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

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

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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.