C# Advanced Training - Live Online Training

Objectives

You know extended language constructs and methods in C#.

Participants

Software developers, software architects

Requirements

Solid knowledge of the C# basics as covered in our training "C# Programming with .NET"

Live-Online-Training

* Price per attendee, in Euro plus VAT

Training code: LE-C#-FOR

Face-To-Face - English

Duration
3 days

Live Online - German

Duration
3 days

Face-To-Face - German

Date	Duration
04.05. – 06.05.2026	3 days

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Content
C# Version Overview

Useful Language Features in C#
  - Partial classes
  - Partial methods
  - Automatic properties and their functions
  - Automatic type inference
  - Anonymous types
  - Simplified object initialization
  - Optional and named parameters- dos and don'ts
  - Dynamic data type
  - Memory layout adjustment for structures (e.g. for unions in C#)
  - Exercise: Practical use of language extensions

Extension Methods
 - Programming, use, limitations
 - Exercise: Creating extension methods

Generic Classes (Generics) in C#
 - Using generic classes
 - Creating a generic class
 - Using constraints for type parameters
 - Generic methods
 - Nullable types
 - Exercise: Implementing a generic class

Extended Delegate Methods
 - Anonymous methods
 - Lambda expressions
 - Using Lambda expressions as callback
 - Asynchronous call of delegates
 - Exercise: Working with callbacks

Creating Own Collection Classes
 - Overview of collection interfaces
 - Using and programming enumerators
 - 'yield' operator
 - Exercise: Implementing the enumerator interface

Language Integrated Query (LINQ)
 - Formulating LINQ queries
 - LINQ operations
 - Exceptions and LINQ
 - LINQ to objects
 - LINQ to SQL
 - LINQ to XML
 - Parallel LINQ (PLINQ)
 - Exercise: Using LINQ for data selection

Asynchronous Programming with async and await
 - Definition of 'async' and 'await'
 - How can an asynchronous method return values?
 - Creating own asynchronous tasks
 - How to make an own class 'awaitable'
 - Examples

Reflection
 - Collecting information about types
 - Method execution
 - Reading and setting property and field values
 - Querying attributes
 - Loading assemblies at runtime
 - Exercise: Unknown type reflection

Data Serialization
 - XML serialization
 - Contract serialization

Regular Expressions
 - Overview
 - Searching and replacing text

Exercises in the C# Advanced Training
 - Practical use of language extensions
 - Creating extension methods
 - Implementing a generic class
 - Using anonymous methods and Lambda expressions
 - Implementing the enumerator interface
 - Using LINQ for data selection

  - Unknown type reflection
  - The practical exercises are carried out after working through the related topics

MicroConsult PLUS
  - We will provide you with a download link for your exercises and the solutions from this workshop.