

# PROGRAMMING IN VB.NET

## Module 1: VB.NET Syntax

Microsoft .NET 6 offers a versatile development platform for creating, deploying, and managing applications and services. This module focuses on VB.NET, allowing participants to build visually appealing applications, facilitate seamless communication across technology boundaries, and support a variety of business processes.

Lesson 1: Writing Applications in VB.NET and .NET

Lesson 2: Types of Data and Expressions in VB.NET

Lesson 3: VB.NET Language Constructs

## Module 2: VB.NET Language Concepts

Applications are often composed of logical units of functionality that perform specific tasks, such as managing data access or executing logical processing. VB.NET, being an object-oriented language, leverages the concept of methods to encapsulate these logical units of functionality. This module delves into the principles of methods, method overloading, exception handling, and monitoring in VB.NET.

Lesson 1: Methods and Subroutines

Lesson 2: Method Overloading

Lesson 3: Exception Handling in VB.NET

Lesson 4: Monitoring in VB.NET

## Module 3: VB.NET Structures, Collections, and Events

To develop effective applications, it's essential to grasp fundamental VB.NET constructs. This module focuses on creating structures to represent data, organizing these structures into collections for efficient data manipulation, and understanding event handling to respond to user actions.

Lesson 1: Structures in VB.NET

Lesson 2: Enums in VB.NET

Lesson 3: Built-in Collections in VB.NET

Lesson 4: Events in VB.NET

## Module 4: VB.NET Classes and Interfaces

This module dives into the world of VB.NET classes and interfaces, providing insights into creating custom, reusable types. Participants will learn how to harness the power of interfaces and classes to build robust applications, along with understanding the principles of generics for creating type-safe collections.

Lesson 1: Creating Classes in VB.NET

Lesson 2: Interfaces in VB.NET

Lesson 3: Understanding Generics in VB.NET

## Module 5: VB.NET Inheritance

This module focuses on leveraging the power of inheritance in VB.NET to create class hierarchies and extend .NET types. Participants will explore the principles of class hierarchies, polymorphism, and extending classes for building flexible and scalable applications.

Lesson 1: Hierarchies of Classes in VB.NET

Lesson 2: Polymorphism in VB.NET

Lesson 3: Extending Classes in VB.NET

## Module 6: Working with Files

This module delves into essential VB.NET techniques for reading and writing data. Participants will gain insights into transactional filesystem I/O operations, data serialization, deserialization, and working with streams.

Lesson 1: File I/O in VB.NET

Lesson 2: Serialization and Deserialization in VB.NET

Lesson 3: Streams in VB.NET

## Module 7: Working with Database

This module focuses on database access in VB.NET, covering essential topics such as using Entity Framework for data access and querying data with Language-Integrated Query (LINQ).

Lesson 1: Entity Framework in VB.NET

Lesson 2: LINQ in VB.NET

## Module 8: Working with Web Services and Rest API's

Lesson 1: Web Services in VB.NET

Lesson 2: REST APIs in ASP.NET using VB.NET

Lesson 3: ASP.NET Core MVC Overview

## Module 9: Graphical User Interfaces

In this module, you'll learn how to use Extensible Application Markup Language (XAML) and Windows Presentation Foundation (WPF) to create engaging UIs.

Lesson 1: Working with forms

Lesson 2: Using UI Frameworks

Lesson 3: Styling the UI

Lesson 4 : Working with graphics in forms

## Module 10: VB.NET Application Performance

This module focuses on enhancing the performance of VB.NET applications by leveraging techniques for multitasking, asynchronous calls, and conflict resolution.

Lesson 1: Multitasking in VB.NET

Lesson 2: Asynchronous Calls in VB.NET

Lesson 3: Dealing with Conflict in VB.NET

## Module 11: VB.NET Interop

This module delves into the realm of interoperability in VB.NET, teaching participants how to seamlessly work with unmanaged code in their applications and ensure proper handling of unmanaged resources.

Lesson 1: Dynamic Objects in VB.NET

Lesson 2: Managing Resources in VB.NET

# Module 12: VB.NET Designing for Reuse

This module focuses on designing for reuse in VB.NET, covering essential topics such as consuming existing assemblies, utilizing reflection, adding metadata with attributes, generating code at runtime using the Code Document Object Model (CodeDOM), and managing .NET assemblies.

Lesson 1: Metadata in VB.NET

Lesson 2: Attributes in VB.NET

Lesson 3: Generating Code in VB.NET

Lesson 4: Managing Assemblies in VB.NET