

**ITT Technical Institute**

**SD4550**

**Application Development Using Visual  
Studio I**

**Onsite and Online Course**

**SYLLABUS**

---

**Credit hours:** 4.5

**Contact/Instructional hours:** 56 (34 Theory Hours, 22 Lab Hours)

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

Prerequisites: SD3320 Programming in Visual Basic or equivalent

**Course Description:**

This course introduces techniques to develop Windows based applications for desktop and mobile devices in the Microsoft Visual Studio environment.

---

## COURSE DESCRIPTION

This course introduces techniques to develop Windows-based applications for desktop and mobile devices in the Microsoft Visual Studio environment.

## MAJOR INSTRUCTIONAL AREAS

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

## COURSE LEARNING OBJECTIVES

By the end of this course, you should be able to:

1. Use Visual Studio 2012 to write C# programs for Windows platform.
2. Identify the important features of the C# programming language.
3. Manage namespaces.
4. Create and manage classes and objects.
5. Build classes using inheritance and polymorphism.
6. Declare and use arrays.
7. Create and use methods, properties, and events.
8. Implement control structures to manage decisions and repetitive processing.
9. Write programs using strings and streams.
10. Implement file access, data access, and data retrieval.
11. Implement event handling using the common GUI controls on Windows platform.
12. Apply defined approaches and methods in handling errors and exceptions.

## COURSE OUTLINE

### MODULE 1: C# PROGRAMMING USING VISUAL STUDIO 2012

#### COURSE LEARNING OBJECTIVES COVERED

- Use Visual Studio 2012 to write C# programs for Windows platform.
- Identify the important features of the C# programming language.
- Manage namespaces.
- Create and manage classes and objects.

#### TOPICS COVERED

- Visual Studio 2012 IDE
- Using Console Applications
- Using C# Language Essentials
- Namespaces
- Creating and Using Classes
- .NET Framework Class Libraries

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
<b>Reading:</b> <i>Visual C# 2012 How to Program</i> , Chapters 2, 3, and 4	No	5 hrs
<b>Reading:</b> ITT Tech Virtual Library> Basic Search> <i>Beginning Visual C#&gt; Chapters 1, 2, and 3</i>	No	3 hrs
<b>Lesson:</b> Study the lesson for this module.	No	1 hr
<b>Discussion:</b> Participate in the discussion titled “Visual OOP Development vs. Conventional Programming.”	Yes	N/A
<b>Lab:</b> Complete the lab titled “C# Fundamentals.”	Yes	N/A
<b>Project:</b> Read and begin the project.	No	1 hr

Total Out-Of-Class Activities: 10 Hours

## MODULE 2: CONTROL STATEMENTS, METHODS, AND ARRAYS

### COURSE LEARNING OBJECTIVES COVERED

- Use Visual Studio 2012 to write C# programs for Windows platform.
- Create and manage classes and objects.
- Declare and use arrays.
- Create and use methods, properties, and events.
- Implement control structures to manage decisions and repetitive processing.

### TOPICS COVERED

- Decision Structures and Loops
- Logical Operators
- Control Flow
- Methods
- Arrays

MODULE LEARNING ACTIVITIES	GRADE D	OUT-OF-CLASS TIME
<b>Reading:</b> <i>Visual C# 2012 How to Program</i> , Chapters 5, 6, 7, and 8	No	9 hrs
<b>Reading:</b> ITT Tech Virtual Library> Basic Search> <i>Beginning Visual C#&gt; Chapters 4, 5, and 6</i>	No	5 hrs
<b>Lesson:</b> Study the lesson for this module.	No	2 hrs
<b>Lab 1:</b> Complete the lab titled “Control Statements.”	Yes	N/A
<b>Lab 2:</b> Complete the lab titled “Methods and Arrays.”	Yes	N/A
<b>Exercise:</b> Submit the exercise titled “C# Programming Basics.”	Yes	2 hrs
<b>Project:</b> Submit Project Part 1.	Yes	4 hrs

Total Out-Of-Class Activities: 22 Hours

**MODULE 3: OBJECT-ORIENTED PROGRAMMING****COURSE LEARNING OBJECTIVES COVERED**

- Use Visual Studio 2012 to write C# programs for Windows platform.
- Create and manage classes and objects.
- Build classes using inheritance and polymorphism.

