

**CS 1121 Introduction to Programming in Visual Basic.NET****Course Description:**

Introduction to programming in Visual Basic.NET, including event-driven Windows programming, data types, operators, objects and properties, menus, procedures, control structures, and database file processing. For students with no prior programming experience.

**Textbook:** Hoisington, Shelly. 2009. Microsoft Visual Basic 2008 for Windows, Mobile, Web, Office and Database Applications: Comprehensive, Course Technology, Cengage Learning. ISBN-13: 978-1-4239-2716-7, ISBN-10: 1-4239-2716-8.

**Course Goals:**

- To understand key Visual Basic.NET programming constructs
  - 1) Master the essential programming constructs including program structure, variable declaration and scope, data types, operator precedence, input and output, assignment
  - 2) Become familiar with complex program flow control including the implementation of a variety of selection and repetition structures
  - 3) understand sub procedures and functions and value and reference parameters
- To develop a basic understanding of the fundamental concepts of computer hardware and software
- To understand the software development process with Visual Basic.NET
- To understand basic data structure and file concepts (Data structures and files)

**Prerequisites by Course and Topic:**

1 yr high school algebra or instructor approval

**Major Topics Covered in the Course:**

- Fundamentals of hardware
- The software development process
- Program development using the Visual Studio IDE
  - Writing VB code: Click event programming
  - Program execution
  - Building a user interface
  - Coding, testing, debugging, and documenting an application
- Arithmetic expressions
- Variables and constants
- Assignment statements
- Variable scope
- Selection structures
  - Relational comparison operators
  - Logical operators and truth tables
  - Nesting
- The repetition control structure (Loops)
  - For...Next loop coding
  - Do...Loop coding
    - Pretest loops
    - Posttest loops
- User-defined Sub procedure creation
- User-defined Function procedure creation
- Parameter passing
  - Pass by Value
  - Pass by reference
- Sequential access files - opening, reading from, writing to and closing files
- Declaring and using one-dimensional arrays
  - The ForEach...Next Loop
  - Searching

- Sorting
- Counting
- Parallel arrays
- Data files

**Class/Laboratory Schedule:** Lecture: 2 hours per week, Laboratory: 1

### **Laboratory Projects**

- Project 1: Chapter 2, Guided Program Development (interface creation) (1 week)
- Project 2: Chapter 3, Guided Program development (coding event handlers) (1 week)
- Project 3: Chapter 4, Digital Download Project (variables and arithmetic operators) (1 week)
- Project 4: Chapter 4, Cash Register Project (arithmetic operators) (1 week)
- Project 5: Chapter 5, Wood Cabinet Project (selection structures) (1 week)
- Project 6: Chapter 5, Phone Bill Calculator (multiple selection) (1 week)
- Project 7: Chapter 6, Highway Radar Gun Project (do...while/until loops) (1 week)
- Project 8: Chapter 7, Average Commission Project (for loops) (2 weeks)
- Project 9: Chapter 8, Ocean Tours Project (Sub procedures and Functions) (1 week)
- Project 10: Chapter 9, Light Span Computers Project (Arrays) (2 weeks)
- Project 11: Chapter 10, Intuition Financial Services (Databases) (2 weeks)

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