

This 5 day course focuses on C# program structure, language syntax, and implementation details with .NET Framework 4.0. The course also describes the new enhancements in the C# 4.0 language by using Visual Studio 2010. Lower-intermediate level programmers gain the knowledge and skills they need to develop C# applications for the Microsoft .NET Framework 4.0. The course highlights the structure of C# 4.0 programs, language syntax, and implementation details.

Course Objectives:

- Explain the purpose of the .NET Framework, and understand how to use C# and Visual Studio 2010 to build .NET Framework applications.
- Understand the syntax of basic C# programming constructs.
- Perform basic file IO operations in a C# application.
- Create and use new types (enumerations, classes, and structures), and understand the differences between reference types and value types.
- Control the visibility and lifetime of members in a type.
- Use inheritance to create new reference types.
- Manage the lifetime of objects and control the use of resources.
- Define properties and indexers to encapsulate data, and define operators for this data.
- Decouple an operation from the method that implements an operation, and use these decoupled operations to handle asynchronous events.
- Use collections to aggregate data, and use Generics to implement type-safe collection classes, structures, interfaces, and methods.
- Implement custom collection classes that support enumeration.
- Query in-memory data by using LINQ.
- Integrate code written by using a dynamic language such as Ruby and Python, or technologies such as COM, into a C# application.

Audience: This course is intended for experienced developers who already have programming experience in C, C++, Visual Basic, or Java and understand the concepts of object-oriented programming.

Prerequisites: Professional developers with at least 12 months experience of programming in an object-oriented environment.

Number of Days: 5 days

<p>1 Introducing C# and the .NET Framework Introduction to the .NET Framework Creating Projects With in VS 2010 Writing a C# Application Building a Graphical Application Documenting an Application</p>	<p>Running and Debugging Applications by Using VS 2010</p> <p>2 Using C# Programming Constructs Declaring Variables and Assigning Values Using Expressions and Operators Creating and Using Arrays Using Decision Statements</p>
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	Using Iteration Statements		
3	Declaring and Calling Methods		
	Defining and Invoking Methods		
	Specifying Optional Parameters and Output Parameters		
4	Handling Exceptions		
	Handling Exceptions		
	Raising Exceptions		
5	Reading and Writing Files		
	Accessing the File System		
	Reading and Writing Files by Using Streams		
6	Creating New Types		
	Creating and Using Enumerations		
	Creating and Using Classes		
	Creating and Using Structs		
	Comparing References to Values		
7	Encapsulating Data and Methods		
	Controlling Visibility of Type Members		
	Sharing Methods and Data		
8	Inheriting From Classes and Implementing Interfaces		
	Using Inheritance to Define New Reference Types		
	Defining and Implementing Interfaces		
	Defining Abstract Classes		
9	Managing the Lifetime of Objects and Controlling Resources		
	Introduction to Garbage Collection		
	Managing Resources		
10	Encapsulating Data and Defining Overloaded Operators		
	Creating and Using Properties		
	Creating and Using Indexers		
	Overloading Operators		
11	Decoupling Methods and Handling Events		
	Declaring and Using Delegates		
	Using Lambda Expressions		
	Handling Events		
12	Using Collection and Building Generic Types		
	Using Collections		
	Creating and Using Generic Types		
	Defining Generic Interfaces and Understanding Variance		
		13	Using Generic Methods and Delegates Building and Enumerating Custom Collection Classes
			Implementing a Custom Collection Class
			Adding an Enumerator to a Custom Collection Class
		14	Using LINQ to Query Data
			Using the LINQ Extension Methods and Query Operators
			Building Dynamic LINQ Queries and Expressions