

Intro to Programming with C# Course – PROGRAM

0. Primitive data types. Variables

- Integer types
- Floating-point types
- Boolean type
- Char
- String
- Object
- Variables. Using variables
- Literals

1. Operators. Expressions

- Operator Precedence
- Arithmetic operators
- Logical Operators
- Bitwise Operators
- Comparison Operators
- Assignment Operators
- Other operators
- Implicit and Explicit Type Conversion
- Expressions

2. Using console

- Printing to the console
- Reading from the console

3. Conditional statements

- if **and** if-else **statements**
- **Nested if statements**
- switch-case **statement**

4. Loops

- **while** loops
- **do ... while** loops
- **for** loops
- Nested loops

5. Arrays

- Declaring and creating arrays
- Accessing array elements
- Inputting and outputting arrays
- Iterating over arrays with for and foreach loops
- Multidimensional arrays

6. Numeral Systems

- Numeral systems
- Computer representation of numbers

7. Methods

- Declaring methods
- Calling methods
- Using parameters
- Returning values
- Recursion

8. Using classes and objects

- Classes and objects
- Classes in C# - fields, properties, methods, constructors
- Accessing fields and calling methods
- Instance and static members
- Structures
- Namespaces
- Introduction to .NET Common Type System

9. Strings and string manipulation

- Basic operations with strings – comparison, concatenation, extracting substring, searching
- More operations with strings – replacing substrings, deleting substrings
- Formatting strings

10. Basic data structures

- Lists – the List<T> class
- Stacks – Stack<T> class
- Queues – the Queue<T> class
- Trees – terminology and types
- Hash tables – the Dictionary<Tkey, Tvalue> class

11. Basic input/output – text files

- Streams
- Reading text files
- Writing text files
- Handling I/O exceptions

12. Object-oriented programming – fundamental concepts

- Inheritance
- Encapsulation and abstraction
- Cohesion and coupling
- Polymorphism

Training Duration – 40 hours