

**Rapid C# Introduction for Experienced OO Developers**

**Course Number:** CSHP-214
**Duration:** 2 days

**Overview**

This Rapid C# Introduction for Experienced OO Developers training course introduces object-oriented concepts using C# and concisely covers the essentials of programming using Microsoft’s C# programming language. Attendees learn the .NET architecture and the basics of running C# programs in a .NET environment, as well as C# language essentials. The course also discusses how C# relates to the .NET Framework and covers delegates and events. Coverage of new features are also included.

**Note:** The recommended IDE for this C# training course is Visual Studio 2022, but the course can also be taught using Visual Studio for Mac, or VS Code upon request.

**Prerequisites**

All students should be an experienced application developer or architect. Some background in object-oriented programming would be helpful.

**Materials**

All C# training students receive comprehensive courseware.

**Software Needed on Each Student PC**

* Windows 10 or later with at least 8GB RAM
* Visual Studio 2022 or later
* Related lab files that Accelebrate will provide

**Objectives**

* Acquire a working knowledge of C# programming
* Learn about important interactions between C# and the .NET Framework
* Learn how to implement simple GUI programs using Windows Forms
* Gain a working knowledge of important newer features in C#

**Outline**

* Introduction to .NET
	+ What is .NET?
	+ .NET Framework, .NET Core, and .NET 6.0
	+ Application Models
	+ Managed Code
	+ Visual Studio 2022
	+ C# Console and GUI Programs
* C# Overview for the Sophisticated Programmer
	+ First C# Console Application
	+ Namespaces
	+ Data Types
	+ Conversions
	+ Control Structures
	+ Subroutines and Functions
	+ Parameter Passing
	+ Strings
	+ Arrays
	+ Implicitly Typed Variables
	+ Console I/O
	+ Formatting
	+ Exception Handling
* Object-Oriented Programming in C#
	+ Classes
	+ Access Control
	+ Methods and Properties
	+ Asymmetric Accessor Accessibility
	+ Static Data and Methods
	+ Constant and Readonly Fields
	+ Auto-Implemented Properties
	+ Inheritance
	+ Overriding Methods
	+ Abstract Classes
	+ Sealed Classes
	+ Access Control and Assemblies
* C# and .NET
	+ Components
	+ Interfaces
	+ System.Object
	+ .NET and COM
	+ Collections
	+ IEnumerable and IEnumerator
	+ Copy Semantics in C#
	+ Generic Types
	+ Type-Safe Collections
	+ Object Initializers
	+ Collection Initializers
	+ Anonymous Types
	+ Attributes
* Delegates and Events
	+ Delegates
	+ Anonymous Methods
	+ Lambda Expressions
	+ Random Number Generation
	+ Events
* Introduction to Windows Forms
	+ Creating Windows Applications
	+ Partial Classes
	+ Buttons, Labels and Textboxes
	+ Handling Events
	+ Listbox Controls
* Newer Features in C#
	+ Asynchronous Programming
	+ Nullable Reference Types
	+ Record Types
	+ Global and Implicit Using Directives
	+ Top-Level Statements
* Conclusion