

Computer Science 1341 Fundamentals of Programming

Student Learning Outcomes

- 1. Construct a Visual Basic .NET program using Microsoft Visual Studio**
Students will be able to utilize the Microsoft Visual Studio integrated development environment to create Visual Basic .NET solutions that include forms with controls and code that make the forms functional. The integrated debugger can be used to find syntax and run time errors.
- 2. Create basic Visual Basic .NET applications**
Students will be able to create projects with forms that may include labels, picture boxes, textboxes, group boxes, list boxes, check boxes, and radio buttons and modify applicable control properties. Event procedures can be developed to allow a user to interact with the form. Students will be able to create applications with multiple forms and menus.
- 3. Use basic programming fundamentals such as variables, constants, selection statements, loops, procedures and functions**
Students will be able to effectively utilize decision structures such as If...Then...Else and Select...Case statements, loops and nested loops, logical operators, relational operators, arithmetic operators, procedures and functions. Students will be able to validate input and format output.
- 4. Develop an algorithm to solve a given problem and translate it into a working VB .NET program**
Students will be able to develop an algorithm to solve a given problem. The student can translate an algorithm into a program that includes forms and Visual Basic code. Students can recognize and use recommended programming style and technique.

Course Content

Textbook: *Starting out with Visual Basic 2008*, Fourth Edition, by Tony Gaddis / Kip Irvine

The following chapters including the particular sections listed are covered. (See textbook "Contents")

- 1. Introduction to Programming and Visual Basic 2008**
Computer Systems: Hardware and Software
Programs and Programming Languages
More about Controls and Programming
The Programming Process
Visual Studio
- 2. Creating Applications with Visual Basic**
Problem Solving
Labels and PictureBox Controls
Visual Basic Projects
Event Procedures
Properties – Text, AutoSize, BorderStyle, and TextAlign
Clickable Images
- 3. Variables and Calculations**
TextBox Controls
Variables and Data Types
Performing Calculations
Mixing Different Data Types
Formatting Numbers and Dates
Exception Handling
Group Boxes
Load Event Procedure

4. **Making Decisions and Working with Strings**
 - Decision Structures
 - Logical Operators
 - Comparing, Testing, and Working with Strings
 - Message Box
 - Select Case Statement
 - Input Validation
 - Radio Buttons and Check Boxes
 - Class-Level Variables
5. **Lists, Loops, Validation, and More**
 - Input Boxes and List Boxes
 - Loops and Nested Loops
 - Multicolumn List Boxes, Checked List Boxes, and Combo Boxes
 - Input Validation
 - ToolTips
6. **Procedures and Functions**
 - Procedures
 - Passing Arguments to Procedures
 - Functions
 - Debugging
7. **Multiple Forms, Standard Modules, and Menus**
 - Multiple Forms
 - Standard Modules
 - Menus

Additional Content

Any section or chapter not listed previously.