**TOPICS COVERED**

- Data Abstraction and Encapsulation
- Creating and Using Classes
- Working with Inheritance
- Working with Polymorphism
- Working with Interfaces
- Overloading Operators

MODULE LEARNING ACTIVITIES	GRADE D	OUT-OF-CLASS TIME
<b>Reading:</b> <i>Visual C# 2012 How to Program</i> , Chapters 10, 11, and 12	No	8 hrs
<b>Reading:</b> ITT Tech Virtual Library> Basic Search> <i>Beginning Visual C#&gt; Chapters 8, 9, and 10</i>	No	5 hrs
<b>Lesson:</b> Study the lesson for this module.	No	2 hrs
<b>Discussion:</b> Participate in the discussion titled “Protected vs. Private Access.”	Yes	N/A
<b>Lab 1:</b> Complete the lab titled “Creating, Using, and Managing Classes.”	Yes	N/A
<b>Lab 2:</b> Complete the lab titled “Inheritance, Polymorphism, and Interfaces.”	Yes	N/A
<b>Exercise:</b> Submit the exercise titled “Abstraction, Inheritance, and Polymorphism.”	Yes	2 hrs
<b>Project:</b> Continue work on Project Part 2.	No	3 hrs

Total Out-Of-Class Activities: 20 Hours

**MODULE 4: GUI PROGRAMMING AND EXCEPTION HANDLING****COURSE LEARNING OBJECTIVES COVERED**

- Use Visual Studio 2012 to write C# programs for Windows platform.
- Implement event handling using the common GUI controls on Windows platform.
- Apply defined approaches and methods in handling errors and exceptions.

**TOPICS COVERED**

- Windows Forms and GUI Components
- Graphic Interface Controls
- Mouse-Event and Keyboard-Event Handling
- Multiple Document Interface (MDI) Applications
- Catching and Handling Exceptions
- .NET Exception Hierarchy

MODULE LEARNING ACTIVITIES	GRADE D	OUT-OF-CLASS TIME
<b>Reading:</b> <i>Visual C# 2012 How to Program</i> , Chapters 13, 14, and 15	No	10.5 hrs
<b>Reading:</b> ITT Tech Virtual Library> Basic Search> <i>Beginning Visual C#&gt; Chapters 7, 15, and 16</i>	No	5 hrs
<b>Lesson:</b> Study the lesson for this module.	No	2 hrs
<b>Lab 1:</b> Complete the lab titled “GUI Programming.”	Yes	N/A
<b>Lab 2:</b> Complete the lab titled “Exception Handling.”	Yes	N/A
<b>Exercise:</b> Submit the exercise titled “Event Handling and Exception Handling.”	Yes	2 hrs
<b>Project:</b> Submit Project Part 2.	Yes	2 hrs

Total Out-Of-Class Activities: 21.5 Hours

## MODULE 5: I/O PROCESSING AND DATABASE PROGRAMMING

### COURSE LEARNING OBJECTIVES COVERED

- Use Visual Studio 2012 to write C# programs for Windows platform.
- Manage namespaces.
- Write programs using strings and streams.
- Implement file access, data access, and data retrieval.

### TOPICS COVERED

- LINQ Queries
- Data Binding
- Working with Strings
- Regular Expressions
- Text File I/O Operations
- Directories and Files

MODULE LEARNING ACTIVITIES	GRADE D	OUT-OF-CLASS TIME
<b>Reading:</b> <i>Visual C# 2012 How to Program</i> , Chapters 9, 16, 16.15, 17, and 22	No	11 hrs
<b>Reading:</b> ITT Tech Virtual Library> Basic Search> <i>Beginning Visual C#&gt; Chapters 23 and 24</i>	No	3 hrs
<b>Lesson:</b> Study the lesson for this module.	No	2 hrs
<b>Discussion:</b> Participate in the discussion titled “Java vs. C# for Database-Driven Application.”	Yes	N/A
<b>Lab 1:</b> Complete the lab titled “LINQ Implementation.”	Yes	N/A
<b>Lab 2:</b> Complete the lab titled “External File Access in C#.”	Yes	N/A
<b>Exercise:</b> Submit the exercise titled “Access Data Using LINQ Query.”	Yes	2 hrs
<b>Project:</b> Continue work on Project Part 3.	No	3 hrs

Total Out-Of-Class Activities: 21 Hours

## MODULE 6: XML DOCUMENT ACCESS

### COURSE LEARNING OBJECTIVES COVERED

- Use Visual Studio 2012 to write C# programs for Windows platform.
- Identify the important features of the C# programming language.
- Manage namespaces.
- Create and manage classes and objects.
- Build classes using inheritance and polymorphism.
- Declare and use arrays.
- Create and use methods, properties, and events.
- Implement control structures to manage decisions and repetitive processing.
- Write programs using strings and streams.
- Implement file access, data access, and data retrieval.
- Implement event handling using the common GUI controls on Windows platform.
- Apply defined approaches and methods in handling errors and exceptions.

### TOPICS COVERED

- XML Document Components
- Creating an XML File
- XML Schemas
- XSL Style Sheets
- Reading and Querying XML Files
- Writing XML Files

MODULE LEARNING ACTIVITIES	GRADE D	OUT-OF- CLASS TIME
<b>Reading:</b> <i>Visual C# 2012 How to Program</i> , Chapter 24	No	2 hrs
<b>Lesson:</b> Study the lesson for this module.	No	2 hrs
<b>Lab:</b> Complete the lab titled "XML Document Access in C#."	Yes	N/A
<b>Project:</b> Submit Project Part 3.	Yes	2 hrs
<b>Final Exam:</b> Prepare for the final exam.	No	5 hrs



<b>Final Exam:</b> Take the final exam.	Yes	N/A
---	-----	-----

Total Out-Of-Class Activities: 11 Hours

## EVALUATION CRITERIA

The graded assignments will be evaluated using the following weighted categories:

CATEGORY	WEIGHT
Discussion	10%
Lab	25%
Exercise	15%
Project	30%
Final Exam	20%
TOTAL	100%

## GRADE CONVERSION

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

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

---

## REQUIRED RESOURCES

---

### COMPLETE TEXTBOOK PACKAGE

- Deitel, P. & Deitel, H. (2014). *Visual C# 2012 How to Program (5<sup>th</sup> ed.)*. Boston: Prentice Hall.

