

## Advanced C# / .NET Programming

**Level:** intermediate / advanced

**Length:** 21 - 35 hours

**Course objective:** approach more advanced aspects related to C#, how it is used in several contexts, backend .NET technologies.

### What you will learn

- How to use more advanced C# features: LINQ, processing of XML documents, dynamic programming, reflection & metadata, parallel programming, programming with threads
- Backend .NET technologies: interacting with databases, EF – entity framework
- Exercise soft skills like communication, team work, presentation of ideas and solutions

**Who can participate:** C# programmers who want to learn more about C# and .NET, how they are used to solve practical problems

### Prerequisites

- Knowledge of C# programming language at least at medium level
- Basics of .NET framework

**Required facilities:** projector, whiteboard, personal computer with a version of Microsoft Visual Studio installed. There are free versions which require only the user registration.

**Related courses:** Object oriented analysis and design, Design Patterns, Fundamentals of C# / .NET, specialized trainings related to .NET – Windows Forms, WPF, ASP .NET, ASP .NET MVC

### Description

The main focus is on studying more advanced aspects related to C# and .NET for solving practical problems like processing of XML documents, regular expressions, networking, programming with threads, working with databases, etc.



**Note:** the course is personalized based on the attendees' profile and goals, the topics are approached based on the group's experience and expertise.

### **Contents – examples of subjects to include in curricula**

1. Regular expressions
2. Working with databases – ADO .NET
3. LINQ
4. Processing of XML documents – parsing, validating, transformation
5. Concurrent programming in .NET: working directly with threads, Thread Pool, Task, asynchronous programming, asynchronous functions, synchronization, Parallel Framework, patterns
6. Networking
7. Serialization – binary, xml
8. Reflection & metadata
9. Interoperability with the unmanaged code
10. Entity Framework – ORM (object relational mapping)