

Programming .NET Core

The .NET Framework is the most widely used framework in the Microsoft space for most applications, client and server alike. With .NET Core, .NET can now target various platforms from Windows, Linux and Mac, and all the way to mobile and IoT devices. With C#, a new and modern object-oriented language, .NET is elegant, fast and productive. This course focuses on the foundations of .NET and C#, using the most common features and the Base Class Library (BCL). The course provides hands on labs for students to enhance the learning experience and provides a solid foundation for actual projects. Best practices are emphasized throughout the course.

You Must Know!

Duration:

40 Hours

Who should attend?

Developers

Prerequisites:

Basic programming understanding

Main Topics:

- What is .NET?
- C# Language Fundamentals
- Types
- Inheritance and polymorphism
- Exceptions
- Delegates & Events
- Namespaces and assemblies
- Threading

המכללה שומרת לעצמה את הזכות לערוך מעת לעת, לפי שיקול דעתה, שינויים בתכנית הלימודים, היקף שעות הלימוד, סגל המדריכים וכד', ולא יראו בכל מידע המפורט בדפי מידע של המכללה כהתחייבות כלשהי מצד המכללה.

Course modules

Module 1 – Introduction to .NET Core and C#

- What is .NET?
- The Common Language Runtime (CLR)
- The Common Type System (CTS)
- Introduction to C#
- Namespace and Assemblies basics
- Viewing metadata with ILDasm and Reflector
- Introduction to Visual Studio and Visual Studio Code
- Creating a simple C# Console Application
- .NET version Overview – from .NET 1.0 to .NET 4. * and .NET Core
- .NET Standard

Module 2 – C# Language Fundamentals

- Procedures and Statements
- Data Types
- Declaring Variables
- The “var” keyword
- Assignments
- Conversions
- Arithmetic and Other Operators
- Control Constructs

Module 3 – Types

- Type Concepts
- Value Types vs. Reference Types
- Fields, Properties and Methods
- Method Overloading
- Default and Optional Arguments
- Accessibility Modifiers
- Automatic Properties
- Construction and Assignment
- The Simple Types
- The null Reference
- Static and Instance Members
- Enumerated Types
- Partial Classes
- Static Classes

- Nested Types

Module 4 – Inheritance and polymorphism (mostly differences from Java)

- What is Inheritance?
- Extending a Class
- Polymorphism
- Upcasts and Downcasts
- Virtual and Override Modifiers
- New and Sealed Modifiers
- Abstract Classes
- Abstract Methods and Properties
- Interfaces
- Interfaces and Polymorphism
- Standard Interfaces: IEnumerable, IComparable, IComparer
- Side Casts
- The “is” and “as” Operators
- Multiple Interfaces
- Explicit Interface Implementation

Module 5 – Arrays, collections and strings

- Arrays
- Initializing Arrays
- The Array Class
- Multi-dimensional Arrays
- Jagged Arrays
- Indexers
- Standard Collections: Array List, Stack, Queue, Hashtable
- Strings
- String and String Builder

Module 6 – Exceptions

- Errors vs. Exceptions
- Error Handling Options
- The try block
- The catch block
- The throw statement
- The finally block
- Standard Exception Classes
- Custom Exceptions
- Checked and Unchecked Expressions

- Exception Handling Guidelines

Module 7 – Generics

- The Need for Generics
- Boxing & Unboxing
- Generic Types
- Standard Generic Collections
- Generic Methods
- Generic Interfaces
- Generic Constraints
- Null able Types
- Other Aspects of Generics

Module 8 - Delegates & Events

- Delegate Basics
- Creating Delegates
- Invoking Delegates
- The Delegate and Multicast Delegate Types
- Anonymous Delegates
- Lambda Expressions
- Generic Delegates
- Events
- The Publisher–Subscriber Pattern

Module 9 – Namespaces and assemblies

- Namespaces
- The using keyword (with namespaces)
- Assemblies
- Assembly loading
- The Global Assembly Cache (GAC)
- Deploying Assemblies
- Versioning and Probing

Module 10 – Threading

- Threading basics
- Creating and using threads
- Thread synchronization basics

Module 11 – Tasks

- The Task Parallel Library
- Task and Task<T>

- The Parallel class
- Async-Await

Module 12 - LINQ

- Partial Methods
- Iterators
- Extension Methods
- Lambda Expressions
- Object and Collection Initializers
- Anonymous Types
- Introduction to LINQ
- LINQ query syntax
- LINQ operators
- Introduction to XLINQ



המרכז הבינלאומי
ללימודי הייטק וחדשנות

*6377

מתקדמים
לקריירה בהייטק

תל אביב
המרץ 2

המכללה שומרת לעצמה את הזכות לערוך מעת לעת, לפי שיקול דעתה, שינויים בתכנית הלימודים, היקף שעות הלימוד, סגל המדריכים וכד', ולא יראו בכל מידע המפורט בדפי מידע של המכללה כהתחייבות כלשהי מצד המכללה.