

.Net Weekdays Outline

Competency A: Understand client side technologies

	Learning Objective	Description of Learning Activity	Coverage in Days
A.1	Introduction to HTML, Basic Elements, HTML5, Forms, CSS & attributes, Syntax and Selectors	What is HTML <ul style="list-style-type: none"> • Your first HTML Document • Structure of an HTML Document • Elements and Attributes • Basic HTML Elements and Attributes 	8 Days
A.2	Introduction to JavaScript, Syntax and Keywords	<ul style="list-style-type: none"> • What is JavaScript • JavaScript Syntax • Display Output using JavaScript • Statements, Variables and Functions • Inline, Internal and External JavaScript 	
A.3	JavaScript: Mathematical and Logical operations	<ul style="list-style-type: none"> • Data Types • Operators and Arithmetic Operations • Conditional Statements • Looping • Error Handling 	
A.4	Introduction to jQuery, Rewriting HTML Website using jQuery, Animation, Effects and CSS Updates	<ul style="list-style-type: none"> • What is jQuery • jQuery Syntax • jQuery Selectors • Manipulating HTML DOM with jQuery • Hide/Show, Fade, and Slide • jQuery Animation • Manipulating CSS with jQuery • Creating a rich user interface using jQuery UI 	

Competency B: Understanding of the programming language basics like concepts, components and its associated frameworks; Understanding of components & development tools , understanding of the Testing framework (unit testing)

	Learning Objective	Description of Learning Activity	Coverage in Days
B.1	Ability to use/work with Visual Studio and Visual Studio Code	Visual Studio 2019 <ul style="list-style-type: none"> • Your First VS2019 Project - Console Application • Developing, Executing and Debugging Application 	

B.2	Understand and apply programming language (C#, .NET) in relevant scenarios	<ul style="list-style-type: none"> • What is C# • C# Syntax • Abstraction, Polymorphism, Overriding, Interfaces • Enumerations & Structures • Encapsulation, Collections & LINQ 	5 Days
B.3	Develop problem solving skills	<ul style="list-style-type: none"> • Conditional Statements and Looping 	
B.4	Understand application of object oriented programming	<ul style="list-style-type: none"> • Classes and Interfaces • Understanding OOP with C# 	
B.5	understanding of the Testing framework (unit testing)	<ul style="list-style-type: none"> • Testing and Debugging ASP .NET MVC Web Application 	

Competency C: Application Development Life cycle (front-end and back-end) including binded architecture

	Learning Objective	Description of Learning Activity	Coverage in Days
C.1	C#: Simple .NET Web Application, Built-in Third Party libraries, Introduction to ASP.NET MVC, Built-in Features	<ul style="list-style-type: none"> • Your First ASP.NET MVC Web Application • Web Project Structure, Default Files and Folders • Default References • Using Third Party Libraries using Nuget • [MVC] • Introduction to Design Patterns • MVC Design Pattern • ASP.NET MVC Out of the Box Features 	5 Days
C.2	Overview of MVC Controllers and Views (CSHTML) and Passing Data from Controllers to Views, ViewData and ViewBag	Model, View and Controllers in ASP.NET MVC <ul style="list-style-type: none"> • Separating Code between Controller and Views • Controller Actions and Views • Models in MVC • Dynamic and Typed Models • ViewBag and ViewData • Common Use Cases 	
C.3	Implementing Custom Actions in Controllers and ASP.NET MVC Routing	<ul style="list-style-type: none"> • Adding Actions to Controllers • Rendering Specific Views • Common Use Cases • What is a Route • Default Routes in MVC • Using Route Attribute • URL Rewrite Module for IIS 	
C.4	Partial Views and Reusability	<ul style="list-style-type: none"> • What is a Partial View • Rendering a Partial View • Reusing a Partial View • Model for a Partial View 	

Competency D: Understanding and implementing database accessibility and

manipulation			
	Learning Objective	Description of Learning Activity	Coverage in Days
D.1	Setting up a Sample Database	<ul style="list-style-type: none"> Relational Databases Non-Relational Databases SQL Server Developer Edition Installation Types of Relationships Implementing One to One Relationship Implementing One to Many Relationship Implementing Many to Many Relationship 	11 Days
D.2	Introduction to ADO.NET	<ul style="list-style-type: none"> What are Database Drivers like ODBC, JDBC ADO.NET Classes Structure DataReader vs DataAdapter Data Mapping Best Practices 	
D.3	Entity Framework, Code First vs DB First vs Model First	<ul style="list-style-type: none"> ORM overview Entity Framework DbContext Entity Framework with LINQ IQueryable vs IEnumerable vs IList Managing Transactions 	
D.4	Model Validations, View Model Object, HTML Helpers & Validation	<ul style="list-style-type: none"> POCO Classes Modeling Database Relationships in C# Brief on Facade Pattern Role of Database Transactions Classical 3-tier Architecture Data Objects Business Objects MVVM explanation Importance of Business Rules Client Side Validations Server Side Validations Implementing Custom HTML Helpers Logging 	
D.5	Bulk Database Operations, Stored Procedures	<ul style="list-style-type: none"> Stored Procedure Overview Stored Procedure and Entity Framework Implementing Import functionality via Bulk Operation 	

Competency E: Understand and implement Security principles (authentication, authorization)			
	Learning Objective	Description of Learning Activity	Coverage in Days

E.1	Understanding Authentication vs Authorization	<ul style="list-style-type: none"> • Authentication Basics • Application User Roles • MFA • OAuth 	3 Days
E.2	ASP.NET Identity, Authorize Attribute and Authentication Filters	<ul style="list-style-type: none"> • Configuring and customizing ASP.NET Identity Constructs • ASP .NET Identity Table Structure • Microsoft. Owin. Security. OAuth 	

Competency F: Should be able to understand web engineering protocols (specific) and create and consume APIs (REST , SOAP)

	Learning Objective	Description of Learning Activity	Coverage in Days
F.1	Intro to Web integrations	<ul style="list-style-type: none"> • Web engineering protocols 	4 Days
F.2	Web APIs and AJAX	What is Web 2.0 <ul style="list-style-type: none"> • What is AJAX • Web Api as Data Source • Rest APIs 	

Competency G: Application Security and Deployment

	Learning Objective	Description of Learning Activity	Coverage in Days
G.1	Server Requirements, SSL, IIS Best Practices	<ul style="list-style-type: none"> • SSL, IIS Best Practices 	2 Days
G.2	Deployment using Docker	<ul style="list-style-type: none"> • Containerization Overview • Docker Overview • Deployment User Docker 	
G.3	Intro to Application Security	<ul style="list-style-type: none"> • Cross-Site Scripting (XSS), • Cross-Site Request Forgery (CSRF) -- (PKI) + OWASP top 10 vulnerabilities 	
	Final Exam (Practical Project)		