



Certificate Course in VB.NET

Course Overview

The **Certificate Course in VB.NET** is a 3-month professional training program designed to provide learners with **core programming and application development skills using Visual Basic .NET (VB.NET)**. Built on the **.NET Framework**, VB.NET is a powerful, object-oriented language that enables rapid application development for **desktop, web, and database-driven applications**.

This course introduces students to the **VB.NET environment, programming fundamentals, object-oriented concepts, GUI application development with Windows Forms, file and database handling, and exception management**. Learners will also develop a **mini-project** that integrates real-world business logic and database connectivity.

Duration: 3 Months (Approx. 60 sessions)

Prerequisites: Basic knowledge of programming (C/C++/VB) is preferred, but not mandatory.

Course Objectives

By the end of this course, learners will:

1. Understand the **VB.NET IDE, .NET Framework, and CLR**.
 2. Learn to write and execute VB.NET programs with proper syntax and structure.
 3. Gain expertise in **control structures, methods, and arrays**.
 4. Apply **object-oriented programming concepts** such as inheritance, polymorphism, and interfaces.
 5. Work with **Windows Forms and controls** for GUI-based applications.
 6. Implement **exception handling, file handling, and collections**.
 7. Use **ADO.NET to connect VB.NET applications with databases**.
 8. Build and present a **mini-project demonstrating end-to-end application development**.
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Course Outcomes

After successful completion, learners will be able to:

- CO1: Write **VB.NET programs** using proper coding standards.
- CO2: Apply **logical constructs, methods, and modular programming**.

- CO3: Design and develop **event-driven desktop applications** with Windows Forms.
 - CO4: Perform **file handling, error handling, and data storage/retrieval**.
 - CO5: Connect to and manipulate databases using **ADO.NET**.
 - CO6: Develop a **mini-project application** integrating GUI, business logic, and database.
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Course Syllabus

Module 1: Introduction to VB.NET & .NET Framework

- Overview of .NET Framework and CLR
- Features of VB.NET vs. Classic VB
- VB.NET IDE (Visual Studio) overview
- Writing and executing first VB.NET program
- Structure of a VB.NET project

Module 2: VB.NET Fundamentals

- Variables, constants, and data types
- Operators and expressions
- Input and output in VB.NET
- Control structures: If, Select Case, Loops

Module 3: Methods, Arrays & Strings

- Defining and invoking methods
- Parameter passing (ByVal, ByRef, Optional)
- Method overloading
- Arrays (1D, 2D, Jagged)
- String manipulation and StringBuilder

Module 4: Object-Oriented Programming with VB.NET

- Classes and objects
- Constructors and destructors
- Encapsulation, inheritance, and polymorphism

- Abstract classes and interfaces
- Namespaces and assemblies

Module 5: Exception Handling & Collections

- Exception handling: Try, Catch, Finally, Throw
- Custom exceptions
- Collections: ArrayList, List, Dictionary, Queue, Stack
- Generics in VB.NET

Module 6: File Handling in VB.NET

- Working with files (reading and writing text/binary files)
- FileStream, StreamReader, and StreamWriter classes
- Serialization and deserialization

Module 7: Windows Forms Development

- Introduction to Windows Forms
- Form controls: Button, Label, TextBox, ListBox, ComboBox, Menu
- Event-driven programming (Click, Load, Change, etc.)
- Multiple forms and navigation

Module 8: Database Connectivity with ADO.NET

- Overview of ADO.NET architecture
- Connecting to databases (SQL Server/MS Access)
- Executing SQL commands (SELECT, INSERT, UPDATE, DELETE)
- Data binding and DataGridView

Module 9: Mini Project Development

- Project selection and requirement analysis
 - Designing GUI and database
 - Implementing business logic and data operations
 - Project testing and debugging
 - Documentation and presentation
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☒ This **3-Month Certificate in VB.NET** provides students with **practical skills in programming and application development**, preparing them for careers as **.NET Developers, Application Programmers, or Software Engineers**.