

| | Subject | Date | Time |
|----------|---|----------|-------|
| 1 | Basics of C# Programming | | |
| 1.1 | C# language and .NET platform | 3.01.24 | 18:00 |
| 1.2 | Variables | | |
| 1.3 | Data types | | |
| 1.4 | Static variables and constants | | |
| 1.5 | Working with the console application | | |
| 1.6 | Arrays | | |
| 1.7 | C# arithmetic/comparison operations | | |
| 1.8 | If else and Switch case constructions | | |
| 1.9 | Loops (For, Foreach, While, Do-while) | 4.01.24 | 18:00 |
| 1.10 | Methods | | |
| 1.11 | Method with params parameter | | |
| 1.12 | Ref and Out keywords in methods | | |
| 1.13 | Local and recursive function | | |
| 1.14 | Tuple and Enum | | |
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| 2 | Classes, structures and namespaces | | |
| 2.1 | Classes and objects | 9.01.24 | 18:00 |
| 2.2 | Constructors, initializer, and destructors | | |
| 2.3 | Fields and properties | | |
| 2.4 | Method and static method in class | | |
| 2.5 | Structures | | |
| 2.6 | Record type | | |
| 2.7 | Namespace and global namespace | | |
| 2.8 | Partial and extended classes | 11.01.24 | 18:00 |
| 2.9 | Value types and reference types | | |
| 2.10 | Nullability in value types and reference types | | |
| 2.11 | Accessibility of the class and class members | | |
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| 3 | Improve searching and designing knowledges | | |
| 3.1 | How to search/find what you need? | | |
| 3.2 | How to use AI chats correctly? | | |
| 3.3 | Select a project to atomize your organization | | |
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| 4 | Delegates, Events, and Lambdas | 16.01.24 | 18:00 |
| 4.1 | Delegates and using of that | | |
| 4.2 | Action and Func Delegates | | |
| 4.3 | Anonymous Methods | | |
| 4.4 | Lambdas | | |
| 4.5 | Events | | |
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| 5 | Object-Oriented Programming (OOP) | | |
| 5.1 | What is OOP and its concepts in C#? | 18.01.24 | 18:00 |
| 5.2 | Inheritance | | |
| 5.3 | Abstract Classes | | |
| 5.4 | Read-only Properties in a Class | | |
| 5.5 | Virtual Methods and Properties | | |
| 5.6 | Hiding, Overriding, and Abstract Methods | 23.01.24 | 18:00 |
| 5.7 | Interfaces | | |
| 5.8 | Interface Inheritance | | |
| 5.9 | Generic Classes | 25.01.24 | 18:00 |
| 5.10 | Generic Methods | | |
| 5.11 | Generic Properties | | |
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| 6 | Collections and LINQ queries | | |
| 6.1 | List<T> | 30.01.24 | 18:00 |
| 6.2 | Dictionary<Tkey, Tvalue> | | |
| 6.3 | ConcurrentDictionary<Tkey, Tvalue> | | |
| 6.4 | Span<T> | | |
| 6.5 | Queue<T> | | |
| 6.6 | Stack<T> | | |
| 6.7 | HashSet<T> | | |
| 6.8 | IEnumerable<T> and IQueryable<T> | | |
| 6.9 | LINQ-queries | 1.02.24 | 18:00 |
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| | Exam 1 | 6.02.24 | 18:00 |
| | Tests | | |
| | Review projects | | |
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| 7 | Entity Framework Core (ORM) | 8.02.24 | 18:00 |
| 7.1 | Entity Framework Core | | |
| 7.2 | Using Entity Framework Core in ASP.NET Core | | |
| 7.3 | Modeling and creating tables | | |
| 7.4 | Creating relationships between tables | 13.02.24 | 18:00 |
| 7.5 | CRUD with Entity Framework Core | | |
| 7.6 | Repository pattern for CRUD operation | | |
| 7.7 | Approaches for obtaining data: Eager, Lazy loading | 15.02.24 | 18:00 |
| 7.8 | Migration management | | |
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| 8 | ASP.NET Core | 20.02.24 | 18:00 |
| 8.1 | Introduction to ASP.NET Core | | |
| 8.2 | Rules for creating routes | | |
| 8.3 | Logging in ASP.NET Core | | |
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| 9 | REST and API | 22.02.24 | 18:00 |
| 9.1 | Introduction to REST | | |
| 9.2 | Basic principles | | |
| 9.3 | Http methods and responses | | |
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| 10 | Multithreading | 27.02.24 | 18:00 |
| 10.1 | Introduction | | |
| 10.2 | Running Code Simultaneously | | |
| 10.3 | Processes | | |
| 10.4 | Threads | | |
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| 11 | Parallelism | 29.02.24 | 18:00 |
| 11.1 | Introduction | | |
| 11.2 | Difference Between Concurrency and Parallelism | | |
| 11.3 | Launching a New Thread | | |
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| 12 | Asynchronous and Synchronous | 05.03.24 | 18:00 |
| 12.1 | Introduction | | |

