

## Day Wise Schedule:

### C#.Net (3 days)

Sl No	Topic	Sub-Topic	Approx. Duration (Hrs.)
1	.Net Framework Architecture	• Common Language Runtime in .NET	1 Hour
		• .NET Program Execution Process	
		• Intermediate Language (ILDASM & ILASM) Code	
		• Common Type System in .NET Framework	
		• Common Language Specification in .NET Framework	
		• Garbage Collector in .NET Framework	
		• Assembly DLL EXE in .NET Framework	
3	OOPS	• Object Oriented Programming (OOPs)	8 Hours
		• Class and Objects	
		• Constructors & Access Specifiers	
		• Encapsulation	
		• Abstraction	
		• Properties	
		• Inheritance	
		• Interface	
		• Multiple Inheritance	
		• Abstract Class and Abstract Methods	
		• Polymorphism	
		• Method Overloading and Method Overriding	
		• Method Hiding	
		• Partial Classes and Partial Methods	
		• Basics of Constructors and Destructor	
		• Type of Classes	
		• Partial classes	
		• Static classes	
		• Abstract Classes	
		• Sealed Classes	

4	Exception Handling	• Exception Handling	1 Hour
		• Multiple Catch Blocks and Finally Block	
		• Custom Exception	
		• Inner Exception	
		• Exception Handling Abuse	
		• Exception Handling and Exception Logging	
5	Collections	• Collections Overview	3 Hours
		• Array List	
		• Hashtable	
		• Stack	
		• Queue	
		• List Class important methods	
		• List vs Dictionary	
		• Advantages and Disadvantages of Non-Generic Collection	
		• Generic Collections	
		• Generics	
		• Generic Dictionary	
		• Generic List	
6	Advance C#	• Extension Methods	2 Hours
		• Introduction of delegates	

## ASP.NET CORE – Web API (2 days)

Sl No	Topic	Sub-Topic	Approx. Duration (Hrs.)
1	Introduction to ASP.NET Web API and REST Service	• What is Web API	1 Hour
		• What is REST	
		• What is RESTful Service	
		• Introduction to ASP.NET Web API	
		• ASP.NET Web API Architecture	
2	Web API	• Web API Verb - PUT, GET, POST & DELETE in Web API	1 Hour
		• Web API URI, Request Header, Request Body	
		• Web API Response Code, Response Header, Response Body	
		• Creating a Web API application	
		• Hands-on Demo	
3	Routing, Controllers, Model Binding, Formatters	• Routing	3 Hours
		• Model Binding	
		• Formatters	
		• Using Routes and Controllers in Web API code	
		• Data Return Formats in Web API	
		• Coding business logic and Web API Controller	
	Web API Testing	• Swagger Documentation	
		• Test Web API Controller actions using Swagger and Postman	
		• Hands-on Demo	
4	Web API with EF	• Build API to connect to SQL server using EF Code First	2 Hours
		• Build API to connect to SQL server using EF DBFirst	
5	Hosting a Web API	• Hosting a Web API (Self Hosting / ASP.NET Web Hosting)	2 Hours
		• Hands-on Demo	
		• Invoking Web API using Angular App	
		• Hands-on Demo	
6	Implementing Authentication, Authorization, OAuth and Web API	• Security in ASP.NET Web API	3 Hours
		• Implementing Authentication, Authorization, OAuth and Web API	
		• Usage of JWT	
		• Hands-on Demo	

7	Dependency Injection, HTTP Caching, Versioning	• Overview on Dependency Injection,	3 Hours
		• Implementing HTTP Caching	
		• Hands-on Demo	
		• Best Practices	

### Linq & Entity Framework Core (1.5 days)

S.No.	Topic	Sub-Topic	Approx. Duration (Hrs.)
1	LINQ	• Introduction, LINQ Syntax	6 Hours
		• Query Operators	
		• Select, from, Where	
		• OrderBy	
		• ThenBy	
		• GroupBy, into	
		• Select	
		• SelectMany	
		• Take, TakeWhile	
		• First	
		• FirstOrDefault	
		• Single	
		• SingleOrDefault	
		• Aggregate functions Sum, Min, Max, Average, Count	
		• Distinct	
		• Intersect	
		• Except	
		• Join	
		• Deferred execution vs immediate execution	
		• Let keyword	
		• LINQ to Object	

