ITT Technical Institute

CS320

Programming in C#

Onsite Course

SYLLABUS

Credit hours: 4

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

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

Prerequisite: CS300 Application Design or equivalent

Course Description:

This course covers building Windows application using C#. Students will practice writing C# codes to perform operations, use arrays, manipulate strings, and perform file input and output. Object-oriented programming using C# is also covered.

Syllabus: Programming in C#

Instructor:	_____
Office hours:	_____
Class hours:	_____

Major Instructional Areas

1. Variables and data types
2. Properties, methods, and events
3. Decision structures and loops
4. Object-oriented programming
5. Arrays and collections
6. Strings and streams
7. Data access
8. File input and output
9. Exception handling

Course Objectives

1. Identify the important features of the C# programming language.
2. Manage namespaces.
3. Write programs that use variables and constants.
4. Create and manage classes and objects.
5. Build classes using inheritance and polymorphism.
6. Declare and use arrays and collections.
7. Create and use methods, properties, and events.
8. Implement control structures to manage decisions and repetitive processing.
9. Write statements using operators.
10. Write programs using strings and streams.
11. Implement file access, data access, and data retrieval.
12. Apply defined approaches and methods in handling errors and exceptions.

SCANS Objectives

SCANS is an acronym for Secretary's Commission on Achieving Necessary Skills. The committee, created by the National Secretary of Labor in the early 1990s, created a list of skills and competencies that the committee feels are necessary for employees to function in a high-tech job market.

1. Select and analyze information and communicate the results.
2. Determine which set of procedures will produce the desired results and make clear recommendations including rationale.
3. Analyze systems and develop new or alternative systems.
4. Apply and adapt new knowledge and skills in both familiar and changing situations.
5. Demonstrate the ability to make a rational decision based on analysis of accepted theories, evidence, and logical thinking.

Course Outline

Note: All graded activities, except the Course Project and Exams, are listed below in the pattern of <Unit Number>.<Assignment Number>. For example, Lab 2.1 refers to the first lab activity in Unit 2.

Unit	Activities
1— Introduction to C#	• Content Covered: *Visual C# 2010 How to Program* o Chapter 3, "Introduction to C# Applications" o Chapter 4, "Introduction to Classes, Objects, Methods, and strings" • Labs: 1.1 • Assignments: 1.1
2— Control Statements	• Read from *Visual C# 2010 How to Program* o Chapter 5, "Control Statements: Part 1" o Chapter 6, "Control Statements: Part 2" • Labs: 2.1 • Assignments: 2.1 • Course Project: Part 1
3— Methods and Arrays	• Read from *Visual C# 2010 How to Program* o Chapter 7, "Methods: A Deeper Look" o Chapter 8, "Arrays" • Labs: 3.1 • Assignments: 3.1 • Course Project: Part 2
4— Object-Oriented Programming	• Read from *Visual C# 2010 How to Program* o Chapter 10, "Classes and Objects: A Deeper Look" • Labs: 4.1 • Assignments: 4.1 • Course Project: Part 3 • Quizzes: 4.1
5— Advanced Object-Oriented Programming	• Read from *Visual C# 2010 How to Program* o Chapter 11, "Object-Oriented Programming: Inheritance" o Chapter 12, "OOP: Polymorphism, Interfaces and Operator Overloading" • Labs: 5.1 • Assignments: 5.1 • Course Project: Part 4
6— Exception Handling	• Read from *Visual C# 2010 How to Program* o Chapter 13, "Exception Handling: A Deeper Look" • Labs: 6.1 • Assignments: 6.1 • Course Project: Part 5 • Exam I
7— Graphical User Interface	• Read from *Visual C# 2010 How to Program* o Chapter 14, "Graphical User Interfaces with Windows Forms: Part 1" o Chapter 15, "Graphical User Interfaces with Windows Forms: Part 2" • Labs: 7.1 • Assignments: 7.1 • Course Project: Part 6
8— LINQ and Collections	• Read from *Visual C# 2010 How to Program* o Chapter 9, "Introduction to LINQ and the List Collection" o Chapter 18, "Databases and LINQ" • Labs: 8.1 • Assignments: 8.1 • Course Project: Part 7

Unit	Activities
	• Quizzes: 8.1
9— Strings and File Input and Output	• Read from *Visual C# 2010 How to Program* • Chapter 16, Strings and Characters • Chapter 16 Regex • Chapter 17, Files and Streams o Labs: 9.1 o Assignments: 9.1 o Course Project: Part 8 o Quizzes: 9.1
10— Working with XML	• Read from *Visual C# 2010 How to Program* o Chapter 24, "GUI with Windows Presentation Foundation," pp. 24.4 through 24.16 o Chapter 26, "XML and LINQ to XML" • Labs: 10.1 • Assignments: 10.1 • Course Project: Part 9
11— Review and Final Exam	• Review • Exam II • Course Project: Part 10

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.

