

Course Name: Certificate in Programming Excellence through VB.NET

Eligibility: 10+2 with relevant knowledge

Duration: 3 months, 150 hrs

Objective:

- To develop awareness, capability and confidence right from the beginning in the participant and to take up independent assignment in computer field using VB.NET technology and to work as Web Developer.
- To provide the practical and theoretical knowledge in .NET programming language.
- To develop professional with the concept and technique in VB. NET
- To make professional in VB.NET programming

SUBJECT CODE	SUBJECT	Total Duration	Theory	Practical
B04-01	Programming Fundamentals of C#	25	10	15
B04-02	Introduction to Microsoft .NET Migrating to VB.NET	30	20	10
B04-03	Exploring Visual Studio .NET	35	22	13
B04-04	Visual Basic .NET	45	25	20
B04-05	Project Work: Development of Desktop Application using Database	15	--	15
	Total	150	77	73

DETAILED SYLLABUS

Subject Code	Subject	Syllabus	Theo.	Prac.
B04-01	Programming Fundamentals of C#	<p>Overview of C# - Evolution of c#, features of c#, Benefits of changing over to c#, Differences between C++ and C#</p> <p>.NET Framework and platform - Overview of the .NET platform, .NET components, Common language Runtime. Introduction to C# - General structure of a C# program, The main method, Namespace declaration, Interactive Input/Output, Arguments in main method, command line arguments, runtime arguments</p> <p>C# Basics - Value types, default constructors, struct types, Struct modifiers, Struct interfaces, enumeration types, Enum modifiers, reference types, class types, object type, string type, interface types, delegate types, Delegates vs Interfaces, Boxing and unboxing, array types, variables and parameters, Operands, Statements, expressions, operators, Directives</p> <p>Classes - C# classes, Objects, creating classes, using an object's member functions, Static Methods and new operator, creating an object, different types of class members, inheritance, Access specifiers (Private, Public, Protected, package), cleaning up unused objects, garbage collector, class library</p> <p>Methods – Structure of a method, Method overloading, implementing methods, Exception handling, Try and Catch</p> <p>Statements – Selection statements, Switch statement, Loops, jump statement, Break, continue, Goto, return statement</p> <p>Abstract and Base classes – Abstract modifier, abstract classes, virtual methods, base classes, introduction to .NET base classes. foreach statement</p> <p>Arrays and Strings – Array types based on dimensions, passing arrays as parameter, declaring array, initializing array, creating array arrays as objects, System.Array type, Array members, array Covariance, array list, out and ref, String operations, converting objects to strings, String Builder, String formatting in .NET</p> <p>File handling – File and Folder operations, listing files in a folder, copying and deleting files, reading/writing text files and binary files</p> <p>Exceptions and error handling in C#- Common exception classes, statements (Try, Catch, Throw, Checked and Unchecked, Lock, Using,), Hierarchical Structure of Exception, Passing Exception to Caller, user defined exception class, Types of Exception handlers, The Exception object, Error handling using Exceptions</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>2</p> <p>1</p> <p>1</p> <p>1</p>	<p>1</p> <p>1</p> <p>1</p> <p>2</p> <p>2</p> <p>2</p> <p>1</p> <p>2</p>
		Total	10	15
B04-02	Introduction to Microsoft .NET	<p>Introducing to .NET: A Brief History of Windows Development, The origin of .NET; The .Net Framework: Key design goals; Common Language runtime; Simpler Faster development; Tool Support; Scalability; metadata; Namespaces; Deployment and Execution; Components of a .NET Application, Migrating Existing Applications,</p> <p>The .NET Framework: .NET Framework Class Library .NET Architecture, Deployment, Tools</p> <p>BASE CLASSES: Inside the .NET Class Framework; System Namespaces; the System Types; System. object class; System. Exception Class; System. Collections;</p> <p>The .NET Standards: Web Standards, Web Services Standards, Language and Infrastructure Standards</p>	<p>02</p> <p>01</p> <p>01</p> <p>01</p>	<p>01</p>

