NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
ITP 112 - VISUAL BASIC.NET I (4 CR.)

Course Description

Concentrates instruction in fundamentals of object-oriented programming using Visual Basic.NET and the .NET framework. Course content emphasizes program construction, algorithm development, coding, debugging, and documentation of graphical user interface applications. Lecture 4 hours per week.

General Course Purpose

Course Prerequisites/Corequisites

Course Objectives

Upon completion of this course, the student will be able to:

- Gain knowledge of concepts of program development using object-oriented techniques
- Learn the Visual Basic.NET programming language
- Create graphical user interface applications
- Apply techniques in algorithm development, coding, debugging, and documentation of graphical user interface (GUI) applications

Course Content

- Introduction to Computing and Application Development
- Visual Basic.NET controls and form design
- Use of variables and constants
- Use of conditional statements
- Validation of user input, error-handling
- Debugging techniques
- Use of Procedures and Functions
- OOP (Classes and Inheritance)
- Menus and other GUI techniques
- Looping

Student Learning Outcomes

Introduction to Computing and Application Development

- Understand the computing cycle (I-P-O).
- Understand the difference between low-level and high-level programming languages.
- Learn to write a simple Visual Basic.NET program using a GUI

Visual Basic.NET controls and form design

- Use basic controls (labels, text boxes, buttons) to develop applications.
- Understand the importance of good form design and ease of use for the user.
- Use other controls (check boxes, radio buttons, group boxes, etc.) to develop applications.

Use of variables and constants

- Understand the Visual Basic.NET data types.
- Understand the difference between variables and constants.
- Learn how to properly perform calculations using conversion functions.
- Understand the importance of Option Explicit and Option Strict
- Understand the differences between local- and module-level variables/constants and their use in programs.

Use of conditional statements

- Understand flowcharting and pseudo code.
- Learn how to use If –Else statements to control program flow.
- Understand the use Boolean variables and Boolean logic
- Use conditional statements with check boxes and radio buttons.

Validation of user input, error-handling

- Learn how to validate programs by checking numeric values, range of values, and required fields.
- Learn how to use message boxes to alert user of incorrect data.
- Use Try-Catch blocks to handle exceptions.

Debugging techniques

- Understand the need for program maintenance and modification.
- Learn how to trace errors and locate bugs.
- Use Call procedures to isolate errors.

Use of Procedures and Functions

- Understand the use of procedures and functions.
- Understand the differences between procedures and functions.
- Learn how to pass arguments to procedures/functions.
- Learn how to use multiple arguments.

OOP (Classes and Inheritance)

- Understand the purpose and use of classes.
- Understand the fundamentals of inheritance.
- Learn how to instantiate an object, design a class.
- Understand overriding methods.
- Learn how to inherit properties and methods.

Menus and other GUI techniques

- Learn how to create a menu.
- Learn how to make forms user-friendly (access keys, shortcut keys, etc.).
- Understand the need for default values and properties.

Looping

- Understand the concept of using loops in code.
- Learn how to use Do-Loops in code.
- Learn how to use For-Next loops in code.
- Learn how to use loops with controls such as list boxes and combo boxes.