The control structures and object-oriented concepts covered in this course should already be familiar to you, as should the Visual Studio environment. By the end of the course, you should have a solid foundation in C#. The skills gained in this course are critical to your success in the program because C# is used in a number of courses throughout the remainder of the curriculum. In addition to programming skills, the course will present some best practices in user interface design.

Some activities are structured to allow you to create a design or program flow and critique the designs and program flows of other students. These critiques are important to help you learn how to give and receive constructive criticism.

Hands-on practice is an essential part of learning any programming language. This course includes labs that you will complete individually. The labs require you to think about the code you are writing and answer questions about how it works.

Writing assignments give you a chance to explain concepts and work on your writing skills. You will also have the opportunity to prepare and deliver PowerPoint presentations about various C# programming issues.

The course project allows students to work in teams. You will build a business application that includes multiple objects, design the object model, and implement the objects using C#.

Instructional Materials and References

Student Textbook Package

Deitel, Harvey M., and Paul J. Deitel. *Visual C# 2010 How to Program.* 4th ed. Indianapolis, IN: Pearson Custom Publishing, 2011 with Student CD including Lab Starter and Project Starter files.

Other Required Resources

In addition to the student textbook package, the following is also required in this course:

- Internet access

Equipment and Tools

- Standard classroom PC
- Microsoft Windows XP Professional Service Pack 3 (on virtual machine)
- Microsoft Office (on host machine of lab computer)
- Microsoft Visio (on host machine of lab computer)
- ITT-Lab virtual machine
- VMware Player 4.01 (or later) (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> Books 24x7
  - Darie, Cristian, and Karli Watson. *Beginning ASP.NET 2.0 E-Commerce in C#: From Novice to Professional. Berkeley, CA: Apress, 2006.*
  - Davis, Stephen Randy, and Chuck Sphar. *C# 2005 for Dummies. Hoboken, NJ: John Wiley & Sons, 2006.*
  - Hart, Chris, John Kauffman, David Sussman, and Chris Ullman. *Beginning ASP.NET 2.0 with C#. Indianapolis, IN: Wiley Publishing, Inc., 2006.*
  - Huddleston, James. *Beginning C# Databases: From Novice to Professional. Berkeley, CA: Apress, 2005.*
  - Kingsley-Hughes, Adrian, and Kathie Kingsley-Hughes. *C# 2005 Programmer's Reference. Indianapolis, IN: Wiley Publishing, Inc., 2007.*
  - Lhotka, Rockford. *Expert C# 2005 Business Objects. 2nd ed. Berkeley, CA: Apress, 2006.*
  - MacDonald, Matthew, and Mario Szpuszta. *Pro ASP.NET 2.0 in C# 2005. Berkeley, CA: Apress, 2006.*
  - Sarknas, Paul. *Pro ASP.NET 2.0 E-Commerce in C# 2005. Berkeley, CA: Apress, 2006.*
  - Sharp, John. *Microsoft Visual C# 2005 Step by Step. Redmond, WA: Microsoft Press, 2006.*
  - Voils, Donald L. *Advanced Business Programming with C# 2005. Wellington, FL: Electronic & Database Publishing, Inc., 2007.*
  - Watson, Karli. *Beginning Visual C# 2005. Indianapolis, IN: Wiley Publishing, Inc., 2006.*

- ITT Tech Virtual Library> Main Menu> Books> NetLibrary
  - Davis, Stephen R., and Charles Sphar. *C# 2005 for Dummies. Hoboken, NJ:* John Wiley & Sons, Inc., 2006.
  - Schildt, Herbert. *C# 2.0: The Complete Reference. New York: McGraw-Hill* Professional, 2006.

Periodicals

You may click “Periodicals” or use the “Search” function on the home page to find the following periodicals.

- ITT Tech Virtual Library> Main Menu> Periodicals
  - *MSDN Magazine*
- ITT Tech Virtual Library> Main Menu> Periodicals> Proquest Computing
  - *Computer Weekly*
  - *Dr. Dobb's Journal*
  - *Electronic Commerce News*
  - *Journal of Logic and Computation*
  - *Information Week*
  - *Software Development*

Reference Resources

You may click “Reference Resources” or use the “Search” function on the home page to find the following reference resources.

- Free Online Dictionary of Computing
- Glossary of Internet Terms

Learning Guides

You may click “Learning Guides” or use the “Search” function on the home page to find the following learning guides.

- ITT Tech Virtual Library> Main Menu> Learning Guides
  - Computer Technical Tutorials
  - Edumax
  - Programming Tutorials

Other References

The following resources may be found **outside** of the ITT Tech Virtual Library, whether online or in hard copy.

Websites

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

This vendor page links to information about developer tools and languages and Web and application-specific development.

All links to Web references outside of the ITT Tech Virtual Library 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%
Course Project	15%
Labs	25%
Quizzes	10%
Exam I	20%
Exam II	20%
Total	**100%**

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