Course Outline

School:	Eng. Tech. & Applied Science
Department:	Information and Communication Engineering Technology (ICET)
Course Title:	Programming 1
Course Code:	COMP 100
Course Hours/Credits:	56
Prerequisites:	N/A
Co-requisites:	N/A
Eligible for Prior Learning, Assessment and Recognition:	Yes
Originated by:	Ilia Nika, Narendra Pershad
Creation Date:	Summer 2011
Revised by:	Narendra Pershad
Revision Date:	Summer 2019
Current Semester:	Winter 2023
Approved by:	ppesikan c/o

Chairperson/Dean

Students are expected to review and understand all areas of the course outline.

Retain this course outline for future transfer credit applications. A fee may be charged for additional copies.

This course outline is available in alternative formats upon request.

Acknowledgement of Traditional Lands

Centennial is proud to be a part of a rich history of education in this province and in this city. We acknowledge that we are on the treaty lands and territory of the Mississaugas of the Credit First Nation and pay tribute to their legacy and the legacy of all First Peoples of Canada, as we strengthen ties with the communities we serve and build the future through learning and through our graduates. Today the traditional meeting place of Toronto is still home to many Indigenous People from across Turtle Island and we are grateful to have the opportunity to work in the communities that have grown in the treaty lands of the Mississaugas. We acknowledge that we are all treaty people and accept our responsibility to honor all our relations.

Course Description

Programming 1 is an introductory course in programming. It seeks to develop good coding practices and program design through theory and hands-on exercises. It includes programming concepts, logic and program structures. It lays the foundations for the design and development of business applications.

Program Outcomes

Successful completion of this and other courses in the program culminates in the achievement of the Vocational Learning Outcomes (program outcomes) set by the Ministry of Colleges and Universities in the Program Standard. The VLOs express the learning a student must reliably demonstrate before graduation. To ensure a meaningful learning experience and to better understand how this course and program prepare graduates for success, students are encouraged to review the Program Standard by visiting http://www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/. For apprenticeship-based programs, visit http://www.collegeoftrades.ca/training-standards.

Course Learning Outcomes

The student will reliably demonstrate the ability to:

1. Explain the need for and use basic program design tools.
2. Justify the various data types for program variables.
3. Understand and apply program control structures.
4. Construct nested selection and looping structures.
5. Understand and apply basic problem solving tool.
6. Pass data between program methods.
7. Develop methods that use arrays.
8. Build and use simple C# classes.
9. Design, code and test a program in a language like C# .NET to solve a prescribed business problem.

Essential Employability Skills (EES)

The student will reliably demonstrate the ability to*:

1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
4. Apply a systematic approach to solve problems.
5. Use a variety of thinking skills to anticipate and solve problems.

7. Analyze, evaluate, and apply relevant information from a variety of sources.
8. Show respect for diverse opinions, values belief systems, and contributions of others.
9. Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.
10. Manage the use of time and other resources to complete projects.
11. Take responsibility for one's own actions, decisions, and consequences.

**There are 11 Essential Employability Skills outcomes as per the Ministry Program Standard. Of these 11 outcomes, the following will be assessed in this course.*

Global Citizenship and Equity (GC&E) Outcomes

N/A

Methods of Instruction

eCentennial/self-paced learning enables you to review materials at your own pace. You will be required to complete tasks to accomplish the training with a set period.

eCentenial course tools available
Discussion boards

Text and other Instructional/Learning Materials

Text Book(s):

Microsoft® Visual C# 2015: An Introduction to Object-Oriented Programming, 7th Edition
Joyce Farrell, ISBN-10: 1337685771 | ISBN-13: 978-1337685771, 758 Pages, published by Course Technology Ptr, 2017.

Classroom and Equipment Requirements

You will need access to the latest version of Microsoft Visual Studio storage a computer sufficient computing power to run this software. You computer must also have access to a reliable internet access and with either the latest version of FireFox or Chrome.

Evaluation Scheme

- Assignments: There will be two assignments that will be published in weeks 1 and 9
- Test 1: Test will take place in week 5 or 6 and will cover material taught between weeks 1 and 5.
- Test 2: Test 2 will take place in week 9 and will cover material taught up to week 8.
- Test 3: Test 3 will take place in week 14 and will cover material taught up to week 13.
- Quizzes: There will be about 7 quizzes worth a total of 5 marks that will be done upon the completion of each topic. There will also be a number of lab completion exercises worth a total of 5 marks.
- Labs: There will be a lab exercise after each topic.

