OOP with Net I

Course Code:	CP140	**Co-Requisites:**	N/A	**Pre-Requisites:**	N/A
Course Hours:	45.00				

Course Description

This is an introductory course in programming, designed to teach the fundamentals. Emphasis is on object-oriented programming. Objects will be used to solve a series of business problems. Using these solutions, computer programs will be written, tested, and debugged using a professional editor such as Visual Studio. The C# language will be taught and used as the language for writing programs. The course starts with an introduction to the basic concepts of procedural and object oriented programming and the typical components of a user-defined class. The course focuses on the logical structures central to all programming (the sequence, decision, and loop) and along with object structures and how they can be applied to most business application needs.

Course Delivery

The course content may be presented through a blend of instructional methods, including lecture, Internet, discussion, independent study, audio/video conferencing and videotape.

Learning Resources

Solis, D.M. (2012). *Illustrated C# 2012.* (4th ed.). New York, NY: Apress. ISBN: 9781430242789

Vocational Learning Outcomes

This course contributes to the achievement of the following program vocational learning outcomes (PVLO):

0180 - Computer Programmer

VLO 2	develop, test, document, deploy, and maintain secure program code based on specifications.
VLO 6	use relevant methodologies, policies, and standards to develop secure program code.

Essential Employability Skills

This course contributes to the achievement of the following Essential Employability Skills (EES):

EES 4	apply a systematic approach to solve problems.

Course Learning Outcomes and Knowledge and Skills

This course contributes to the achievement of the following Course Learning Outcomes (CLO):

1. use appropriate programming languages to develop and maintain program code to design specifications

- 1.1 use parameters with methods
- 1.2 use built in C# types and operators
- 1.3 solve a simple business problem/need using Classes
- 1.4 declare and use variables

1.5 use encapsulation with access modifiers on accessors in C#

1.6 define the structure of a method

1.7 use method overloading

1.8 evaluate using substitution

1.9 code a basic C# program

2. use appropriate tools and techniques to develop, test, and maintain program code

2.1 follow the sequence of code execution

2.2 arrange the flow of programs using decision structures (if, if-then-else and switch statements)

2.3 use fixed sized arrays to store of data/objects

2.4 use two dimensional arrays

2.5 use enumerators to process information

2.6 arrange the flow of program control using loops

2.7 build a simple software executable from source using tools like make/nmake, or msbuild, or an Integrated Development Environment (IDE)

3. install and implement programs

3.1 install programs developed to ensure they operate outside of the developer environment

4. identify appropriate practices, processes, and procedures which ensure quality software development

4.1 describe how classes are used to model real-world objects

4.2 describe the benefit of using encapsulation

4.3 describe the benefit of using inheritance

4.4 describe how polymorphism can be used in C#

4.5 define encapsulation, polymorphism and inheritance

4.6 define OOP vs. Functional programming

5. complete all work in compliance with relevant standards, policies, processes, methodologies, and procedures

5.1 describe the role of a common IDE such as Visual Studio to workplace compliance

5.2 discuss code revision management when working in teams in a physical and distributed workplace

6. test program code

6.1 compile program code to ensure there are no syntax errors

7. perform quality assurance

7.1 perform personal code version management

7.2 perform a code review looking for ways to optimize a solution

7.3 define pair programming

7.4 perform pair programming

7.5 discuss code version management

8. participate in technical reviews

8.1 perform a code review to find logic errors

9. ensure that program code is consistent with user requirements

9.1 create a program definition from user requirements

9.2 perform end user testing

9.3 prepare end user tests

10. use an appropriate software development methodology

- 10.1 use expressions and operators to perform comparisons
- 10.2 use inheritance to extend a class in C#
- 10.3 invoke class methods
- 10.4 use encapsulation to hide the source of change
- 10.5 use classes to model real world objects
- 10.6 use encapsulation to hide complexity
- 10.7 use expressions and operators to evaluate calculations
- 10.8 create object instances of classes
- 10.9 use fixed sized arrays to store data/objects

11. apply knowledge of a variety of techniques to test and debug programs

- 11.1 use the IDE (Integrated Development Environment) to help debug programs

12. prepare and complete unit tests

- 12.1 perform unit testing
- 12.2 prepare unit tests

13. prepare, present, and maintain current, clear, and accurate documentation

- 13.1 document program code with a C# comment

14. justify decisions related to the development of program code

- 14.1 justify the use of access modifiers to hide complexity

15. identify security risks in the deployment and maintenance of program code

- 15.1 identify how scope secures program code

16. prepare, present, and maintain current, clear, and accurate project-related documents that adhere to organizational and industry standards and procedures

- 16.1 prepare coding documentation using XML

Course Evaluation

Test - 35%

Linked to Course Learning Outcomes: 1, 2, 4, 10

Quizzes - 20%

Linked to Course Learning Outcomes: 1, 2, 4, 5, 6, 10, 11, 14, 15

Programming Assignment - 25%

Linked to Course Learning Outcomes: 1, 2, 9, 12, 13
Linked to Essential Employability Skills: 4

Practical Programming Activities - 20%

Linked to Course Learning Outcomes: 1, 2, 3, 7, 8, 12, 13, 16

Grade Scheme

A	B	C	D	F

80% - 100%	70% - 79.9%	60% - 69.9%	50% - 59.9%	Less than 50%

Prior Learning Assessment and Recognition

This course is available for challenge or assessment through Prior Learning Assessment and Recognition (PLAR). Please contact the Program Coordinator for more information or look for PLAR on the College website at http://www.confederationc.on.ca/plar

Course Related Information

Combination of Classroom Lecture/Lab 45 hrs, 3 hours per week

College Related Information

COLLEGE TEST AND ASSIGNMENT POLICY:
All assignments are due on the assigned date. Late assignments may be accepted, with academic penalty, at the discretion of the individual faculty member. Assignment due dates, late penalties, and/or their acceptance are to be communicated by the faculty at the beginning of the course.

Students are to write tests and quizzes on the dates assigned and within the timelines specified by the professor.

In granting extensions in cases of extenuating or extraordinary circumstances, the professor may request medical certificates or appropriate documentation from the student, at the student's expense, to ensure the legitimacy of the request. Any early departure at the semester's end, early departure or late return at March Break, or other scheduled vacation on the part of the student during the program's academic semester may not be considered as an extraordinary circumstance.

Note: Plagiarism is a serious academic offence and will result in a failing grade for the assignment and the possible expulsion from the program. The professor maintains the right to uphold this policy or to allow the student to submit a new assignment with an academic penalty at the professor's discretion.

SERVICES FOR STUDENTS WITH DISABILITIES:
If you are a student with a disability who may require academic accommodation, it is your responsibility to register as early as possible with the Academic Support Centre (Room 153, Shuniah Building) or call (807) 475-6618 to discuss your accommodation needs. (www.confederationc.on.ca/academicsupportcentre)

Students with disabilities who have an Accommodation Plan should be aware that these plans are not shared with the Field Placement Employer. Students with disabilities who feel they may require accommodations during Field Placement should discuss this with staff in the Academic Support Centre.

Students with disabilities always have the opportunity to discuss how their particular disability may impact their college experience.

Approval Details

Approved on:	Tuesday, September 8, 2015
Approved by:	Rick Clace, Associate Dean
Prepared by:	Troy Mangatal, Coordinator

Approved for: 2015-2016

Please note: this document should be saved for future reference, as it may be needed for certification, credit transfer and employment purposes.