		<p>USER AND PROGRAM INTERFACES: User interfaces; Windows forms; Web forms; Console Applications; Program interfaces Web services. XML as the .NET “meta language”.</p> <p>Visual Studio .NET: .NET and Visual Studio .NET, The Development Environment, Building a .NET Project</p> <p>INTRODUCTION TO CLR: Common Runtime and Type System; The Anatomy of .NET Applications: Assembly; Module; Type; Common type System; Custom types;</p> <p>Applications: The .NET Paradigms: Building Distributed .NET Applications, Data Access Layer, Business Object Layer, Web User Interface with ASP.NET, Desktop User Interface with Windows Forms, .NET Exposed: .NET Framework, Deployment and Version Compatibility</p>	02	01
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	Migrating to VB.NET	<p>Introduction to Visual Basic.Net: Visual Basic.NET Defined; Visual Basic.NET as a programming language; Visual Basic.NET used for writing Windows Applications; Event driven Programming; VB.NET as a object oriented programming language.</p> <p>What Is .NET?: The Need for .NET, Problems with the Current Design, An Overview of .NET, The Components, Visual Studio .NET</p> <p>An Overview of Visual Basic .NET: A New Life for Visual Basic, New Concepts in .NET</p> <p>Migrating: Data Access Technologies: Data Access Options,ADO.NET: The New Standard</p> <p>Migrating: Data Access Technologies (cont.): ADO.NET: The New Standard (cont.),Using the Visual Basic Upgrade Wizard</p> <p>Migrating: Business Logic and Code Changes: New Object-Oriented (OO) Features, New Command and Code Functionality, The New Threading Model, What about Those Errors?</p> <p>Migrating: User Interface: User Interfaces of the Past, Options Under .NET, What Are Win Forms?, What Are Web Forms?</p>	02	
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		Total	20	10
B04-03	Exploring Visual Studio .NET	<p>Guided Tour of Visual Studio.NET: Creating Your First VS.NET Application, Investigating VS.NET Windows, Debugging in VS.NET, Using VS.NET Help</p> <p>Understanding the development Environment: The .NET Framework; The Visual Studio Start Page; Creating and Opening Projects; Understanding Solutions; Visual Studio.Net work area; Understanding Window Behaviour; Designing Visual Components; Using the task list; Customising the IDE</p> <p>Investigating VB.NET Language Changes: Investigating Major Language Changes, Working with Classes, Object-Oriented Additions to VB.NET, Overloading, Overriding, Inheritance, and other New Techniques, Working Through a Simple, Object-</p>	01	
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		Based Application		
		Event procedures, properties and controls: Event Procedure-Using the IDE to create an Event procedure; Writing code inside the Event Procedure; Viewing and changing properties; Adding controls to the form; The Toolbox ; Changing the Control's size , location using Form Designer	02	01
		Investigating .NET System Classes: Introduction to Namespaces, What's in the .NET System Class Libraries?, Investigating Some Example Classes	01	
		Visual Basic Programming Fundamentals : Declaring and naming variables; Naming Conventions; Changes to the Dim statement; Understanding Data types; Working with numeric data types; Data type Conversion;	01	01
		Assignment and Arithmetic Operators: Division operators; Operator precedence; Comparison and Logical operators;	0.5	
		Assignment Operator; The Location of the Assignment Statement; The Left	0.5	
		Creating Windows Applications with Windows Forms: Creating an MDI Application in VS.NET, Working with Menus, Using Visual Inheritance, Adding New Controls, Working with Forms Programmatically, Creating Dialog Forms	01	02
		Controlling the flow of your program: Understanding the if statements; The sing-if statements; Using multiple Commands with an If Block; Working with false Condition; Working with Multiple if statements; Using Boolean logic in If condition; Using Select case; Working with loops; for loops; Do loops; Arrays: Declaring an array; Useful array functions; Resizing an array;	01	02
		Managing program tasks with procedures : Types of procedures; Working with sub procedure; Executing a procedure; passing data to a procedure with arguments; Working with function procedures; Understanding scope and Accessibility;	01	01
		User Interface : Message boxes; Dialog boxes; Menus and Toolbars; Creating s menu; Context Menu; Adding Toolbars and buttons; Defining an icon for a toolbar button; Adding Functionality to the Toolbar;	01	01
		Handling Errors in VB.NET: Introduction to Structured Exception Handling, Catching Errors using Try/Catch, Handling Invariant Code Using Finally, Creating Your Own Exception Classes	01	01
		Introduction to ADO.NET: What's Wrong with ADO?, Filling a Data Table Manually, Connecting to Data, Reading Data using the DataReader Object, Manipulating Data with the DataAdapter and DataSet Objects, Using Data Relation Objects to Relate Data, Updating Data and the CommandBuilder Object,ADO.NET and XML	02	02
		Getting Started with ASP.NET: Classic ASP vs. ASP.NET,	02	01

