Learning to Program with VB.NET

**Duration:** 5 Days

**Price:** $2095 *California residents and government employees call for pricing.

**Discounts:** We offer multiple discount options. Click here for more info.

**Delivery Options:** Attend face-to-face in the classroom, remote-live or on-demand training.

<table>
<thead>
<tr>
<th>Students Will Learn</th>
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<tbody>
<tr>
<td>■ Using Visual Studio to create VB.NET applications</td>
<td>■ Throwing and trapping exceptions using the VB.NET Try and Catch statements</td>
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<tr>
<td>■ Working with the .NET data types</td>
<td>■ Using ADO.NET classes to access databases</td>
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<td>■ Creating variables with the proper scope and using operators to build complex expressions</td>
<td>■ Working with files and directories</td>
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<td>■ Using control structures such as If, Do While and For</td>
<td>■ Building simple Windows Forms applications</td>
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<td>■ Using procedures to build complex applications</td>
<td>■ Building and using derived classes</td>
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<tr>
<td>■ Designing and using classes</td>
<td>■ Defining and implementing interfaces</td>
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<tr>
<td>■ Using arrays and .NET collections</td>
<td>■ Performing advanced string manipulation</td>
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**Course Description**

This hands on VB.NET programming course provides an introduction to programming using the VB.NET language. Students are introduced to the application development cycle, structure of programs, and specific language syntax. The course also contains "Thinking Like a Programmer" sections that provide students insight on how to develop common algorithms. The course covers console and file I/O, string and character manipulation, managing data using collections and fundamental object-oriented programming concepts. Error handling techniques are also emphasized. The course also introduces how to access databases using ADO.NET and illustrates how to build user interfaces using Windows Forms. Comprehensive hands on exercises are integrated throughout to reinforce learning and develop real competency.

This class is intended for non-programmers. Students who already understand fundamental structured programming and object-oriented techniques should attend either ASP.NET Web Forms Programming Using Visual Basic.NET, Windows
Forms Programming Using Visual Basic.NET or Windows Presentation Foundation Programming Using Visual Basic.NET instead of this more introductory course.

Course Prerequisites

Familiarity with computers.

Course Overview

### Application Development Fundamentals Managing the Flow of an Application
- Overview of Programming Concepts
  - Understanding the Structure of a VB.NET Program
- Understanding Data Types
- Working with Variables
- Reading From and Writing to the Console
- Overview of the .NET Framework
- Using Visual Studio
- Thinking Like a Programmer
  - Designing Algorithms
  - Finding Patterns in Code
- Conditional Constructs
  - Working with If/Else Constructs
  - Working with Select Case
- Looping Constructs
  - Working with Do/Loop Constructs
  - Working with For and For Each
- Thinking Like a Programmer
  - Making Decisions
  - Designing Loops

### Working with Data
- Using Integer Data Types
- Using Floating Point Data Types
- Using Characters and Strings
- Using Dates
- Using Booleans
- Working with Constants and Literals
- Understanding Option Strict

### Using Procedures to Modularize Code
- Defining and Calling Subroutines
- Defining and Calling Functions
- Understanding Variable Scope
- Overloading Procedures
- Passing Parameters
- Understanding ByVal vs ByRef Parameters
- Understanding the Call Stack
- Thinking Like a Programmer
  - Finding the Procedures
  - Refactoring
  - Improving Productivity with Snippets

### Object-Oriented Programming
- Understanding Object-Oriented Concepts
- Designing Classes
- Coding Properties and Methods
- Initializing Objects with Constructors
- Overloading Constructors
- Declaring and Instantiating Objects
- Calling Properties and Methods
- Understanding Value Types vs. Reference Types
- Working with Shared Data Members

### Understanding Namespaces
- Understanding the Role of Namespaces
- Understanding .NET Namespaces
- Defining Custom Namespaces
- Referencing Members in a Namespace
- Using the Imports Statement
Thinking Like a Programmer

- Finding your Classes

Working with Data Collections

- Understanding Arrays
- Declaring and Instantiating Arrays
- Iterating through Arrays
- Working with System.Array Methods
  - Copying, Sorting, Searching and Resizing
- Passing Arrays to Methods
- Working with ParamArray Parameters
- Working with Command-line Arguments
- Understanding .NET Collections
- Managing Data Using List(Of T)
- Managing Data Using Dictionary(Of TKey, TValue)
- Working with LINQ
- Making LINQ Queries
- Enumerating LINQ Query Results
- Working with Anonymous Types
- Using Extension Methods with LINQ

Building Inheritance Hierarchies

- Understanding Inheritance
- Building Derived Classes
- Understanding Constructors in Derived Classes
- Defining and Using Protected Class Members
- Understanding Polymorphism
- Defining Overridable Methods
- Overriding Methods
- Understanding Abstract Classes
- Defining Abstract Classes
- Inheriting from Abstract Classes

Building GUIs with Windows Forms

- Overview of Windows Forms
- Designing Forms
- Working with Controls
  - Using Labels and Textboxes
  - Using Buttons
  - Using Checkboxes and Radio Buttons
  - Using Menus
  - Using list Controls
- Handling Events

Accessing Databases Using ADO.NET

- Understanding the ADO.NET Object Model
- Opening Connections
- Executing Queries Using Commands
- Iterating Through Results Using DataReaders
- Calling Stored Procedures
- Passing Parameters to Stored Procedures
- Working with DataSets
- Binding Data to Controls

Exception Handling

- Understanding Exception Handling
- Using Try/Catch to Handle Exceptions
- Working with the Exception Class
- Understanding Exception Propagation
- Using Finally to Manage Cleanup Processing
- Throwing Exceptions

Working with Files, Directories and Streams

- Using the System.IO Namespace
- Discovering Drives
- Working with Directories
- Working with Files
- Parsing a File Path
- Understanding Streams
- Working with FileStream
- Reading and Writing Text Files
- Understanding other Types of Streams

Working with Strings

Building N-Tier Applications
Working with the String Class
- Working with String Literals and Escape Sequences
- Understanding String Manipulation
- Performance Issues
- Working with the StringBuilder Class
- Formatting Output with String.Format

Building Large Scale Applications
- Designing N-Tier Applications
- Building .NET Assemblies
- Referencing Assemblies

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