Evaluation Name	CLO(s)	EES Outcome(s)	GCE Outcome(s)	Weight/100
Assignments	1, 2, 4, 5, 7, 8	1, 5, 8, 9, 10		15
Test 1	1, 2, 3, 5, 6, 7	4, 7, 8		20
Test 2	5, 6, 7, 8, 9	7, 9, 10, 11		25
Test 3	4, 6, 8, 9	4, 7, 9, 11		25
Quizzes	1, 2, 5, 6	4, 5, 7		5
Labs	5, 6, 7, 9	7, 8, 10		10
Total				100%

If students are unable to write a test they should immediately contact their professor or program Chair for advice. In exceptional and well documented circumstances (e.g. unforeseen family problems, serious illness, or death of a close family member), students may be able to write a make-up test.

All submitted work may be reviewed for authenticity and originality utilizing Turnitin®. Students who do not wish to have their work submitted to Turnitin® must, by the end of the second week of class, communicate this in writing to the instructor and make mutually agreeable alternate arrangements.

When writing tests, students must be able to produce official Centennial College photo identification or they may be refused the right to take the test or test results will be void.

Tests or assignments conducted remotely may require the use of online proctoring technology where the student's identification is verified and their activity is monitored and/or recorded, both audibly and visually through remote access to the student's computer and web camera. Students must communicate in writing to the instructor as soon as possible and prior to the test or assignment due date if they require an alternate assessment format to explore mutually agreeable alternatives.

Student Accommodation

The Centre for Accessible Learning and Counselling Services (CALCS) (http://centennialcollege.ca/calcs) provides programs and services which empower students in meeting their wellness goals, accommodation and disability-related needs. Our team of professional psychotherapists, social workers, educators, and staff offer brief, solution-focused psychotherapy, accommodation planning, health and wellness education, group counselling, psycho-educational workshops, adaptive technology, and peer support. Walk in for your first intake session at one of our service locations (Ashtonbee Room L1-04, Morningside Room 190, Progress Room C1-03, The Story Arts Centre Room 285, Downsview Room 105) or contact us at calcs@centennialcollege.ca, 416-289-5000 ext. 3850 to learn more about accessing CALCS services.

Use of Dictionaries

- Dictionary use is not permitted in test or examination settings.

Program or School Policies

N/A

Course Policies

N/A

College Policies

Students should familiarize themselves with all College Policies that cover academic matters and student conduct.

All students and employees have the right to study and work in an environment that is free from discrimination and harassment and promotes respect and equity. Centennial policies ensure all incidents of harassment, discrimination, bullying and violence will be addressed and responded to accordingly.

Academic Honesty

Academic honesty is integral to the learning process and a necessary ingredient of academic integrity. Forms of academic dishonesty include cheating, plagiarism, and impersonation, among others. Breaches of academic honesty may result in a failing grade on the assignment or course, suspension, or expulsion from the college. Students are bound to the College's AC100-11 Academic Honesty and Plagiarism policy.

To learn more, please visit the Libraries information page about Academic Integrity https://libraryguides.centennialcollege.ca/academicintegrity and review Centennial College's Academic Honesty Module: https://myappform.centennialcollege.ca/ecentennial/articulate/Centennial_College_Academic_Integrity_Module_%202/story.html

Use of Lecture/Course Materials

Materials used in Centennial College courses are subject to Intellectual Property and Copyright protection, and as such cannot be used and posted for public dissemination without prior permission from the original creator or copyright holder (e.g., student/professor/the College/or third-party source). This includes class/lecture recordings, course materials, and third-party copyright-protected materials (such as images, book chapters and articles). Copyright protections are automatic once an original work is created, and applies whether or not a copyright statement appears on the material. Students and employees are bound by College policies, including AC100-22 Intellectual Property, and SL100-02 Student Code of Conduct, and any student or employee found to be using or posting course materials or recordings for public dissemination without permission and/or inappropriately is in breach of these policies and may be sanctioned.

For more information on these and other policies, please visit www.centennialcollege.ca/about-centennial/college-overview/college-policies.

Students enrolled in a joint or collaborative program are subject to the partner institution's academic policies.

