**20IT5404B-DOT NET TECHNOLOGIES**

| Course Category: | Program Elective-I | | Credits: | 3 |
|---|---|---|---|---|
| Course Type: | Theory | | Lecture-Tutorial-Practice: | 2-0-2 |
| Prerequisites: | 20IT4302 : Java Programming | | Continuous Evaluation: | 30 |
| | | | Semester End Evaluation: | 70 |
| | | | Total Marks: | 100 |

| Course Outcomes | Upon successful completion of the course, the student will be able to: | |
|---|---|---|
| | CO 1 | Understand the Microsoft .NET Framework Architecture and its features such as delegates and Lambda expressions. |
| | CO 2 | Apply the object oriented features of Dot Net frame work in solving Realworld applications. |
| | CO 3 | Implement modern database interactivity using the Entity framework for database connectivity. |
| | CO 4 | Develop a dynamic web application using ASP.net core Razor pages. |

| Contribution of Course Outcomes towards achievement of Program Outcomes (1-Low, 2-Medium, 3- High) | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO 1 | | | | | | | | | | | | | | |
| | CO 2 | 3 | | | | | 2 | | | | | | | 2 | |
| | CO 3 | 3 | | | 2 | 3 | | | | | | | | 2 | 2 |
| | CO 4 | | | 3 | | 3 | | | | | | | | 3 | 2 |

| Course Content | **UNIT I:** **Introducing C# and .NET:** Object Orientation, Type Safety, Memory Management, Platform Support, CLRs, BCLs, and Runtimes, Common Language Runtime, Base Class Library **Creating Types in C#:** Classes, Fields, Constants, Methods, Instance Constructors, de-constructors, Object Initializers, this Reference, Properties, Indexers, Static Constructors, Static Classes, Finalizers. **Inheritance**: Polymorphism, Casting and Reference Conversions, Virtual Function Members, Abstract Classes and Abstract Members |
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| | **UNIT II:** |
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| | **Advanced C#:** |
| | Delegates: Writing Plug-In Methods with Delegates, Instance and Static Method Targets, Multicast Delegates, Generic Delegate Types, The Function and Action Delegates, Delegates Versus Interfaces, Delegate Compatibility. Events:Standard Event pattern, Event Accessors, Event Modifiers. Lambda Expressions: Explicitly Specifying Lambda Parameter and Return Types. Anonymous methods.Try Statements and Exceptions, The catch Clause, The finally Block, Throwing Exceptions.. |
| | **UNIT III:** |
| | **Working with data using Entity Framework core:** |
| | Understanding modern databases: Understanding legacy Entity Framework, Understanding Entity Framework Core, Creating a console app for working with EF Core, Using a sample relational database, Using Microsoft SQL Server for Windows, Creating the Northwind sample database for SQL Server. Setting up EF Core: Choosing an EF Core database provider, Connecting to a database, Defining the Northwind database context class |
| | Defining EF Core models: Using EF Core conventions to define the model, Using EF Core annotation attributes to define the model, Using the EF Core Fluent API to define the model, Building an EF Core model, Adding tables . |
| | Querying EF Core models: Filtering included entities, Filtering and sorting pro, Getting the generated SQL, Logging EF Core using a custom logging provider, Pattern matching with Like. |
| | Loading patterns with EF Core: Eager loading entities, Enabling lazy loading, Explicit loading entities. |
| | Manipulating data with EF Core: Inserting entities, Updating entities, Deleting entities, Pooling database contexts |
| | **UNIT IV:** |
| | **Building Websites Using ASP.NET Core Razor Pages:** |
| | Understanding web development : Understanding HTTP, Using Google Chrome to make HTTP requests, Understanding client-side web development technologies |
| | Understanding ASP.NET Core: Classic ASP.NET versus modern ASP.NET Core, Creating an empty ASP.NET Core project, Testing and securing the website, Controlling the hosting environment, Separating configuration for services and pipeline, Enabling a website to serve static content |
| | Exploring ASP.NET Core Razor Pages: Enabling Razor Pages, Adding code to a Razor Page, Using shared layouts with Razor Pages, Using code-behind files with Razor Pages |
| | Using Entity Framework Core with ASP.NET Core: Configure Entity Framework Core as a service, Manipulating data using Razor Pages, Injecting a dependency service into a Razor Page |
| **Text books and Reference books** | **Text Book(s):** |
| | [1]. **Mark J.Price, " C# 10 and .NET 6 – Modern Cross-Platform Development - Sixth Edition", Oreilly publications.Nov2021** |
| | [2]. **Joseph Albahari,"C#10 in a Nut Shell", Oreillypublications.Nov 2021** |
| | **Reference Books:** |
| | [1]. **Kemal Birer," ASP.NET Core for Jobseekers"bpb publications 2021.** |
| | [2]. **Kogent Learning Solutions, "ASP.NET4.5 PROGRAMMING" Black Book, dreamtech press, 2013.** |