

# Course Contents

---

## C#.NET

### **.NET Enterprise Architecture**

- NET Framework
- Base Class Libraries (BCL)
- Common Language Run Time (CLR)
- Microsoft Intermediate Language (MSIL)
- Common Language Specification (CLS)
- .NET Products
- .NET Services

### **.NET Languages**

- VB.NET
- VC#.NET
- VC++.NET
- Languages Comparison

### **C# Languages Basics**

- Data Types
- Type Conversion
- Boxing & Unboxing
- Conditional Statements
- Looping
- Methods in C#
- Properties
- Arrays
- Indexes
- Structures, Enumerations
- Strings
- Regular Expressions
- Collections



### **Object Oriented Language**

- OOPS Concepts
- Encapsulation
- Inheritance
- Polymorphism
- Class and Object
- Constructors
- Destructors
- Method Overloading
- Method Overriding
- Early binding, Late binding
- Abstract Classes
- Abstract Methods
- Interfaces
- Multiple Inheritances

### **Memory Management**

- Garbage Collector      Stack and Heap
- System. Object Class
- Architecture of Gc
- Generations

### **Exceptional Handling**

- System Defined Exceptions
- Custom Exceptions
- Try, Catch, Finally
- Throwing Exceptions

### **Operator Overloading**

- Unary Operator
- Binary Operator

### **GUI Applications Development**

- Windows forms and controls
- Creating Menus
- Toolbars, Image list
- Tree View, List view

### **Data Base Programming**

- ADO.NET Introduction
- Data Providers in .NET
- Connection, Command
- Data reader
- Data Adapter
- Data Set
- Command Builder
- Data Relations
- ADO.NET and XML

### **Assemblies**

- Private Assemblies
- Shared Assemblies
- Global Assembly Cache (GAC)



### **Architecture of CLR**

- Components in CLR
- Type Safety

### **COM Interparability**

- Architecture of COM
- Using COM Component form .NET
- Using .NET Component form VB/VC++

### **Delegates and Event Handling**

- Function Pointers
- Multi cast delegates
- Generic Routines
- Event Handling

### **Pointers**

- Value types, Reference types
- Unsafe
- Structures and pointers

### **Remoting**

- Distributed Architecture
- DCOM, RMI, CORBA
- Channels (TCP, HTTP)
- Marshal by Value
- Marshal by reference
- Server Activated
- Client Activated
- Remoting Architecture

### **File Handling**

- System. IO namespace
- File stream
- Stream Reader
- Stream Writer
- File info
- Directory info

### **Windows Services**

- Service base class
- Service Process Installer
- Service Installer
- Creating a windows Service
- Installutil.exe

### **Multi Threading**

- System, threading
- Thread Synchronization
- Critical Sections
- Thread life cycle

### **Introduction to Web applications and Security**

- ASP.NET using C#
- System. Web & A simple web application
- Code access security
- Role based security

## **ASP.NET**

### **Introduction to Web Technologies**

- HTML
- Client side scripting languages
- IIS Architecture
- Server side programming with ASP
- ASP objects introduction

### **ASP.NET Introduction**

- What is ASP.NET

- ASP vs. ASP.NET
- Page and import directive
- In page technique and code behind technique

## Server Side Controls

- Client control vs. Server side controls
- Type of server controls-HTML server controls, Web server controls
- HTML server controls programming using in page technique
- View state architecture
- ASP.NET page execution architecture-ASP.NET worker process, page life cycle events
- VS.NET vs. Web matrix
- Types of web server controls-Working with basic controls, Label,Text box, Buttons etc.,
- Working with rich controls - Calendar, Adrotator.
- Validation controls.

## State Management

- Page submission
- Cookies
- Session State
- Session Tracking Arch
- Application object
- Session and App events
- Global ASAX

## XML Programming

- Introduction to XML
- Creation of XML document
- XML parsers
- DOM vs. SAX parser
- Developing Client App for XML
- HTML Page- VB 6.0 App
- DTD
- XML Scheme
- Database support for web



## ADO.NET

- Introduction to manage data providers
- Data Reader programming
- Drawbacks of Record set
- Dataset and Data Adapter
- Datagrid with sorting
- Datagrid with paging
- Customizing Datagrid
- Typed Dataset
- Inline editing with Data grid
- Dataset serialization and deserialization
- Write XML and read XML methods
- Data view
- Repeater Control
- Data list control

## Caching

- Importance of caching
- ASP 3.0 Support for caching
- Type of caching in ASP.NET
- Output caching Web user control vs custom control
- Fragment caching
- Data caching vs. Application object

## ASP.NET Configuration

- Machine configuration vs. Web configuration
- Application variables
- Compilation setting
- Custom error setting
- Session state setting
- Enhancement in ASP.NET
- Inprocess vs. Outprocess session state
- State server and SQL server
- Cookie less session

