CS G178: VISUAL C# .NET

Item	Value
Curriculum Committee Approval Date	02/21/2023
Top Code	070710 - Computer Programming
Units	4 Total Units
Hours	108 Total Hours (Lecture Hours 54; Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

This course will cover software development in the Microsoft .NET framework. Visual C# .NET will be used as the development tool to discuss and practice Windows-based applications and Web-based applications. This course prepares students for Microsoft.NET Framework Web-Based Development Certificate and Windows Client Development Certificate. ADVISORY: CS G153 or CS G175. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Course Outcomes
2. Create a C# application by applying object-oriented programming techniques, including designing classes and methods, and implementing concepts of polymorphism and inheritances.
3. Design a C# applications that incorporate Windows forms.
4. Utilize the basic principles of the event-driven and graphical programming model.
5. Implement proper class hierarchy and component design in .NET.

Course Objectives

- 1. Produce programs that create and manipulate primitive variables.
- 2. Produce programs using various forms of control flow.
- 3. Define and declare methods that pass and return data.
- 4. Apply various forms of arrays to solve problems.
- 5. Produce programs which use sequential file I/O concepts.
- 6. Apply object-oriented programming techniques to solve various problems using the C# language.
- 7. Produce programs that make use of the concepts of inheritance.
- 8. Design C# applications that use Windows forms.
- 9. Write programs that make correct use of C# structured exception handling.
- 10. Implement selection structures (if/else and switch), repetition structures (while, do/while, and for), and one- and two-dimensional arrays.
- 11. Access databases with ADO .NET and SQL.
- 12. Create applications for the World Wide Web (WWW).
- 13. Use .NET collections.

Lecture Content

Introduction to computer programming and C# Working with Windows controls Building objects Using data Decisions and conditions Looping Menus and common dialog boxes Arrays and lists Using methods Using classes and objects Creating Object-Oriented Programs Accessing databases with ADO .NET and SQL Saving data and objects in files Debugging C# projects Graphical user interface (GUI) Integrated development environment (IDE)

Lab Content

Build, run and debug a basic application in C# Create an application that displays output Perform exception handling Modify programs by refactoring Modify applications for WWW (World Wide Web) Build applications using multithreading and UGI Write programs that use the bool data type and other decision tools Create Windows forms Write programs that pass arrays to methods

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)
- Lab (04)
- DE Live Online Lab (04S)
- DE Online Lab (04X)

Reading Assignments

TextbookInstructor prepared materials on component programming, visual tools, third-party controls, and latest development strategies

Writing Assignments

Complete software development projects and business automation problems requiring solution implementation. Students are required to write code comments for documentating their projects.

Out-of-class Assignments

Research in current programming practices or other related topicsBuild programs using C#

Demonstration of Critical Thinking

Build programs using C# and demonstrating lab projects to the class.

Required Writing, Problem Solving, Skills Demonstration

Students will be required to complete software development projects. Write code comments as documentation on programming projects.

Eligible Disciplines

Computer science: Master's degree in computer science or computer engineering OR bachelor's degree in either of the above AND master's degree in mathematics, cybernetics, business administration, accounting or engineering OR bachelor's degree in engineering AND master's degree in cybernetics, engineering mathematics, or business administration OR bachelor's degree in mathematics AND master's degree in cybernetics, engineering mathematics, or business administration OR bachelor's degree in any of the above AND a master's degree in information science, computer information systems, or information systems OR

the equivalent. Note: Courses in the use of computer programs for application to a particular discipline may be classified, for the minimum qualification purposes, under the discipline of the application. Master's degree required.

Textbooks Resources

1. Required Conrod, P., Tylee, L.. Learn Visual C#, ed. Kidware Software, 2019 2. Required Gaddis, T.. Visual C#, 5th ed. Pearson, 2021

Other Resources

1. Instructor prepared materials.