PLAR Process

This course is eligible for Prior Learning Assessment and Recognition (PLAR). PLAR is a process by

which course credit may be granted for past learning acquired through work or other life experiences. The PLAR process involves completing an assessment (portfolio, test, assignment, etc.) that reliably demonstrates achievement of the course learning outcomes. Contact the academic school to obtain information on the PLAR process and the required assessment.

Semester:	Fall 2021	Professor Name:	See eCentennial course shell
Section Code:	ALL	Contact Information:	See eCentennial course shell
Meeting Time & Location:	See myCentennial timetable	Office Hours:	To be announced in the first week of class
Delivery Method:	On-line		

Topical Outline (subject to change):

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name and Weight	Evaluation Date
1	Programming Concepts	Chapter 1	Learn about programming. Learn about algorithms. Identify the output, input and processing items from a problem specification and generate a suitable algorithm for the solution. Explore programming concepts.	Use three-column IPO Chart to guide program creation	Group Assignment 1 - Part A	Due in Week 2
2	Programming Concepts	Chapter 1	Learn about the current programming language. Write a program that produces output and accept user input. Learn how to select proper identifiers to use within your programs. Add single-lined or multi-lined comments to a program. Write, compile and execute a program using the current IDE.	Use a two-column IPO Chart to reinforce program creation	Group Assignment 1 - Part B	Due in Week 3
3	Using Data	Chapter 2	Learn about declaring variables. Displaying variables. Learn about integral data types. Learn about floating-point data types. Use the arithmetic operators +, -, *, / and %.	Lecture Demonstration Lab Session	Lab	Due in Week 4

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name and Weight	Evaluation Date
4	Using Data	Chapter 2	Learn about the char, string and bool data types. Appreciate what data conversions are possible. Define and use named constants.	Lecture Demonstration Lab Session	Lab	Due in Week 5
5	Making Decisions	Chapter 4	Understand logic-planning and decision tools such as Pseudocode and Flowchart. Learn how to make decisions using the if statement. Learn how to make decisions using the if-else statement. Use the comparison/relational operators.	Lecture Demonstration Lab Session	Lab	Due in Week 6
6	Making Decisions	Chapter 4	Use logical/boolean operators to create compound expressions in if statements. Make decisions using the switch statement. Use the current language features to make case insensitive comparisons. Learn to avoid common errors when making decisions. Use nested conditionals to implement more complex logic.	Lecture Demonstration Lab Session	Test 1	TBA
7	Looping	Chapter 5	Learn how to create do-while loops Use accumulators, filters and guards with loops	Lecture Demonstration Lab Session	Lab	Due in Week 8
8	Looping	Chapter 5	Use for and while loops. Use the current language features to format numerical values and to align text values. Use nested loops.	Lecture Demonstration Lab Session	Lab	Due in Week 9

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name and Weight	Evaluation Date
			Use the current IDE to execute programs in single-step mode for debugging. Understand how to improve loop performance.			
9	Looping	Chapter 5	Understand that arrays are multi value variables. Declare an array and assign values to array elements. Use subscripts to access array elements. Use the Length property. Use a foreach loop to iterate the elements of an array. Use the current language features to obtain a char array or string array from a string.	Lecture Demonstration Lab Session	Test 2	TBA
10	Arrays	Chapter 6	Perform operations on an array such as searching, summing, filtering. Use the BinarySearch(), Sort() and Reverse() methods of the array class.	Lecture Demonstration Lab Session	Lab	Due in Week 11
11	Methods	Chapter 7	Learn about methods and implementation hiding. Understand method header and body. Understand how control flows in method invocation. Write methods with no parameters and no return value. Write methods that require a single or multiple arguments. Write methods that return a primitive value.	Lecture Demonstration Lab Session	Assignment 2	Parts Due in each class

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name and Weight	Evaluation Date
12	Methods	Chapter 7	Pass an array to a method. Return an array from a method. Use reference parameters, output parameters, and parameter arrays with methods. Use optional parameters. Use current language math functions such as Sin, Cos, Tan, Log, Abd etc.	Lecture Demonstration Lab Session	Lab	
13	Methods	Chapter 7	Will learn about the following string methods ToLower(), ToUpper(), ToCharArray(), Split(). Use the Random class to generate random int or double.	Lecture Demonstration Lab Session	Lab	
14	Method	Chapter 1, 2, 4, 5, 6 and 7	Revision of all Topics	Lecture Demonstration Lab Session	Test 3	TBA