SE001CS – *Introduction to C#*

Duration: 3 Days; Instructor-led

WHAT YOU WILL LEARN

Despite its relatively late start in the industry, C# now is the most popular language for the .NET development. It inherits various good features from many existing popular languages. New features added and existing features improved from version to version with intention to reduce development time and increase code quality. All this make C# no longer a simple language.

Many C# introductory courses today tend to skip the basic due to time allocated. But this course is specially designed to focus on the basic features and fundamentals of C#. Upon completion of this course, learners will be equipped with the understanding of fundamental concepts and features of C#. With this preparation, learners will be able to continue exploring more advance C# features and demonstrate more effective coding ability.

AUDIENCE
This course is specially designed for programmers who are new to C#.

PREREQUISITES
* Familiar with Windows Operating Systems.
* Basic programming skill and knowledge are not mandatory but will be added advantage.

METHODOLOGY
This program will be conducted through Instructor-led (classroom)

COURSE OBJECTIVES
After completing this course, students will be able to:
* create C# projects using IDE
* perform basic debugging
* understand the basic programming construct with C#
* apply different operators
* appreciate the importance of OOP in C# program development
* support Information Hiding with access modifiers, properties and read-only fields
* pass parameters using different mechanisms
* use different types of Array and other collections under different circumstances
* handle abnormal code execution with Exception Handling features provided by C#
* know what the Delegates and Events about
* build simple GUI program with C#

COURSE OUTLINE

Module 1 – Introduction
* What is .NET?
* The IDE
* Simple C# example
* What can we do with C#?
* Debugging C#

Module 2 – Flow Control
* Sequential
* Branching
* Iteration

Module 3 – Basic Types
* Reference Types
* Value Types
* Simple Data Types
* String
* Enums
* Constants

Module 4 - Operators
* Arithmetic Operators
* Comparison Operators
* Logical Operators
* Bitwise Operators
* Special Operators
* Degree, Association and Precedence

Module 5 – Classes and Objects
* Objects and Classes
* Encapsulation
* Inheritance
* Constructors and Destructors
* Constructor Chaining
* Reference Types: Objects and Variables
* Class Members
* Namespaces

Module 6 – Access Modifiers
* Information Hiding
* public
* protected
* private
* internal
* protected internal

Module 7 – Methods, Fields and Properties
* Methods
* Fields
* Properties
* Method Overloading

Module 8 - Parameters
* Passing by Value
* Passing by Reference
* Passing by Out
* Default parameter value
* Param Array
* Named Arguments

Module 9 - Array
- Single Dimensional Array
- Multi-Dimensional Array
- Array of Array
- Jagged Array

Module 10 – Useful Collections
- ArrayList
- Generic List
- Dictionary

Module 11 – Errors and Exception Handling
- Fault, Error, and Failure
- Different types of Error
- What is Exception?
- Why need to handle exceptions?
- Try-catch block
- System level Exception Hierarchy
- Multiple catch blocks and the rule
- The finally block
- Re-throw technique
- Custom Exceptions

Module 12 – Delegates and Events
- Single Cast delegates
- Multicast Delegates
- Events