

.NET Technologies

Objectives:

This course will familiarize students with various technologies brought about or changed by the introduction of the .NET framework and .Net Core, and enable them to be able to develop different kinds of applications using these technologies.

Prerequisites:

Programming in at least one of C++, Java or Visual Basic Object Oriented Programming Concepts

- 1. .NET Fundamentals** **2 hrs**
History, Overview, Terminology, Dotnet Framework(CLR, JIT, assemblies, garbage collection)
- 2. Language Preliminaries** **7 hrs**
Object oriented programming in C#, enums, abstract class, sealed class, partial class, static class, interface, Collections, Generics.
- 3. Design Pattern** **2 hrs**
Model-View-Controller(MVC). SOLID Principle.
- 4. Introduction to ASP.NET and ASP.NET Core** **8 hrs**
HTML, JavaScript, Web Forms, .Net Core. ASP.NET MVC, ASP.NET Core: Controllers and Actions: Create Controllers, Create Actions and Action Results Types, Rendering HTML with Views: Razor Syntax, Understanding Tag Helpers, Models: Binding and Validations, URL Routing, ViewData, ViewBag.
- 5. Database Connection in ASP.NET Core** **7 hrs**
Database concepts and SQL, ADO.NET, Entity Framework (EF) Core, Object-Relational Mapper (ORM), data models and data context, DbSet, LINQ and Lamda.
- 6. Web API in ASP.NET Core** **4 hrs**
Overview – Web API, JSON, Creating Web API in ASP.NET Core.
- 7. State Management on ASP.NET Core Application** **7 hrs**
State Management, Server-side strategies: Session State, TempData, Using HttpContext, Cache Client-side strategies: Cookies, Query Strings, Hidden Fields
- 8. Securing in ASP.NET Core Application** **5 hrs**
Authentication: ASP.NET Core Identity, Adding authentication to apps and identity service configurations, Authorization: Role based, Securing Controllers and Action Methods.
- 9. I/O** **1 hrs**
I/O classes: Directory, DirectoryInfo, File, FileInfo and Stream
- 10. Single Page Application Introduction** **1 hrs**
Angular, React
- 11. Web Server introduction** **1 hrs**
IIS, Apache, Nginx