### **ASP.NET Tracing**

- Page level
- Application level

### **Security in ASP.NET**

- Authentication & Authorization
- Windows based authorization
- Form Based authorization
- Passport

### **XML Web Services**

- ASP 3.0 with MTS
- Dcom vs. XML Web services
- Role of WSDL
- NET support for Web Service
- Client Apps for Web Service
- WSDL utility
- Session state with Web Service
- Caching with Web Service
- Proxy with Asynchronous Methods
- Web service wire Formats
- HTTP Post
- HTTP Get
- SOAP Architecture
- SOAP Envelops
- Discovering web Service
- Disco vs. VSDisco
- UDDI Registry
- Securing web Service
- IP Address & Domain Restriction
- SSL (Secured Socket Layer) – SOAP Header

### **Localization and Globalization**

### **Introduction to Mobile Programming**

- Mobile ASP.NET Arch
- MMIT (Micro Soft Mobile Internet Toolkit)
- Creating Mobile ASP.NET Page
- Mobile Emulator

–  
–  
**VB.NET**

### **Micro Soft .NET Overview**

- Why .Net
- Introduction to .Net framework
- Basic functionality of CLR
- MSIL
- CTS & CLS

- .Net languages
- System Requirements

## **Introduction to VB.NET**

- Features of VB.NET
- Writing programmes in VB.NET
- Compiling and Executing from Command prompt
- Intro to Assemblies and Namespace
- Base class libraries
- Data types
- Option statements
- Boxing and Unboxing
- Array
- Sub programmes

## **Introduction to Visual Studio.NET**

- VS 6.0 VS VS.NET
- File structure created for VS.NET APP
- Types of projects
- Creating Demo Console App

## **Object Oriented Programming**

- Principles of OOP
- Structure VS Class
- Access Specifiers
- Properties
- Method Overloading
- Constructors
- Shared Modifier
- Inheritance
- Overloading and Overriding
- My base Keyboard
- Shadowing
- Abstract class
- Sealed class
- Interface
- Polymorphism
- Early Binding and Late Binding
- Destructor & Garbage Collector



## **GUI application development**

- Introduction to system WINDOWS, Form, DLL
- Basic controls rich and Event driven programming
- Advanced controls Rich text box, Dialog Boxes, Toolbar...
- Working with context menu
- Main menu and MDI form
- Visual Inheritance

## **Assemblies**

- Introduction to COM Architecture
- Disadvantages of COM
- Introduction to Assembly
- Private Assembly vs. Shared Assembly
- Creating private Assembly
- Probing and Preparing Configuration file
- Strong name utility
- Creating shared Assembly
- CLR Architecture
- Native Generator utility

- Assembly Versioning
- Compatibility of Assembly
- Configuring file for sharing Assembly

## **Data access with ADO.NET**

- Introduction to Data Access Libraries DAO
- RDO and ADO
- Draw Back of ADO
- ADO.NET managed Data providers
- Introduction to system.Data.OleDb
- Data Reader
- Introduction to system.Data.SqlClient
- Preparing Statement
- Transaction handling
- Introduction to system.Data.Oracleclient
- Dataset and Data adapter
- Data Binding
- Data grid Programming
- Data View
- Data Relation

## **Delegates**

- Introduction to Delegate concept
- Event Handling Arch with Delegate
- Handles, Add Handler and Remove Handler

## **Multi Threading**

- Thread Class
- Sleep, Suspend and Resuming Thread
- Asynchronous Connection
- Synchronization of Threads

## **Distributed APP development**

- Introduction to monolithic, 2 Tier and 3 Tier Arch
- Introduction to DCOM
- Disadvantages Of DCOM
- Introduction to remoting
- TCP and HTTP Channels
- Serialization and Deserialisation with Binary Formatter and SOAP Formatter
- Activation Modes Server Activated and client Activated
- Server Activated (Single call and single ton)
- Remoting Architecture
- System. Runtime. Remoting. DLL
- Apps for server Activated and client Activated

## **Windows control library**

- Creating custom control extending existing control
- Creating custom control grouping existing controls

## **Interoperability with COM**

- Creating custom control extending
- Creating Achix DLL using VB 6.0
- Managed code and Unmanaged code
- Using Achix DLL in VB.NET APP
- TLBIMP Utility
- RCW
- Using .NET Assembly in VB 6.0 App
- CCW
- TLBExp and Regasm Utilities

## Crystal reports

## File Streams

## Windows Service

- Introduction to service App
- System. Service process
- Service Base Class
- Service Installer and Service
- Process installer
- Register Data Base of Services
- Install util utility
- SCM & SCP

## Localization and Globalization

- Resource file creation
- Satellite Assembly Creation
- System. Reflection Assembly and Resource Manager



# **.NET Technology**

Connecting Engineers and Developers with Practical Skills and the Latest Technologies

## **The Course at a Glance**