



HOUSATONIC COMMUNITY COLLEGE

Course Name: C# Programming

Course Number: CSC* E218

Credits: 4

Catalog description: A comprehensive study of the fundamentals of object-oriented programming using the C# programming language and the .NET Framework. Topics include the .NET Framework, the fundamental syntax and semantics of C# language, operators and expressions, control structures, methods, arrays and indexers, strings and string manipulation, objects, classes, inheritance, polymorphism, components, interfaces, exceptions, collections, delegates and events.

The course requires substantial hands-on use of computers in a computerized classroom environment.

Prerequisite: *MAT* E137 or higher; CSC*E105 or permission of the instructor*

Corequisite or Parallel:

General Education Competencies Satisfied:

HCC General Education Requirement Designated Competency Attribute Code(s):

None

Additional CSU General Education Requirements for CSU Transfer Degree Programs:

None

Embedded Competency(ies):

None

Discipline-Specific Attribute Code(s):

COMP Computer Science Elective

Course objectives:

General Education Goals and Outcomes:

None



HOUSATONIC COMMUNITY COLLEGE

Course Specific Objectives:

1. Demonstrate a basic understanding of the .NET Framework, the Common Language Runtime (CLR), Common Language Specification (CLS), and managed code
2. Plan, design, write, save, edit, compile, run, and debug C# programs
3. Understand the basic syntax of the C# language and language semantics
4. Create and use variables and constants
5. Understand C# datatypes and data type conversion
6. Understand expressions, operators, and statements
7. Understand and use C# arrays and indexers
8. Understand and use C# strings and string manipulations
9. Understand and use C# methods
10. Create programs that use control structures
11. Understand object creation, object life cycle, memory management and garbage collection
12. Understand basic object-oriented concepts and principles and object-oriented design and programming (object-oriented software development)
13. Understand and utilize abstraction, encapsulation, inheritance, polymorphism, components, and interfaces
14. Understand, use, and design C# classes, interfaces, and objects
15. Understand and utilize exceptions and exception handling
16. Understand and utilize collections
17. Understand and utilize delegates, events, and event handling
18. Understand and utilize the .NET Framework class library



Course Content:

1. The .NET Framework
 - a) .NET Executables and the CLR
 - b) Framework Components
 - c) .NET Base Class Library
 - d) .NET Namespaces
 - e) The Common Language Runtime (CLR)
 - f) Managed Code
 - g) .NET Memory Management / Garbage Collection
 - h) Common Type System (CTS)
 - i) Common Language Specification (CLS)
 - j) Types of JIT Compilers
 - k) Security Manager
 - l) Using an IDE
2. Variables and Expressions
3. Input and output in C#
4. Data types and data type conversions
5. Operators and expressions
6. Decision structures and loops
7. Arrays and indexers
8. Methods and parameter passing
9. Constructors and initialization
10. Method overloading and operator overloading
11. Strings and string manipulation, string methods, and the StringBuilder class



12. Virtual Methods and Dynamic Binding
13. Method Overriding
14. Objects, classes, inheritance, polymorphism, and components
15. Classes as structured data, abstract classes, sealed classes
16. Heterogeneous Collections
17. Exception Fundamentals and structured exception handling
18. User-Defined Exception Classes
19. Interface Fundamentals and programming with interfaces
20. Using Interfaces at Runtime
21. Collections
22. Comparing Objects
23. Generic Types
24. Events, delegates, and event handling

Date Course Created: Spring 2018

Date of Last Revision: 01/22/2018