ITT Technical Institute

CS120

Programming in Visual Basic

Onsite Course

SYLLABUS

Credit hours: 4

Contact/Instructional hours: 50 (30 Theory Hours, 20 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisite: CS100 Introduction to Programming or equivalent

Course Description:

This course discusses how to build Windows applications using Visual Basic with menus and multiple forms. Students will practice writing Visual Basic codes to perform operations, using arrays, manipulating strings, and performing file input and output. Fundamental principles of object oriented programming are also introduced.

Syllabus: Programming in Visual Basic

Instructor:	_____
Office hours:	_____
Class hours:	_____

Major Instructional Areas

1. Visual Studio Integrated Development Environment (IDE)
2. Forms and Controls
3. Variables and Data Types
4. Operations, Decisions, and Loops
5. Exception Handling
6. Strings
7. Sub Procedures and Functions
8. User Interface Design
9. Arrays and Structures
10. File I/O and Printing
11. Object-Oriented Programming
12. Database access

Course Objectives

1. Identify and use the features of the Visual Studio 2010 IDE.
2. Use the properties and methods of forms and controls to implement functionality.
3. Write event procedures to perform input, processing, and output.
4. Locate, resolve, and handle various types of errors.
5. Declare and use variables of different data types.
6. Write statements that use various operators.
7. Create programs that use decisions and repetition.
8. Write code to access files.
9. Create functions and procedures to modularize code.
10. Design a Windows application user interface.
11. Write code to process strings and arrays.
12. Write code that uses fundamental object-oriented programming principles.
13. Write code to access a relational database.

Course Outline

Note: All graded activities, except the project and exams, are listed below in the pattern of Unit Number.Assignment Number. For example, Labs 1.2 refers to the second lab activity in Unit 1.

Unit	Activities
1—Visual Studio Integrated Development Environment	• Content Covered: *Starting Out with Visual Basic 2010* o Chapter 1, “Introduction to Programming and Visual Basic” o Chapter 2, “Creating Applications with Visual Basic” • Labs: 1.1, 1.2 • Assignments: 1.1
2—Input, Variables,	• Read from *Starting Out with Visual Basic 2010* o Chapter 3, “Variables and Calculations”

Unit	Activities
Exceptions, and Calculations	○ Appendix C, “Converting Mathematical Expressions to Programming Statements” • Labs: 2.1 • Assignments: 2.1 • Course Project: Part 1
3—Decisions and Strings	• Read from *Starting Out with Visual Basic 2010* ○ Chapter 4, “Making Decisions” • Labs: 3.1 • Assignments: 3.1 • Course Project: Part 2 • Quizzes: 3.1
4—Lists, Loops, Validation, and More	• Read from *Starting Out with Visual Basic 2010* ○ Chapter 4, “Making Decisions,” pp. 252-257 ○ Chapter 5, “Lists and Loops,” pp. 285-324, pp. 328-355 • Labs: 4.1 • Assignments: 4.1 • Course Project: Part 3 • Quizzes: 4.1
5—Procedures and Functions	• Read from *Starting Out with Visual Basic 2010* ○ Chapter 6, “Procedures and Functions” • Labs: 5.1 • Assignments: 5.1 • Course Project: Part 4
6—User Interface Design	• Read from *Starting Out with Visual Basic 2010* ○ Chapter 7, “Multiple Forms, Modules, and Menus” ○ Appendix A, “Advanced User Interface Controls and Techniques,” pp. 802-804 • Exam I • Labs: 6.1 • Assignments: 6.1 • Course Project: Part 5
7—Arrays, Timers, and Random Numbers	• Read from *Starting Out with Visual Basic 2010* ○ Chapter 5, “Lists and Loops,” pp. 324-328 ○ Chapter 8, “Arrays and More” • Labs: 7.1 • Assignments: 7.1 • Course Project: Part 6
8—Files, Printing, and Structures	• Read from *Starting Out with Visual Basic 2010* ○ Chapter 9, “Files, Printing, and Structures” ○ Appendix F, “Binary and Random Access Files” • Labs: 8.1 • Assignments: 8.1 • Course Project: Part 7 • Quizzes: 8.1
9—Database Programming	• Read from *Starting Out with Visual Basic 2010* ○ Chapter 10, “Working with Databases” • Labs: 9.1 • Assignments: 9.1 • Course Project: Part 8
10—Introduction to Object-Oriented	• Read from *Starting Out with Visual Basic 2010* ○ Chapter 12, “Classes, Collections, and Inheritance” ○ Appendix A, “Advanced User Interface Controls and Techniques,” pp.

Unit	Activities
Programming	791-801 • Labs: 10.1 • Assignments: 10.1 • Course Project: Part 9
11—Course Review and Final Exam	• Course Review • Exam II

Instructional Methods

This curriculum is designed to promote a variety of teaching strategies that support the outcomes described in the course objectives and that foster higher cognitive skills. Delivery makes use of various media and delivery tools.

