



MICROSOFT DOT NET TRAINING COURSE MODULES

VB.NET / C#

COURSE HIGHLIGHTS

- .NET Platform Architecture
- The .NET Type System: Value Types, Reference Types, Generics
- Delegates and Events
- Asynchronous Programming
- Windows Forms Architecture and Application
- Code Access Security
- Deployment options: The GAC, Versioning, and ClickOnce
- Working with the garbage collector: Guidelines and Strategies for success
- Building extensible systems using Reflection, and Attribute-based programming
- ADO.NET 2.0
- XML Programming: Streaming, XPath, XSLT, and Xml Serialization
- ASP.NET 2.0 Basics
- Network Programming: RPC and MSMQ
- ASP.NET Web Services
- Com Interop
- Work with the .NET Common Type System and class libraries
- Decompose applications into libraries and namespaces
- Recognize and use common .NET and C# idioms like IDisposable and using
- Write code that works well with the garbage collector
- Handle and throw exceptions properly
- Write Windows Forms and WPF applications
- Design and develop network services using WCF
- Develop web applications using ASP.NET
- Use threads to improve multiprocessor performance

Course Details

VB.NET and C# Languages

Developing Console Application

- Entry point method - Main.
- Command Line Parameters
- Compiling and Building Projects



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Language Basics

- Variables and Data Types
- String & StringBuilder.
- Boxing and Unboxing
- Operators
- Control Statements
- Arrays and Strings
- Procedures and Functions

Essentials of Object-Oriented Programming

- Object and Class Definition
- Understanding Identity, State, and Behavior
- Using encapsulation to combine methods and data in a single class
- Inheritance and Polymorphism

Working with Classes and Objects

- Adding Variables and Methods
- Properties and Indexers
- Constructors and Destructors
- Memory Management and Garbage Collection
- Shared / Static Members
- Method Overloading
- Events and Delegates
- Anonymous Methods
- Partial Classes
- Operator Overloading
- Inner Classes
- Attributes and their Usage

Inheritance, Interface and Polymorphism

- Deriving classes
- Calling base class constructor
- Overriding Methods
- Non-Inheritable Classes.
- Abstract Class
- Interface Inheritance
- Namespace and Access Modifiers



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Advance Language Features and Base Class API

Working With Collections

- List and Dictionary
- ArrayList and HashTable
- Generic Classes
- IComparable and Sorting.
- IEnumerable and IEnumerator

Exception Handling

- Handling Exceptions using try and catch
- Raising Exceptions using throw
- Pre-defined Exception classes
- Custom Exception classes
- Using Statement

C# Features

- Unsafe Code
- fixed Keyword.
- Operator Overloading.
- P-Invoke.

Data Streams and Files

- Byte Streams
- Readers and Writers.
- Binary Streams
- Console and File I/O
- Serialization & Deserialization

Working with Components / Assemblies

- Creating a Simple .NET Framework Component
- Private and Shared Assemblies
- Signing Assemblies with Strong Names
- DLL Hell
- Side-by-side versioning
- Deploying .NET Assemblies in Global Assembly Cache
- COM Component in .NET Framework application
- Interoperating Issues



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Interoperating With COM Components

- Overview of COM Architecture
- Managed and UnManaged Code.
- Using TLBEXP, TLBIMP & RegAsm Utilities
- Runtime Callable Wrapper (RCW)
- COM Callable Wrapper (CCW)

Multithreading

- Introduction
- Application Domains
- Creating and Managing Threads
- Threads Priority
- Thread States
- Thread Synchronization & Inter-thread Communication.
- Using Monitor.

Data Access using ADO.NET

- Comparison between ADO and ADO.NET
- ADO.NET Concepts and Overview
- Managed Providers
- Working with Connection, Command, DataReader and Transaction objects
- Connection Pooling and Multiple Active Result Sets
- Asynchronous Processing
- Working with DataSet
- Adding, Deleting and Modifying records in a Dataset
- Data Tables, Data Columns and DataRows , Constraints and DataRelations
- Using DataView
- Typed DataSet
- Working with DataGridView.

WinForms

- Introduction
- Controls
- Menus and Context Menus
- MenuStrip, ToolStrip.
- Graphics and GDI
- SDI and MDI Applications
- Dialogbox (Modal and Modeless)
- Form Inheritance



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- Developing Custom, Composite and Extended Controls
- Other Misc topics.
- Working with Resource Files
- Working with Settings

XML

- Introduction
- XML-DOM
- XmlDocument, XElement, XMLAttribute
- Interoperating with DataSet
- XMLDataDocument
- XML TextReader / XML TextWriter
- XPath.

