



## COURSE OUTLINE: CSD121 - PROG. CONCEPTS I

Prepared: Rodney Martin

Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	CSD121: PROGRAMMING CONCEPTS I
<b>Program Number: Name</b>	2095: COMPUTER PROGRAMMING
<b>Department:</b>	COMPUTER STUDIES
<b>Academic Year:</b>	2022-2023
<b>Course Description:</b>	<p>Organizing and testing code is important in managing software complexity. Students in this course are introduced to Object Oriented Programming (OOP) as a way to structure software in a maintainable and testable way. Topics include interfaces, polymorphism, inheritance, type systems, and important data structures. Students build working applications and learn to validate their programs using appropriate tests.</p> <p>This course is delivered using the Java programming language.</p>
<b>Total Credits:</b>	4
<b>Hours/Week:</b>	4
<b>Total Hours:</b>	56
<b>Prerequisites:</b>	CSD110
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>This course is a pre-requisite for:</b>	CSD213, CSD214, CSD215
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>	<b>2095 - COMPUTER PROGRAMMING</b>
<b>Please refer to program web page for a complete listing of program outcomes where applicable.</b>	VLO 4 Implement robust computing system solutions through validation testing that aligns with industry best practices.
	VLO 10 Contribute to the development, documentation, implementation, maintenance and testing of software systems by using industry standard software development methodologies based on defined specifications and existing technologies/frameworks.
	VLO 11 Apply one or more programming paradigms such as, object-oriented, structured or functional programming, and design principles, as well as documented requirements, to the software development process.
<b>Essential Employability Skills (EES) addressed in this course:</b>	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
	EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.
	EES 4 Apply a systematic approach to solve problems.
	EES 5 Use a variety of thinking skills to anticipate and solve problems.
	EES 6 Locate, select, organize, and document information using appropriate technology



and information systems.

EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.

EES 10 Manage the use of time and other resources to complete projects.

EES 11 Take responsibility for ones own actions, decisions, and consequences.

**Course Evaluation:**

Passing Grade: 50%, D

A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.

**Other Course Evaluation & Assessment Requirements:**

To successfully pass this course, the student must receive passing grades for both the Test and Evaluation portion of the class AND the Laboratory portion.

Grade  
Definition Grade Point Equivalent  
A+ 90 - 100% 4.00  
A 80 - 89%  
B 70 - 79% 3.00  
C 60 - 69% 2.00  
D 50 - 59% 1.00  
F (Fail) 49% and below 0.00

CR (Credit) Credit for diploma requirements has been awarded.

S Satisfactory achievement in field /clinical placement or non-graded subject area.

U Unsatisfactory achievement in field/clinical placement or non-graded subject area.

X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.

NR Grade not reported to Registrar's office.

W Student has withdrawn from the course without academic penalty.

**Books and Required Resources:**

Big Java: Objects First by Cay S. Horstmann  
Publisher: Wiley Edition: 7  
ISBN: 978-1-119-49909-1

**Course Outcomes and Learning Objectives:**

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Describe Java syntax and write basic applications	1.1 Discuss ways in which Java is different from Python (compiled vs interpreted, static vs dynamic, differences in syntax and scoping rules, etc) 1.2 Compile and execute Java applications 1.3 Learn the equivalent Java syntax for concepts covered in Intro to Programming: variable declaration and assignment, conditional and loop statements, function definition and calling, recursive functions, string manipulation, system and file I/O, exception handling 1.4 Describe Java primitive types 1.5 Explain the difference between value types and reference types 1.6 Create instances of existing classes using constructor invocation 1.7 Use arrays and other collection types



	1.8 Describe the Java package system
<b>Course Outcome 2</b>	<b>Learning Objectives for Course Outcome 2</b>
2. Describe Object Oriented Programming (OOP) principles and write OOP applications	2.1 Explain the relationship between classes and objects 2.2 Describe components of a class, such as attributes, methods, accessors, mutators, etc 2.3 Use static blocks, attributes, and methods and explain how they are distinct from regular attributes and methods 2.4 Explain and make use of inheritance and polymorphism in working programs 2.5 Describe method overloading and overriding 2.6 Create classes that implement interfaces 2.7 Create classes that extend other classes 2.8 Create and extend abstract classes 2.9 Describe and create inner and anonymous classes
<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
3. Create basic graphical user interfaces	3.1 Create simple GUIs with basic controls such as buttons and labels 3.2 Utilize an event-driven programming approach 3.3 Write GUI applications that feature behaviour in response to events such as mouse and control action events
<b>Course Outcome 4</b>	<b>Learning Objectives for Course Outcome 4</b>
4. Use testing to validate software	4.1 Write unit tests to validate the correct functioning of application code 4.2 Make use of a testing library to aid in test writing 4.3 Identify important tests to include in a test suite to ensure good test coverage

**Evaluation Process and Grading System:**

Evaluation Type	Evaluation Weight
Lab Assignments	40%
Quizzes	10%
Test 1	25%
Test 2	25%

**Date:**

June 1, 2022

**Addendum:**

Please refer to the course outline addendum on the Learning Management System for further information.

