Deccansoft Software Services

(A Microsoft Learning Partner)

C# Programming Syllabus

Module 1: Introduction to .Net Framework
In this module we explained clearly about the .Net Framework that

- What is a .Net Framework and components in the .Net Framework
- Different .Net Framework versions and their Dependency
- The core of the .Net Framework and the Types of .Net Applications that we can develop
- What are Base class Libraries and what is a Namespace
- How the Compilation process and Execution Process is done
- What is Portable Executable and its extensions
- What is MSIL and why MSIL instructions are Platform Independent Instructions
- What is Metadata and which type of Information does the Metadata Stores
- What is CLR and What are the Components in CLR

Module 2: VS.Net and Entry point Method
In this module we concentrated on how to install a visual studio and the types of Editions in visual studio

Using a sample Application we understand

- Importance of Command Line arguments and how to pass values for arguments through Command prompt
- and through command Line arguments in the visual studio
- Different Entry point methods and Significance of the Return value in main
- How to resolve ambiguity of Main method
- How to develop an application without using Visual studio .Net

Module 3: C# Language Syntax
In this Module we concentrated on Introduction to C#, its Evolution and its versions History along with that
We understand

- Why we need a programming Language
- What are the Data Types we have in C# and how to declare a Variable
- How Data Types are Categorized into Value Type and Reference Type
- What is Implicit Casting and Explicit casting and how to handle Overflow checks
- .Difference between string and string Builder
- what is Boxing
- what is Unboxing
- what is Type Inference
- what are constants and Enums
- what are the Operators we have in C#
- How the if, while, do while, switch condition will works
- What is the difference between for and foreach and where to use for loop and where to use foreach loop
- What is single dimension Array, multi dimension Array
- What is method overloading
- what are optional parameters and what will happen when we not provide any value for the parameter
- what are Named Arguments
- what is params Parameter
- How to Pass argument by value, ref and out
- How to improve our Programming skills and logical skills to become a extraordinary programmer

**Module 4: OOPS – Concepts**

In this module we concentrate on
- Introduction to OOPS and its principles
- what is a class
- what is an object
- what is a component
- what is Encapsulation and Data Abstraction
- what is an inheritance and advantages of inheritance
- what is a polymorphism

**Module 5: OOPs - Programming Encapsulation**

In this Module we understand that
- How to create a WindowsForms application
- How to create a class and how to declare field members in it
- How to Design GUI using Controls in the ToolBox
- How button click event works
- How Garbage collector will destroy the objects and what are the generations in Garbage Collector
- what is an instance Method and what is the use of this keyword inside a method
- what are properties and what does a get and set block do
- What is the difference between constructor and Destructor
Module 6: OOPs – Inheritance

In this module we concentrate on

- where the static members allocate memory
- when the memory is allocated for static members
- how to access a static member
- what is the role of Static constructor and how it executes
- when to declare a class as static

Module 7: OOPS - Interface and Polymorphism

In this module we concentrate on

- what is Protected keyword and how to bypass it through child class
- how to casting the reference types
- what does a "is" operator do
- what does "as" operator do
- what does "??" operator do
- what is static Binding and Dynamic Binding
- how to override a method
- what is an abstract class, abstract method
- when to declare a class as abstract
- what is the difference between abstract class and concrete class
- when to declare a method using new keyword
- what is a system.object class
- what are the methods in the object class

Module 8: Collections and Generics

In this module we concentrate on the Introduction to Collections and

- what are the Types of collections and what is IEnumerable, ICollection, IList, IDictionary
- what is ArrayList, HashTable, SortedList, Queue, Stack
- how to iterate using IEnumerable
- How sort using IComparer and IComparable
- What are the advantages of Generics and how they work at Runtime
- What are Generic methods and Generic collection classes
- What is List and Dictionary

Module 9: Assemblies and GAC
In this module we concentrate on the Assemblies
- What is difference between DLL and EXE
- How to build a class library
- How to use a Class Library in another Application
- What is Namespace
- Internal Access Specifier
- Types of Assemblies
- Global Assembly Cache

Module 10: Exception Handling
In this module we concentrate on how to handle when an Exception raised using sample application we understand that
- What is an Exception and types of Exceptions
- How to handle Exception using try and catch blocks
- How to throw an Exception using throw ex and throw
- What is finally Block
- How to define custom Exception class

Module 12: IO Streams
In this module we concentrate on IO Streams and we understand
- What is a Stream and Types of Streams
- what are standard IO streams
- How Files can be Handled using FileMode, FileAccess, FileShare
- What is Binary Reader and Binary Writer
- How to work with File System
- What is Serialization and Deserialization

Module 13: Unsafe Code
In this module we concentrate on what is unsafe code and how pointers will work in C#
Module 14: Reflection and Attributes
In this module we concentrate on Reflections and Attributes and we understand

