Tech Mahindra - .NET Full Stack

## Eligibility

**Eligibility:** Freshers having basic knowledge of any object-oriented programming language (C#, Java, C++ or Python), Web and RDBMS/SQL concepts

## Detailed Curriculum

* **C# Programming**
  + .NET Framework Fundamentals
  + Visual Studio IDE Fundamentals
  + C# Language Features
  + Working with arrays and collections
  + Working with variables, operators, and expressions
  + Decision and iteration statements
  + Managing program flow and events
  + Working with classes and methods
  + OOP concepts
  + Properties, Auto Implemented
  + Delegates, Anonymous Methods and Anonymous Types
  + Extension methods, Sealed Classes/Methods, Partial Classes/Methods
  + Asynchronous programming and threading
  + Data validation and working with data collections including LINQ
  + Handling errors and exceptions
  + Working with Files
  + Unit Testing – Nunit framework
* **Version control using GIT**
  + Learn the key concepts of the Git source control system
  + Step through the entire Git workflow
  + Compare the different states in Git
  + Compare between branches and commits
  + Manage files with Git (move, rename, delete)
  + Update files managed outside Git
  + Create and fork repositories on GitHub
  + Create branches and resolve merge conflicts
* **SQL Server**
  + RDBMS Normalization and Data Integrity Constraints
  + Overview of Microsoft SQL Server
  + Setting up and connecting to the Database
  + Introduction to SELECT Statements
  + Filtering Data with the WHERE Clause
  + Sorting Data with the ORDER BY Clause
  + Querying Multiple Tables with Joins
  + Sub Queries, Correlated Sub Queries
  + Aggregate Functions
  + Grouping Data with the GROUP BY Clause
  + Filtering Groups with the HAVING Clause
  + Implementing stored procedures, triggers, UDFs with T-SQL
  + Overview on ACID Properties, Transactions
  + Overview on Concurrent Transactions
  + Overview on limitations with Concurrent Transactions
* **ASP.NET Core & EF Core**
* Introduction to .NET Core –Features & Architecture
* ASP.NET Core MVC -Model, View, Controller & Actions
* ASP.NET Core MVC -Helpers and Data Passing Techniques
* ASP.NET Core MVC Validation – Client Side and Server Side
* Repository Design Pattern and Dependency Injection
* Introduction to Entity Framework Core (EF Core)
* EF Core Database Modeling- Database and Code First Approach
* Creating Restful API using ASP.NET Core Web API (Controller based and Minimal)
* ASP.NET Core-Security - Authentication Options, Identity
* ASP.NET Core –Middleware, Pipeline and Filters
* **Agile, Scrum and DevOps Fundamentals**
  + Introduction to Agile Methodology
  + Scrum Fundamentals
  + Scrum Roles, Artifacts and Rituals
  + DevOps – Architecture, Lifecycle, Workflow & Principles
  + DevOps Tools Overview – Jenkins, Docker, Kubernetes
* **Web Design & Development**
  + HTML5 – Syntax, Attributes, Events, Web Forms 2.0, Web Storage, Canvas, Web Sockets
  + CSS3 – Colors, Gradients, Text, Transform
  + BootStrap for Responsive Web Design
  + JavaScript – Core syntax, HTML DOM, objects, classes, Async
  + Ajax and jQuery Introduction
* **Front-end Development using Angular** 
  + Setting up Development & Build Environment: Node.js and NPM
  + Introduction to TypeScript
  + Working with OOP concepts with TypeScript
  + Angular Fundamentals
  + Angular CLI
  + Debugging Angular applications
  + Components & Databinding in Depth
  + Angular Directives
  + Using Services & Dependency Injection
  + Angular Routing
  + Observables
  + Handling Forms in Angular Apps
  + Output transformation using Pipes
  + Making Http Requests
  + Authentication & Route Protection
  + Dynamic Components
  + Angular Modules & Optimizing Angular Apps
  + Deploying an Angular App
  + Angular Animations
  + Adding Offline Capabilities with Service Workers
  + Unit Testing in Angular Apps (Jasmine, Karma)