

# Programming with C# Language I

Course code: GOC2124

The course is intended for all programmers who want to gain knowledge and skills in creating applications in the C# language on the Microsoft .NET platform. The course provides an overview of the Microsoft .NET platform and its Microsoft Visual Studio .NET development environment. You will get to know the C# language with an emphasis on the basics of the language itself and an introduction to object-oriented programming. The course is not suitable for complete beginners who have never programmed in any programming language, basic knowledge of algorithms and programming at the level of the course [PRG], or experience with programming in another language is recommended.

## What will we teach you

- Overview of Microsoft .NET platform
- Variable and value data types
- Using program blocks, conditions and cycles
- Exception processing
- Basics of object -oriented programming
- Working with reference types
- Constructors, Finalizers and Resources of Resources
- Inheritance, virtual methods, abstract class and interface
- To register for events
- Use properties and indexers

## Required input knowledge

- Basic knowledge of algorithmization and programming at PRG course or experience with programming in another language.
- The course is not suitable for complete beginners who have never programmed in any programming language

## teaching methods

- Professional interpretation with practical demonstrations, exercises on computers.

## Studying materials

- Presentation of the subject matter in printed or online form.

## The course of the course

Overview of Microsoft .NET platform

- Introduction
- MICROSOFT .NET overview
- Common Language Runtime
- Name premises

Language Overview C#

- Program structure in C# language
- Basic I/O operations
- Recommended practices
- Compilation of the program and debugging

Variable and data types

- General type system
- Naming of variables
- Using basic data types
- User Data Types
- Conversion of data types

Program blocks and exceptions

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# Programming with C# Language I

- Branching of the program
- Iteration
- Work with exceptions

## Methods and parameters

- Using methods
- Using parameters
- Input, output parameters and parameters presented by reference
- Overloading (overloading)
- Optional parameters and parameter fields

## Field

- Declaration of Field
- Create a one -armed field
- Creating a multi -zmeter field
- Difference between field and collection
- Basics of using ARRAYLIST collections and a sheet <>

## Basics of object -oriented programming

- Object classes and their instances
- Private and public members
- Using this
- Static members

## Reference types

- Using references
- Object hierarchy

## Creating and destroying objects

- Constructors and initialization of objects
- Destruction of Objects and Garbage Collector

## Heredity

- Inheritance and deriving object classes
- Polymorphism
- Virtual methods
- Conversion of data types, casting/casting
- Boxing/Unboxing
- Shadowing / Member Hiding
- An abstract class
- Interface

## Delegates and events

- Eventhandler delegate
- Event Registration

## Properties and indexers

- Using properties
- Using indexers

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