

## Programming I– High School

**COURSE DESCRIPTION:** This course presents basic programming and teaches the essential concepts of VisualBasic.NET (VB.NET). As an introduction to VB.NET, students will see the basic uses of the programming language, its similarities to the English language (and others), and its flexibility as a programming language. The course helps participants understand the processes involved in software development and object-oriented programming. This is an introductory course that could lead to careers such as software engineer, developer, or game designer. The course participants will also complete a series of hands-on projects covering built in data types, operators, control structures, classes, and objects.

### **COURSE OBJECTIVES:**

- The students will be introduced to the fundamentals of a programming language and learn the basic differences between programming languages.
- The students will learn the processes involved in software development.
- The students will use programming logics and platforms to build effective software.
- The students will choose the architecture based on the problem to be solved.
- The students will learn the power of .NET technologies and the reason why they are popular today.
- The students will differentiate between the types of applications supported by .NET.
- The students will build, compile, and execute VB.NET programs.
- The students will learn the techniques to develop error-free software.
- The student will handle strings effectively.

**PREREQUISITES:** Basic knowledge of computer fundamentals.

**COURSE LENGTH:** One Semester

**REQUIRED TEXT:** No required textbook for this course.

### **MATERIALS LIST:**

Visual Studio 2010 Express Edition \*\*\*Free Download\*\*\*

[Microsoft Visual Studio 2010 Express Edition](#)

**COURSE OUTLINE:**

**Unit 1: Course Overview**

- Section A - Course Introduction
- Section B - Programming and VB.NET
- Section C - Programming Practice

**Unit 2: Software Development and Architecture**

- Section A - Systems Development Life Cycle (SDLC)
- Section B - Alternatives to SDLC
- Section C - Program flow
- Section D – Architecture

**Unit 3: Fundamentals**

- Section A -Structure of Languages
- Section B - Data Type
- Section C - Variables
- Section D - Operators
- Section E - Statements
- Section F - Building and Compiling a VB.NET Program

**Unit 4: Framework and Objects**

- Section A - Inside the .NET framework
- Section B - Applications
- Section C - Object Oriented Programming

**Unit 5: Arraylist, Collections, Stacks and Queues**

- Section A - Collection Overview
- Section B - Arraylist
- Section C - Stacks and Queues
- Section D – Hashtable

**Unit 6: Error Handling in VB .NET**

- Section A - Understanding Exception Handling
- Section B - Understanding Pre-Defined Exceptions
- Section C - Understanding User-Defined Exceptions

**Unit 7: Delegates and Events**

- Section A - Delegates
- Section B - Events
- Section C – Threading

**Final Project**