- What is Reflection
- How to read type information Using Reflection
- How to work with Attributes
- What are Pre-defined Attributes
- What are Custom Attributes
- How to read custom attributes Using Reflection

Module 15: Extended C# Language Features
In this module we concentrate on Extended C# Language Features

- What is Operator Overloading
- What is the partial class, partial methods
- What are Extension Methods
- What are Anonymous Types
- What are Tuples
- What is caller Information
- What is configuration File

Module 16: New Features of C# 6
In this module we concentrate on New Features of CSharp 6.0 and we understand

- what is String Interpolation
- what is Null Conditional Operator
- what is Auto Property Initializer
- what is Dictionary / Index Initializer
- what is Expression-bodied function members
- what is Static Using
- what is name of Expression
- what are Exception Filters
- what is Declaration Expressions
- How does await keyword works in catch and finally block

Module 17: Developing GUI Application Using WinForms
In this module we concentrate on Introduction to WindowsForms and we understand

- What are Windows Forms and how they bring Rich GUI to the Application
- what are the controls that have in the WindowsForms
what are the important properties of the controls
what are the important Events that each control have
What are the Container controls
what are Graphical Objects
what are GDI objects
What is MenuStrip, ContextMenuStrip, ToolStrip And StatusStrip
How to work with Model Dialog
How to develop a Notepad Application
What is Modeless dialog Box
What is Multiple Document Interface
What is Form Inheritance
How to Add Login Facility to the Application
How to work with the Resource files
what is NotifyIcon Control
What is Timer control
How to Drag and Drop the Files
What is a Treeview
What is a ListView

Module 18: ADO.NET Part 1 - Managed Provider Objects
In this module we concentrate on Introduction to Ado.net, Architecture of ADO.net and we understand that
What is a Manage Provider and important objects in it?
How to Install SQL server and Management Studio
How to establish a connection to Database
what is Connection Pooling
How to insert, Update, Delete the data in the Database from the Application
How to Fetch Data from the Database using Select command
How to implement Login to the Application using Database
what is MultipleActiveResultSets
what is Parameterized Prepared Statement
How to write stored procedures in Backend
How to Execute stored procedures from front end Application
what are the Transactions
How to Manage the Transactions using Transaction Scope
What is Asynchronous Execution of SQL Commands
How to write Provider independent code
Module 19: ADO.NET Part 2 - DataSet Object Model
In this module we concentrate on
- What are DataAdapter events
- How to handle Concurrency issues if multiple users performing operations on same Data
- How to sort and filter the data using DataView
- what are the constrains in the DataTable and how to Add the constrain to the DataTable
- what is a DataRelation object
- How to create DataSet/ DataTable Dynamically without using DataAdapter
- what is Typed Dataset

Module 20: N-Tier Layered Architecture Applications
In this module we concentrate on N-Tier Layered Architecture
- Introduction to N-Tier
- what is a Tier and what is a Layer
- what is the Role of Presentation layer, Data layer, Business object Layer, DAO layer
- How to design a GUI for the Application
- How to use Helper class and Enum
- How to pass the data from one Layer to another Layer

Module 21: XML
In this module we concentrate on XML and we understand
- What is a XML and XML parser
- what is DOM parser
- How to perform CRUD operations on XML DOM
- How to get the reference to nodes in XmlDocument using XPath
- How XML works with DataSet
- What is XML Textwriter and XML TextReader
- what is XPath Document and XPath Navigator

Module 22: Windows Services
In this module we concentrate on Windows Service and we understand that
- What is a Windows service
- How to create a new windows service Template
- How to Install/Deploy windows service in the OS
- How to Launch a Windows Service
Module 23: Delegates & Events
In this module we concentrate on Delegates and their working and we understand that

- What is a Delegate
- How to create a chat application using Delegates
- How to raise an event using Delegates
- What are Anonymous Methods

Module 24: User Control and Custom Control
In this module we concentrate on User Control and we understand that

- What is User Control
- What is composite control
- How to inherit the User Control
- What is a custom control

Module 25: MultiThreading
In this module we concentrate on MultiThreading and we understand

- What is process and Thread
- What is difference between MultiThreading and Multitasking
- What is scheduling and types of scheduling
- How to set the Thread priority
- How to suspend, Resume, Interrupt, Abort and get the status of Thread
- What is cross Thread operation
- What is Thread pool
- What is Thread Synchronization
- What is critical section
- What is Mutex
- What is Semaphore
- What is Task parallel programming
- What is Async Programming

Module 26: Debugging and Diagnostics
In this module we concentrate on Debugging and Diagnostics and we understand

- What is Debugging
- What is Build Configuration (Debug and Release)
- What are List of Debugging Windows
- what is Break Point Hit Count and Condition
- what are Debugging Exceptions
- What is Diagnostics
- what is Debug and Trace Classes
- what are Types of Listeners
- what is Boolean and Trace Switch