		<p>Introduction to Web Forms, Controlling Page Layout, Targeting a Browser, Investigating Server Controls, Validating Data with Validation Controls, Data Binding with ASP.NET</p> <p>Creating Web Services: Introduction to Web Services, Creating a Simple Web Service, Investigating the WSDL, Creating Web Service Consumers, Handling Asynchronous vs. Synchronous Web Service</p> <p>Creating Console Applications and Windows Services in .NET: Investigating Console Applications, Creating a Console Application, Debugging Console Applications, Investigating Windows Services, Creating a Simple Windows Service, Debugging Windows Services</p> <p>Introduction to C# for Visual Basic Developers: Basic Rules and C# Style, Working with Classes in C#, Creating Methods and Properties, Managing Flow Control and Data</p>	01	
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		Total	22	13
B04-04	Visual Basic .NET	<p>Introduction to Windows Forms: Yes, .NET Does Windows, Adding Controls to a Form, A Peek behind the Scenes, Adding Event Handling Code, Adding a Menu to the Form, Adding Non-Graphical Components</p> <p>VB.NET Nuts and Bolts: Creating Console Applications, Creating a New Visual Basic.NET Project, Modules and Classes, VB.NET Nuts and Bolts: Variables, Operators, and Data Types, Procedures, Arguments, Looping, and Control Flow</p> <p>The Windows Forms Event Model: How Visual Basic.NET Handles Events, Understanding Delegates, Anatomy of an Event Handler, Exploring Form and Control Events</p> <p>Classes and Objects: Using Objects to Organize a Complex World, Defining Classes, Constructing Objects, Creating and Using Properties, Creating and Using Methods, Raising and Handling Events, Finalization Windows Forms Controls: TabControl, Context Menu, TrackBar</p> <p>Windows Forms Controls: TabControl, Context Menu, TrackBar, NumericUpDown, DomainUpDown, Label, CheckBox, RadioButton, ListBox, Adding Controls Dynamically, Other List Controls, Anchoring and Docking, Using the Splitter Control, Dialog Controls</p> <p>Working with Strings and Dates: Working with Text: The String Class, Manipulating Text with the StringBuilder Class, Working with Dates and Times, Handling Elapsed Times with the TimeSpan Type</p> <p>Exception Handling: Introduction to Structured Exception Handling, Perspectives on Exception Handling, Adding a Simple Try/Catch Block, Using an Exception Object, Catching Specific Exceptions, Using the Throw Keyword, Using the Finally Block Handling, Creating Your Own Exception Classes, System Exception Handling and debugging;</p> <p>Debugging Your Applications: Configuring the Debugging Environment, Debugging Syntax Errors, Configuring Debugging</p>	01	
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	in Visual Studio .NET, Setting Breakpoints and Stepping through Code, Exploring the Debugging Windows, Writing to the Windows Event Log		
	Inheritance and Interfaces: Object Oriented Programming, Supporting Inheritance, Creating a Derived Class, Overriding in Action, Customizing Controls with Inheritance, Inheritance and Interfaces (<i>cont.</i>): Using Interfaces, Implementing Comparable to Enable Sorting	02	01
	Handling Input/Output Tasks: Introducing the System.IO Namespace, Selecting Files, Handling Path Information, Working with Directories and Files, Reading and Writing Text Files	01	01
	Investigating .NET Data Structures: Working with Arrays, useful System. Array Members, Arrays in the .NET Framework, The ArrayList Class, The HashTable Class , The SortedList Class , The Stack and Queue Classes, Creating Strongly Typed Collections	01	01
	Accessing Data: Overview of ADO.NET , Connecting to Data , Executing Commands , Working with Data, Choosing an ADO.NET Provider	01	01
	Interoperability: Using COM Objects in Visual Basic .NET , Using Platform Invocation Services,	01	
	Interoperability (<i>cont.</i>): Call .NET Assemblies from Visual Basic 6.0	01	
	Creating Data-Bound Applications, Data Binding Basics, Using the Data Form Wizard ,	01	
	Managing Data with ADO.NET DataSets, The Role of DataSets in ADO.NET , Using DataSets in VB.NET , Saving DataSets in Session State, Using DataTable Constraints and DataSet DataRelations , Using DataSets with DataAdapters to Modify Data, Managing Data with ADO.NET DataSets (<i>cont.</i>): Using DataSets with DataAdapters to Modify Data (<i>cont.</i>) The Transactional Model in DataSets, DataSets and XML , Typed DataSets	01	02
	Creating Reports Using Crystal Reports, Introducing Crystal Reports , Creating a Simple Report, Creating Reports Using Crystal Reports (<i>cont.</i>): Using Custom Formulas , Add Custom Grouping and Totals , Filtering the Report	01	01
	Creating Windows Services, Introducing Windows Services , Building Your First Windows Service , The FileWatcher Service	01	01
	Creating and Consuming XML Web Services, The Motivation for XML Web Services , Creating an XML Web Service with Visual Studio .NET, Designing XML Web Services, Creating and Consuming XML Web Services: Creating .NET Consumers , Web Services and Legacy Clients , Discovering Web Services Using UDDI	02	01
	Data Binding Techniques, Synchronizing Multiple DataGrid	01	01

		<p>Controls , Formatting a DataGrid Control , Limit Editing in a DataGrid , Working with the ListBox Control , Working with Binary Data</p> <p>Security: Overview of Security in .NET , Permission Requests, Security: Using Role-Based Security</p> <p>Multiple Document Interfaces (MDI) and Graphics (GDI+), Creating MDI Applications , The Scribble Application, Multiple Document Interfaces (MDI) and Graphics (GDI+) (<i>cont.</i>): Drawing on Forms , Creating Transparent Areas in Forms , Creating Shaped Forms</p> <p>Deployment: Deployment Concepts , Simple Deployment , Windows Installer Deployment, Deploying Shared Components , HTTP Deployment</p>	01 01 01	01 01 01
		Total	25	20
B04-05	Project Work: Development of Desktop Application using Database		----	15

Reference Book: Visual Basic .net A Beginners Guide by Jeffery Kentt (Tata Mcgrawhill)