inheritance

- Implementing inheritance hierarchies
- Eliminating code duplication

- Overriding base class methods
- Accessing protected base class data

#### Polymorphism

- Types of polymorphism
- Interface-based programming
- Supporting sorting with IComparable
- Creating MustInherit base classes

### Exceptions and Events

#### Designing and consuming events

- Responding to UI control interaction
- Creating custom business object events
- Handling events dynamically and statically
- Applying WithEvents and Handles
- The AddressOf operator

#### Structured exception handling

- Catching and deciphering exception messages
- Throwing exceptions in business objects
- Cleaning up resources with Finally blocks
- Automating cleanup with Using blocks

### Data Manipulation with ADO.NET and LINQ

#### The ADO.NET model

- Working with SQL Server
- Connected vs. disconnected approaches
- The System.Data namespace

#### Programming ADO.NET objects

- Coding connections, commands and datareaders
- Executing parameterised queries from VB
- Maximising performance with stored procedures
- Maintaining data consistency with transactions

#### Programming Language Integrated Query (LINQ)

- Constructing LINQ expressions
- Employing the standard query operators: Where, OrderBy, Select
- Applying the LINQ to SQL object relational mapper
- Filtering and generating XML with LINQ to XML

### Deploying Visual Basic Applications

- Applying .NET configuration and settings
- Preparing the release build
- Comparing XCopy and Setup projects
- Publishing Windows and Web applications