2	Entity Framework Core	<ul style="list-style-type: none"> <li>• Overview of ORM Products</li> </ul>	2 Hours
		<ul style="list-style-type: none"> <li>• Entity Framework introduction</li> </ul>	
		<ul style="list-style-type: none"> <li>• Using Database first Approach</li> </ul>	
		<ul style="list-style-type: none"> <li>• Using Model First approach</li> </ul>	
		<ul style="list-style-type: none"> <li>• Using Code First approach</li> </ul>	
		<ul style="list-style-type: none"> <li>• Using LINQ to Entities to perform CRUD operations</li> </ul>	
		<ul style="list-style-type: none"> <li>• SQL Query Logging</li> </ul>	
		<ul style="list-style-type: none"> <li>• Migration &amp; Database Update</li> </ul>	
		<ul style="list-style-type: none"> <li>• Eager Loading Vs Lazy Loading</li> </ul>	
		<ul style="list-style-type: none"> <li>• Raw SQL And Stored Procedures</li> </ul>	

### Angular (1 day)

S.No.	Topic	Sub-Topic	Approx. Duration (Hrs.)
1	Getting Started with Angular	<ul style="list-style-type: none"> <li>• Building Blocks of Web Application Development</li> </ul>	1 Hour
		<ul style="list-style-type: none"> <li>• Web Application Architecture</li> </ul>	
		<ul style="list-style-type: none"> <li>• Introduction to Angular</li> </ul>	
		<ul style="list-style-type: none"> <li>• Angular Architecture</li> </ul>	
		<ul style="list-style-type: none"> <li>• Building blocks of Angular</li> </ul>	
		<ul style="list-style-type: none"> <li>• Angular Installation</li> </ul>	
		<ul style="list-style-type: none"> <li>• Angular CLI</li> </ul>	
		<ul style="list-style-type: none"> <li>• Angular CLI commands</li> </ul>	
		<ul style="list-style-type: none"> <li>• Understanding files in Angular</li> </ul>	
		Hands-on	

2	Angular Components	• Working of Angular Applications	1 Hour
		• Angular App Bootstrapping	
		• Angular Modules	
		• Decorators and its types	
		• Angular Components	
		• Creating A Component Through Angular CLI	
		• Ways to specify selectors	
		• Template and styles	
		• Installing bootstrap to design application	
		• Hands-on	
3	Response from the backend servers.	• RxJS Library	1 Hour
		• Angular's Interaction with Backend	
		• HttpClient	
4	Handling forms in Angular	• Angular forms	1 Hour
		• Types of forms	
		• Underlying building blocks of the form model	
		• Template-driven vs Reactive forms	
		• Template-driven forms	
		• Reactive Forms	
		• Dynamically adding data to a form	
5	Validating Angular Forms	• What is Form Validation?	1 Hour
		• Types of Form Validation	
		• Built-in Validators	
		• Form control's status and validity	
		• Form Validation methods	
		• CSS classes for Form control	
		• Custom validators in Template Driven Forms	
		• Hands-On:	
		• Add validation using custom validator for different fields in user registration form for both	
		• template-driven and reactive forms.	

6	Authentication with JWT and Security	• What is Authentication?	1 Hour
		• Authentication and authorization	
		• Types of Authentication	
		• Where to store tokens?	
		• JSON Web Tokens (JWT)	
		• Authentication in Angular application	
		• Security threats in web application	
7	Angular Testing	• Why should we perform testing?	1 Hour
		• Types of testing	
		• Testing Angular application using Jasmine and Karma	

### Git (0.5 day)

1	Getting Started with Git	• Install the Git Tools	4 Hours
		• Clone an Existing Repository	
		• Add Files to a Repository	
		• Edit Files in a Git Repository	
		• Git Commands	
		• Create and Merge Branches	
		• Rewrite History in a Git Repository	
		• Resolve Merge Conflicts	

### Case Study (2 days)