This course introduces the Visual Studio development environment and the Visual Basic programming language. Coming into the course, you should already be familiar with fundamental programming concepts, designing program flow, pseudocode, and flowcharts.

The purpose of this course is to give you a solid foundation in Visual Basic. The skills you gain in this course are critical to your success in the program because Visual Basic is used in a number of courses throughout the remainder of the curriculum.

The course covers problem solving, debugging, and user interface design. You will be encourage to analyze and critique other students' work to learn how to give and receive constructive criticism. Labs will give you hands-on practice writing and explaining code.

A course project will bring everything together. Working in teams, you will build a small application that manages real estate property listings.

Instructional Materials and References

Student Textbook Package
Gaddis, Tony, and Kip Irvine. *Starting Out with Visual Basic 2010* Fifth Edition. Boston: Addison Wesley, 2011.

Equipment and Tools

- Windows XP Professional Service Pack 3 (or later) (on Virtual Machine)
- Visual Basic 2010 (on Virtual Machine)
- Microsoft Office (on host machine of lab computer)
- Microsoft Visio (on host machine of lab computer)

References

ITT Tech Virtual Library

Log on to the ITT Tech Virtual Library at http://www.library.itt-tech.edu/ to access online books, journals, and other reference resources selected to support ITT Tech curricula.

Books

You may click "Books" or use the "Search" function on the home page to find the following books.

- ITT Tech Virtual Library> Main Menu> Books> Books24x7

- Biafore, Bonnie. *Visio 2003 Bible*. Indianapolis, IN: Wiley Publishing, Inc., 2004.
- Biafore, Bonnie. *Visio 2007 Bible*. Indianapolis, IN: Wiley Publishing, Inc., 2007.
- Evjen, Bill, Billy Hollis, Rockford Lhotka, Tim McCarthy, Rama Ramachandran, Kent Sharkey, and Bill Sheldon. *Professional VB 2005*. Indianapolis, IN: Wiley Publishing, Inc., 2006.
- Ford, Jerry Lee Jr. *Microsoft Visual Basic 2005 Express Edition Programming for the Absolute Beginner*. Boston: Cengage Course Technology, 2006.
- Halvorson, Michael. *Microsoft Visual Basic 2005 Step by Step*. Redmond, WA: Microsoft Press, 2006.
- Pelland, Patrice. *Microsoft Visual Basic 2005 Express Edition: Build a Program Now!* Redmond, WA: Microsoft Press, 2006.
- Petroutsos, Evangelous. *Mastering Microsoft Visual Basic 2005*. Indianapolis, IN: Sybex, 2006.
- Walker, Mark H., Nanette J. Eaton. *Microsoft Office Visio 2003 Inside Out*. Redmond, WA: Microsoft Press, 2004.
- Walker, Mark H. *Microsoft Office Visio 2007 Inside Out*. Redmond, WA: Microsoft Press, 2007.
- Wang, Wallace. *Visual Basic 2005 Express: Now Playing*. San Francisco: No Starch Press, Inc., 2006.
- Wright, Peter. *Beginning Visual Basic 2005 Express Edition: From Novice to Professional*. New York: Apress, 2006.

- ITT Tech Virtual Library> Main Menu> Books> eAudiobooks on EbscoHost
  - Groh, Michael R., Joseph C. Stockman, Gavin Powell, Cary N. Prague, Michael R. Irwin, and Jennifer Reardon. *Access 2007 Bible*. Indianapolis, IN: John Wiley & Sons, Inc. (US), 2007.
  - Sempf, Bill. *Visual Basic 2005 for Dummies*. Hoboken, NJ: John Wiley & Sons, Inc. (US), 2006.
  - Willis, Thearon. *Beginning Visual Basic 2005 Databases*. Indianapolis, IN: John Wiley and Sons Inc. (US), 2006.
- ITT Tech Virtual Library> Main Menu> Books> Ebrary
  - Kent, Jeff. *Visual Basic 2005 Demystified*. McGraw Hill-Osborne, 2005.
  - MacDonald, Matthew. *Book of Visual Basic 2005*. San Francisco, CA: No Starch Press, Inc., 2006.

Other References

The following resource may be found outside of the ITT Tech Virtual Library.

Web site

- Microsoft Developer Network (MSDN): http://msdn2.microsoft.com/en-us/default.aspx

All links to web references are always subject to change without prior notice.

Course Evaluation and Grading

Evaluation Criteria Table

The final grades will be based on the following categories:

CATEGORY	WEIGHT
Assignments	10%
Labs	25%
Course Project	15%
Quizzes	10%

CATEGORY	WEIGHT
Exam I	20%
Exam II	20%
Total	**100%**

Note: Students are responsible for abiding by the Plagiarism Policy.

Grade Conversion Table

The final grades will be calculated from the percentages earned in the course, as follows:

A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0