Course : Intro to .NET with C#

Course Description

C# is the one of the most common programming languages, necessary to begin developing .NET applications.

In this we'll cover all necessary to become a .NET developer : From the language syntax, implementation details, the object oriented implementation, as well as more advanced topics such as collections, generics & LINQ.

Course Duration
40 Academic Hours (5 Days)

Prerequisites
Basic fundamental programming skills in any language

Course Topics

Module 1 - Introduction to the .NET Framework

- The .NET Framework
- The Common Language Runtime
- The Common Type System
- C# Features

- Introduction to namespaces and assemblies

Module 2 - The C# 5.0 Language

- Procedures and statements
- Data types
- Declaring variables
- Assignments
- Conversion
- Operators
- Control constructs

Module 3 - The .Net. Type System

- Type concepts
- Value and reference types
- Assignment
- The simple types
- The 'null' reference

Module 4 - Arrays and Strings

- class Array

- Array initializers
- Multi-dimensional arrays
- Jagged arrays
- class string and its methods

Module 5 - Exception handling

- Errors vs. Exceptions
- The 'try' block
- Using 'throw'
- The 'catch' block
- The 'finally' block
- Creating your own exceptions

Module 6 - Working with Files

- IO Concepts
- Read from files
- Write to Files
- Working with Directories

Module 7 - Structures and Enumerations

- Creating and Using Enumerations
- Creating and Using Structs
- Comparing References to Values

Module 8 - Object Oriented Programming in C#

- Classes & Interfaces
- Concept of inheritance
- Extending a simple class
- Polymorphism
- 'Virtual', 'override', 'new' and 'sealed' modifiers
- Abstract , Partial & Static classes
- Abstract methods, properties and indexers
- Polymorphism with interfaces
- Multiple interfaces

Module 9 - DNA Architecture

- What is DNA Architecture (3-layers)
- Working with .dll's (Writing & Consuming)
- Dll's vs. Services

Module 10 - Delegates & Events

- Why using delegates ?
- Useful design patterns with delegates
- Events

Module 11 - Generic & Collections

- Using Collections
- Collections pitfalls
- Creating and Using Generic Types
- Generics Collections
- Defining Generic Interfaces and Understanding Variance
- Using Generic Methods and Delegates

Module 12 - Introduction to languge-integrated Query (LINQ)

- Introduction to LINQ
- LINQ to Objects
- LINQ to XML
- LINQ to SQL (Concepts)

Module 13 - Multi-Threaded applications (If time permits)

- Overview of Threading
- Creating Threads
- Passing Data to Threads
- Returning Data from Threads
- Managing Threads
- Problems with Threads
- Synchronizing Threads