

# .NET Framework Using C#

(4 Days) CTI 4112

*This course provides a sound introduction to the .NET Framework for programmers who already know the C# language and the fundamentals of Windows Forms. It is current to .NET 3.5 and Visual Studio 2008.*

*Prerequisites: The student must be an experienced application developer or architect with a working knowledge of C#, including building simple GUIs with Windows Forms.*

*Minimum software requirements: Microsoft Visual Studio 2008 Standard Edition or higher. Windows XP. SQL Server 2005 Express Edition, bundled with Visual Studio 2005.*

*Minimum hardware requirements for all machines: Pentium PC running at 2 GHz; 512 MB RAM; 4 GB free hard disk space before installation; Internet access; machines must be networked.*

*Microsoft PowerPoint and Internet access on instructor's workstation for presentation purposes.*

## **Module 1: .NET Fundamentals**

- What is Microsoft .NET?
- Common Language Runtime
- Attribute-Based Programming
- Interface-Based Programming
- Metadata
- Common Type System
- Framework Class Library
- Language Interoperability
- Managed Code
- Assemblies and Deployment
- Web Services
- ASP.NET

## **Module 2: Class Libraries**

- Components in .NET
- Building Class Libraries at the Command Line
- Class Libraries Using Visual Studio 2008
- Using References

## **Module 3: Assemblies, Deployment and Configuration**

- Assemblies
- Private Assembly Deployment
- Shared Assembly Deployment
- Configuration Overview
- Configuration Files
- Programmatic Access to Configuration
- Using SDK Tools for Signing and Deployment
- Application Settings with .NET 2.0

## **Module 4: Metadata and Reflection**

- Metadata
- Reflection
- Late Binding

## **Module 5: I/O and Serialization**

- Directories
- Files
- Serialization
- Attributes

## **Module 6: .NET Programming Model**

- Memory Management and Garbage Collection
- Threading and Synchronization
- Asynchronous Delegates
- .NET 2.0 BackgroundWorker
- Application Domains
- Marshal By Value
- Marshal By Reference
- .NET Remoting

## **Module 7: .NET Security**

- Authentication and Authorization
- Configuring Security
- Code Access Security
- Code Groups
- Evidence
- Permissions
- Role-Based Security
- Principals and Identities

## **Module 8: Interoperating with COM and Win32**

- .NET Client Calling a COM Server
- PInvoke

## **Module 9: ADO.NET and LINQ**

- ADO.NET Overview
- .NET Data Providers
- Connections
- Commands
- DataReaders and Connected Access
- DataSets and Disconnected Access
- Language Integrated Query

## **Module 10: Debugging Fundamentals**

- Compile-time Errors and Run-time Errors
- Configuring Debug, Release, and Special Builds
- Visual Studio 2008 Debugger
- Just-In-Time Debugging

## **Module 11: Tracing**

- Tracing
- Event Logs

## **Module 12: More About Tracing**

- Using the BooleanSwitch and TraceSwitch Classes
- Print Debugging Information with the Debug Class
- Instrumenting Release Builds with the Trace Class
- Using Listeners
- Implementing Custom Listeners