Windows Services

- Purpose and Advantage
- Developing and Deploying
- Debugging Windows Service
- Sending Custom events

Packaging and Deployment

- Compiled Deployment of ASP.NET application.
- Types of Deployment Modules
- Working with a Setup and WebSetup Project
- Working with a Merge Module Project

Debugging and Tracing

- Debug and Release Compilation
- Debug and Trace Objects
- Tracing Switches & Listeners
- Debugging JavaScript from VS.NET
- Debugging SQL-Server Stored Procedures.

Developing N-Tier Architecture Application Using SQLHelper, DAO, Business Object, Data Objects and Presentation Tier



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ASP.NET

Course Highlights

- Understand the ASP.NET compilation engine
- Build pages using server-side controls, custom controls, and user controls
- Validate user input using validation controls
- Display and update data using declarative data binding
- Employ security to authenticate and authorize users of your application
- Use master pages and themes to create a consistent look and feel
- Manage data for the users of your application
- Use caching to improve performance
- Add AJAX features to your pages

Course Details

ASP.NET

Basic of HTML and JavaScript

Introduction to ASP

- ASP Architecture
- ASP Objects
- Request and Response Structure
- Forms and Querystring

Overview

- ASP.NET Architecture
- Virtual WebServer
- New Features over ASP and ASP.NET 1.1
- Event Handling

Web Forms

- Introduction
- Advantages
- Comparison with HTML Form
- Page Processing States
- Event Model
- View State Management
- Cross-Page Posting



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Using Web Controls

- HTML Server Controls
- Standard ASP.NET Server Controls
- New ASP.NET 2.0 Basic Controls
- Navigational Controls (TreeView, SiteMap, Menu, SitemapDataSource and XMLDataSource)
- Validation Controls
- Web User Controls

Creating a Layout Using Master Pages

- URL Rebasing in a Master Page
- Accessing a Master Page from Code
- Nesting Master Pages
- Master and Content Pages

Applying Themes and Styles to Controls

- Working with CSS
- Using Themes to Customize a Site
- Named Skins within a Theme
- Server-side Styles using Themes
- Contents of a Theme and Skin
- Themes and Profiles

ASP.NET State Management

- ViewState Object
- Cookies
- Session Management
- Application State
- HttpContext
- Static / Shared Members

ASP Intrinsic Objects

- Request and Response
- Session Objects
- Application Objects
- Server and Context

ASP.NET Web Application

- Creating Virtual Directories
- Global.asax & Managing Application Events



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- HttpApplication Instance
- HTTP Handlers and creating Custom Handler
- URL Redirection

Data Access Controls

- Data Binding Server Controls
- SqlDataSource, ObjectDataSource, AccessDataSource
- GridView
- DetailsView and FormView
- Data List and Repeater

Caching

Overview

- Page Output Caching
- Page Fragment Caching
- Data Caching
- SQL Cache Invalidation
 - Notification-based Invalidation
 - Polling-based Invalidation
- Expiration Policies and Cache Dependencies

Configuration

- Configuration Overview
- Machine.Config and Web.Config
- Inheritance of Configuration Settings
- Configuration File Format
- Retrieving Application Configuration Data and database connection strings
- CacheProfile
- URL Rewriting - (Programmatically and using config files)
- Custom Error Handling.

Trace Functionality

- Overview of Tracing
- Trace Information
- Page-Level Trace
- Application-Level Trace

Security

- Authentication & Authorization
- Windows Based Authentication



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- Form Based Authentication
- Authorizing Users and Roles
- Impersonation
- Using Login Controls
- ASP.NET 2.0 Membership and Roles
- Securing Non-ASP.NET files

Globalization and Localization

- Request and Response Encoding
- Local and Global Resources
- Implicit Expressions to Local Resources
- Explicit Expressions to Local Resources
- Programmatic Access to Global Resources
- Localizing Static Content
- Storing Language Preferences
- Right to Left Mirroring
- Culture specific formatting

Personalizing Using Web Parts

- Webpart Controls
- Editing Webparts
- Custom Webparts using UserControl
- Personalizing

AJAX.NET

- Architecture
- Working with AJAX Pro
- Using AJAX.NET Controls
 - Accordion
 - Calendar
 - CascadingDropDown
 - CollapsiblePanel
 - FilteredTextBox
 - NumericUpDown
 - ModalPopup
 - PopupControl

Miscellaneous

- Configuring SMTP Server
- Sending E-Mails
- Crystal Reports integration into Windows and Web Application.