

# Introduction to VB.NET 2005 (5 Days)

## Custom Training Institute

9085 Coyote Springs Road  
Prescott Valley, AZ 86314  
(928) 772-3811  
FAX (928) 441-6444

## Introduction to VB.NET 2005 (CTI 242)

*This course will introduce students to the Microsoft .NET programming environment and teach students how to develop productive, useful applications with the new VB.NET 2005 programming language – leveraging students' existing knowledge of Visual BASIC and applying that knowledge to the .NET environment.*

*Required Prerequisites: Two years experience with programming languages; one year of experience with VB.NET programming language is helpful, but not mandatory.*

### Minimum hardware requirements:

*PC at 512 MHz; 2 GB free hard disk space (before installation); machines should be networked and should have Internet access.*

*Software requirements: Microsoft Windows XP or 2000 or later; Visual Studio .NET (including VB.NET compiler) 2005 or later. Microsoft SQL Server 2005.*

*Microsoft PowerPoint and Internet connection installed at instructor's workstation for presentation purposes.*

### **Module 1: .NET Platform Architecture**

- Evolving the Platform
- CLR Services
- Building Application and Component for CLR
- .NET Language Features and Issues

### **Module 2: Managed Type Fundamentals**

- The VB.NET to CLR Language Mapping
- Access Control-Types
- Type Members
- Indexers
- Instance vs. Static Members
- Interfaces
- Using VB.NET Type Navigation Operators
- Base/Derived Classes
- Method Invocation

### **Module 3: Objects, Values and Memory**

- Reference vs. Value Types
- CLR Type System
- Variables, Parameters and Fields
- Cloning
- Shallow Copy and Deep Copy
- Boxing and Unboxing
- Root and Non-Root References
- Liveness and GC
- Finalize and Dispose
- VB.NET Using Construct

### **Module 4: Reflection and Attributes**

- Introduction and Benefits
- Searching and Assembly Types
- Inspecting Type Information
- Determining Invokable Methods
- Invoking Methods from Searched Assemblies
- Dynamic Creation of Assemblies in Memory

### **Module 5: Delegates and Events**

- Motivation
- About Delegates
- Declaring, Using and Initializing Delegates
- Events as Formalized Use of Delegates
- Declaring, Registering and Unregistering Events

### **Module 6: Asynchronous Execution**

- Benefits and Promises
- Execution Options in the CLR
- Case: Multithreaded Internet Search Using Threads
- Thread Pools and the CLR
- Using Delegates with BeginInvoke and EndInvoke
- Dealing with Concurrent Execution
- Thread Synchronization in the CLR

### **Module 7: Assemblies**

- Assemblies and Types
- Assembly Resolution
- Assembly Names
- Public Keys and Assemblies
- Strong-Named Assemblies
- Loading and Resolving Assemblies
- GAC
- Configuring Version Policy
- Configuring Publisher Policy

**Introduction to  
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- continued**

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**Module 8: Windows Forms**

Overview in .NET Framework  
Form Appearance and Control Interaction  
Custom Components and Controls  
Threads and Messages  
Safely Accessing Controls from Separate  
Threads

**Module 9: Code Access Security**

The Problem of Mobile Code  
COM Loader vs. .NET Assembly Loader  
Type Safety and Evidence  
Permissions  
Drilling Into Policy  
Enforcing Security  
Tips for Writing Mobile Code

**Module 10: Review and Summary**