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| 12.2 | Difference Between Concurrency, Parallelism, and Asynchrony | | |
| 12.3 | Async/await methods | | |
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| 13 | Concurrency | | |
| 13.1 | Introduction | | |
| 13.2 | Difference Between Concurrency and Multithreading | | |
| 13.3 | Avoid of concurrency issue | | |
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| 14 | Memory Management in .NET | 07.03.24 | 18:00 |
| 14.1 | Value and reference types | | |
| 14.2 | Stack and Heap | | |
| 14.3 | Mutable and Immutable classes | | |
| 14.4 | Boxing and Unboxing | | |
| 14.5 | Garbage collector | | |
| 14.6 | Small/Large Object Heap | | |
| 14.7 | Managed and unmanaged code | 12.03.24 | 18:00 |
| 14.8 | Dispose Pattern | | |
| 14.9 | Finalizer | | |
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| 15 | SOLID | 12.03.24 | 18:00 |
| 15.1 | Single Responsibility Principle | | |
| 15.2 | Open-closed Principle | | |
| 15.3 | Liskov substitution Principle | | |
| 15.4 | Interface Segregation Principle | | |
| 15.5 | Dependency Inversion Principle | | |
| 15.6 | Use SOLID in real use cases | 14.03.24 | 18:00 |
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| 16 | Architectural/Design Patterns | 19.03.24 | 18:00 |
| 16.1 | Introduction | | |
| 16.2 | Architectural patterns | | |
| 16.3 | Creational design patterns | | |
| 16.4 | Structural design patterns | 26.03.24 | 18:00 |
| 16.5 | Behavioral design patterns | | |
| 16.6 | Repository, Strategy, Dependency Injection pattern | | |

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| 17 | Dependency injection (DI) | 28.03.24 | 18:00 |
| 17.1 | Introduction | | |
| 17.2 | Dependency Lifecycle | | |
| 17.3 | Service provider | | |
| 17.4 | Creating your own services | | |
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| 18 | Middlewares | 02.04.24 | 18:00 |
| 18.1 | Introduction | | |
| 18.2 | Creating a simple Middleware | | |
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| 19 | Authorization and authentication | 04.04.24 | 18:00 |
| 19.1 | Introduction | | |
| 19.2 | Authorization and authentication methods | | |
| 19.3 | Authorization and Authentication in REST | | |
| 19.4 | Adding Authentication to ASP.NET Core (Bearer) | | |
| 19.5 | Adding Authorization in ASP.NET Core | | |
| 19.6 | JWT tokens | | |
| 19.7 | Role of JWT in REST | 09.04.24 | 18:00 |
| 19.8 | Header, Payload, Signature in JWT | | |
| 19.9 | Creating a server for generating JWT tokens | | |
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| 20 | Request and Response | 16.04.24 | 18:00 |
| 20.1 | Data transfer object (DTO) | | |
| 20.2 | Using record | | |
| 20.3 | Using the AutoMapper framework | | |
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| 21 | Data Validation in ASP.NET Core | | |
| 21.1 | Introduction | | |
| 21.2 | Creating services for validation | | |
| 21.3 | Using the FluentValidation framework | | |
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| 22 | MediatR and CQRS | | |
| 22.1 | Introduction | | |

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| 22.2 | ASP.NET Core: Request Handling | | |
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| | Exam 2 | | |
| | Tests | | |
| | Review projects | | |
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| 23 | Blazor | | |
| 23.1 | Introduction | | |
| 23.2 | Blazor Web Assembly and Server | | |
| 23.3 | Razor pages | | |
| 23.4 | Create your first Blazor Web Assembly project | | |
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| 24 | Blazor pages and templates | | |
| 24.1 | Creating pages and specifying the address | | |
| 24.2 | Creating and applying a template | | |
| 24.3 | Writing C# code inside a page | | |
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| 25 | Blazor Authentication and Authorization | | |
| 25.1 | Introduction | | |
| 25.2 | Creating a CustomAuthstateProvider | | |
| 25.3 | Saving the token in local storage | | |
| 25.4 | Authorization in pages | | |
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| 26 | Blazor CRUD | | |
| 26.1 | Creating Pages and Project Templates | | |
| 26.2 | Using TabBlazor | | |
| 26.3 | Execution of CRUD warehouses | | |
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| 27 | Test Driven Development Methodology | | |
| 27.1 | Creating a Project Using TDD | | |
| 27.2 | TDD principles | | |
| 27.3 | Practice: Creating a simple calculator using TDD | | |
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| 28 | Unit testing | | |
| 28.1 | Using the NUnit framework | | |
| 28.2 | Using the xUnit framework | | |
| 28.3 | Mock testing | | |
| 28.4 | Mocking using Moq | | |
| 28.5 | Mocking using NSubstitute | | |
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| 29 | Integration tests | | |
| 29.1 | Working with WebApplicationBuilderFactory | | |
| 29.2 | Creating an HttpClient from a WebApplicationBuilderFactory | | |
| 29.3 | EF Core configuration under different test environments | | |
| 29.4 | Using services from WebApplicationBuilderFactory | | |
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| 30 | DevOps – project publication | | |
| 30.1 | Introducing Azure | | |
| 30.2 | Creating resources on Azure | | |
| 30.3 | Create Azure Key Vault | | |
| 30.4 | Creating a Resource API | | |
| 30.5 | Creating SQL Server and Database | | |
| 30.6 | Creating a Blazor Static Web App | | |
| 30.7 | Creating a CI-CD for publishing | | |
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| | Preparing for the Demo | | |