Course Name: Certificate Course in Programming Excellence through VB.Net & ASP.Net

Course Code: C23

Eligibility: 10+2

Fee: Rs 6,000/-

Duration: 04 Months (200 Hrs)

Subject Code	Subject	Topics	T	P	Total Dur. Hrs.
C23-01	Oops Programming concepts	**Programming Fundamentals of C#** - Introduction to C # ❖ Overview of C# ❖ Literals ❖ Variables ❖ Data Types ❖ Operators ❖ Expressions ❖ Branching ❖ Looping ❖ Arrays ❖ Strings ❖ Structures ❖ Enumerations ❖ Difference between C++ and C# ❖ Difference between Java and C# - Object Oriented Aspects of C# ❖ Classes and Objects ❖ Inheritance ❖ Polymorphism ❖ Operator Overloading ❖ Delegates ❖ Interfaces ❖ Events ❖ Errors and Exceptions - Working with Objects ❖ Exception Handling - Try, catch, throw, finally - Exception Objects ❖ Resource Management - Windows Programming in C# ❖ Windows Forms ❖ Controls and Components ❖ Windows Applications - Window Events - Menu Bars, Meni Items, Status Bars - Threads ❖ The Thread Class ❖ Starting Threads, Thread Priorities ❖ Timer Threads ❖ Interlocked, Monitor and Lock ( )	10	15	25

C23-02	VB.Net	**Introduction to Microsoft .NET Migrating to VB.NET** - Basics of VB.NET ❖ Introduction ❖ Constants ❖ Variables ❖ Data Types ❖ Operators ❖ Keywords ❖ Control Structures ❖ Directory Related Controls - Benefits of .Net Framework ❖ Language Interoperability ❖ Managed Code and Garbage Collection ❖ Platform Independence via CLR ❖ Strong Security and Robust Libraries - Understanding the Visual Studio IDE ❖ Setting up a VB.Net project in Visual Studio ❖ Navigating the Solution Explorer and Toolbox ❖ Building & running your first VB.Net application - Procedures ❖ Introduction ❖ Sub Procedures ❖ Function Procedures ❖ Event Procedures ❖ Form Events ❖ InputBox Function - Elements of VB.NET ❖ Properties ❖ Events and Methods of Form ❖ Label ❖ Text Box ❖ Check Box ❖ Radio Button ❖ List Box ❖ Frame ❖ Combo Box ❖ Solution Explorer ❖ Progress Bar ❖ Date Time Picker ❖ Picture Box ❖ Group Box - Arrays and Strings ❖ Declaring and Allocating Arrays ❖ Using Strings and String Functions ❖ Creating and Using Control Arrays - Windows Form Development with VB.NET ❖ Introduction to Windows Forms ❖ Event Driven Programming ❖ Graphics and Multimedia ❖ User Interface Design with Forms and Control	20	10	30

C23-03	ASP.Net	**Exploring Visual Studio .NET & ASP. Net using Visual Basic .NET** - Introduction to ASP.Net ❖ Overview of ASP.Net ❖ Setting up for ASP.Net ❖ Difference between ASP and ASP.Net ❖ ASP.Net Objects ❖ Data Access Controls ❖ Applying Themes and Styles to Controls ❖ Caching ❖ Using Validation Controls - Understanding ASP.Net Controls ❖ Overview of ASP.Net Controls ❖ Understanding HTML Controls ❖ Understanding and Handling Control Events ❖ Understanding View State - Programming Basics ❖ Basics of Programming - Data Types - Operators - Programmed Instructions ❖ Create a Simple ASP.Net Application ❖ Designing Applications - Process Modelling - Designing a User Interface for the Web ❖ Processing ASP.Net Applications - Common Language Runtime (CLR) - Programming ASP.Net with Visual Basic. Net ❖ VB.Net Programming Language Structures - Exception Handling with VB.Net - Common ASP.Net Page Syntax ❖ Built in ASP.Net Objects and Interactivity - The Request Object - The Response Object - Writing Data to the Browser - Redirecting the Browser - Web Forms and ASP.Net ❖ Programming Web Forms ❖ Web Form Capabilities ❖ Web Forms Processing ❖ Web Forms and Events ❖ Creating a Web Form - Validation in ASP.Net ❖ Client-Side and Server-Side Validation ❖ Using Validation Controls - Database Integration with VB.NET and ASP.NET ❖ Introduction to ADO.Net - Connecting to databases (SQL Server and MySQL) - Working with Stored Procedures ❖ Entity Framework in ASP.Net ❖ Handling Transactions and Concurrency	40	55	95

C23-04	Project Work	**Project Work: Development of Desktop & Web Application using Database** For a project that involves developing both desktop and web applications using a database, you'll need a structured approach to ensure the solution is efficient and scalable. Here's an outline of how you can approach this project: 1. Project Planning & Requirements Analysis ❖ Define the Objective: What is the application meant to achieve? For example, is it a management system, an e-commerce platform, or something else? ❖ Target Users: Who will use the desktop and web applications? What are their specific needs? ❖ Features: ○ Authentication (Login/Signup) ○ CRUD Operations (Create, Read, Update, Delete for database records) ○ User Roles (Admin, Editor, Viewer) ○ Data Reports (Graphs, PDFs, etc.) 2. Design ❖ Wireframing and Prototyping: ○ Use tools like Figma, Sketch, or Adobe XD to create the design. ○ Design should include forms, dashboard, user settings, and any other relevant pages. ❖ Database Design: ○ Entities and Relationships: Use Entity-Relationship Diagrams (ERDs) to model your database. ○ Normalization: Ensure your database is normalized to avoid redundancy. ○ Tables: For example, Users, Orders, Products, etc., depending on your application. 3. Development ❖ Backend Development: ○ Develop RESTful APIs for the desktop and web apps to interact with the database. ○ Ensure proper input validation and error handling. ○ Implement token-based authentication (JWT) for security. ❖ Frontend Development: ○ Desktop App: Build an interactive user interface that connects to the backend API. ○ Web App: Build a responsive web interface using modern web frameworks. ❖ Database: ○ Set up the database schema, create tables, and write SQL queries (if using a	-	50	50

		relational database). ○ Ensure secure connections to the database, especially when working with sensitive data. **4. Integration** ❖ Link Desktop & Web Applications: Both should use the same backend API, ensuring data consistency between them. ❖ Testing: ○ Unit testing for individual components. ○ Integration testing to ensure the whole system works together. ○ Ensure the application works across different platforms and devices (Windows, macOS, Web browsers). **5. Deployment** ❖ Desktop App: Use tools like Electron Builder for Electron.js apps or MSI Installer for Java/Windows apps. ❖ Web App: Deploy using platforms like AWS. **6. Maintenance & Updates** ❖ Monitor for bugs and performance issues. ❖ Roll out updates regularly. ❖ Backup the database and implement disaster recovery strategies. **7. Documentation** ❖ Ensure that you provide clear documentation for both the code and user instructions. **The Project Report should consist of the following:** ❖ Cover page including Project title, Name of the student, Name of the Department and Names of the Project Guides (both External and Internal). ❖ Acknowledgements. ❖ Certificates from company and department duly signed by external guide, Principal and internal guide. ❖ Contents with page numbers. ❖ Introduction includes importance & background ❖ Objectives ❖ System Analysis System Feasibility study ❖ Software requirement specifications ❖ Design with system flowcharts and input/output design. ❖ Implementation and Testing **Further scope of the project** ❖ Bibliography ❖ Appendices (any other information related to project)			
Total			**70**	**130**	**200**