

## C# Advanced Training - Face-to-Face 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"

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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.

**FACE-TO-FACE TRAINING****Price \*                      Duration**

- 3 days

Training code: E-C#-FOR

\* Price per attendee, in Euro plus VAT

**Live Online - English****Duration**

3 days

**Face-To-Face - German****Duration**

3 days

## **Live Online - German**

| <b>Date</b>         | <b>Duration</b> |
|---------------------|-----------------|
| 08.12. – 10.12.2025 | 3 days          |

## **Coaching**

Our coaching services offer a major advantage: our specialists introduce their expertise and experience directly in your solution process, thus contributing to the success of your projects.

We will be happy to provide you with further information or submit a quotation tailored to your requirements.