

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

Date	Duration
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08.12. – 10.12.2025	3 days
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Face-To-Face - German

Duration

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.