---

### OTHER ITEMS

- Microsoft Office
- Microsoft Visio
- Visual Studio 2013 Community Edition\*

\* You can download Visual Studio 2013 Community Edition from the DreamSpark website. Refer to the [DreamSpark Installation Guide](#) for download instructions.

---

## RECOMMENDED RESOURCES

### Books and Professional Journals

- Purdum, J. (2013). *Beginning Object-Oriented Programming with C#*. Indianapolis, IN: Wrox Press.
- Ky, J. (2013). *C#—A Beginner's Tutorial*. Indianapolis, IN: Brainy Software Corp.
- Watson, K. et al. (2013). *Beginning Visual C# 2012 Programming*. Indianapolis, IN: Wrox Press.

ITT Tech Virtual Library (accessed via Student Portal | <https://studentportal.itt-tech.edu>)

- Basic Search>
  - Darie, Cristian & Watson, K. (2006). *Beginning ASP.NET 2.0 E-Commerce in C#: From Novice to Professional*. Berkeley, CA: Apress.
  - Davis, Randy, S. & Sphar, C. (2006). *C# 2005 For Dummies*. Hoboken, NJ: John Wiley & Sons.
  - Hart, Chris, Kauffman, J., Sussman, D. & Ullman, C. (2006). *Beginning ASP.NET 2.0 with C#*. Indianapolis, IN: Wiley Publishing, Inc.

- Huddleston, J. (2005). *Beginning C# Databases: From Novice to Professional*. Berkeley, CA: Apress.
- Kingsley, H., Adrian & Hughes, K. (2007). *C# 2005 Programmer's Reference*. Indianapolis, IN: Wiley Publishing, Inc.
- Lhotka, R. (2006). *Expert C# 2005 Business Objects (2<sup>nd</sup> ed.)*. Berkeley, CA: Apress.
- MacDonald, M. & Szpuszta, M. (2006). *Pro ASP.NET 2.0 in C# 2005*. Berkeley, CA: Apress.
- Sarknas, P. (2006). *Pro ASP.NET 2.0 E-Commerce in C# 2005*. Berkeley, CA: Apress.
- Sharp, J. (2006). *Microsoft Visual C# 2005 Step by Step*. Redmond, WA: Microsoft Press.
- Voils, Donald L. (2007). *Advanced Business Programming with C# 2005*. Wellington, FL: Electronic & Database Publishing, Inc.
- Watson, K. (2006). *Beginning Visual C# 2005*. Indianapolis, IN: Wiley Publishing, Inc.

---

The curriculum employs a variety of instructional methods that support the course objectives while fostering higher cognitive skills. These methods are designed to encourage and engage you in the learning process in order to maximize learning opportunities. The instructional methods include but are not limited to lectures, collaborative learning options, use of technology, and hands-on activities.

To implement the above-mentioned instructional methods, this course uses several teaching strategies, such as discussions that enable you to demonstrate understanding of the subject and labs and project work that provide the required hands-on practice. Your progress will be regularly assessed through a variety of assessment tools including discussions, labs, exercises, project, and final exam.

---

For purposes of defining an academic credit hour for Title IV funding purposes, ITT Technical Institute considers a quarter credit hour to be the equivalent of: (a) at least 10 clock hours of classroom activities and at least 20 clock hours of outside preparation; (b) at least 20 clock hours of laboratory activities; or (c) at least 30 clock hours of externship, practicum or clinical activities. ITT Technical Institute utilizes a “time-based option” for establishing out-of-class activities which would equate to two hours of out-of-class activities for every one hour of classroom time. The procedure for determining credit hours for Title IV funding purposes is to divide the total number of classroom, laboratory, externship, practicum and clinical hours by the conversion ratios specified above. A clock hour is 50 minutes.

A credit hour is an artificial measurement of the amount of learning that can occur in a program course based on a specified amount of time spent on class activities and student preparation during the program course. In conformity with commonly accepted practice in higher education, ITT Technical Institute has institutionally established and determined that credit hours awarded for coursework in this program course (including out-of-class assignments and learning activities described in the “Course Outline” section of this syllabus) are in accordance with the time-based option for awarding academic credit described in the immediately preceding paragraph.

---

All students must comply with the policies that regulate all forms of academic dishonesty or academic misconduct. For more information on the academic honesty policies, refer to the Student Handbook and the Course Catalog.

---

Instructor Name	
Office Hours	
Contact Details	

*(End of Syllabus)*