COURSE OUTLINE: CSD121 - PROG. CONCEPTS I

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Course Code: Title	CSD121: PROGRAMMING CONCEPTS I
Program Number: Name	2095: COMPUTER PROGRAMMING
Department:	COMPUTER STUDIES
Academic Year:	2023-2024
Course Description:	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. This course is delivered using the Java programming language.
Total Credits:	4
Hours/Week:	4
Total Hours:	56
Prerequisites:	CSD110
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	CSD213, CSD214, CSD215
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**2095 - COMPUTER PROGRAMMING** 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.
Essential Employability Skills (EES) addressed in this course:	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:	Students are expected to be present to write all tests in class, unless otherwise specified. If a student is unable to write a test due to illness or a legitimate emergency, that student must contact the professor prior to class and provide reasoning. Should the student fail to contact the professor, the student shall receive a grade of zero on the test. If a student is not present 10 minutes after the test begins, the student will be considered absent and will not be given the privilege of writing the test. Students exhibiting academic dishonesty during a test will receive an automatic zero. Please refer to the College Academic Dishonesty Policy for further information. In order to qualify to write a missed test, the student shall have: a.) attended at least 75% of the classes to-date. b.) provide the professor an acceptable explanation for his/her absence. c.) be granted permission by the professor. NOTE: The missed test that has met the above criteria will be an end-of-semester test. Labs / assignments are due on the due-date indicated by the professor. Notice by the professor will be written on the labs / assignments and verbally announced in the class. Labs and assignments that are deemed late will have the following penalty: 1 day late - 10% reduction, 2 days late, 20% reduction, 3 days late, 30% reduction. After 3 days, no late assignments and labs will be accepted. It is the responsibility of the student who has missed a class to contact the professor immediately to obtain the lab / assignment. Students are responsible for doing their own work. Labs / assignments that are handed in and are deemed identical or near identical in content may constitute academic dishonesty and result in a zero grade. Students are expected to be present to write in-classroom quizzes. There are no make-up options for missed in-class quizzes. Students have the right to learn in an environment that is distraction-free, therefore, everyone is expected to arrive on-time in class. Should lectures become distracted due to students walking in late, the professor may deny entry until the 1st break period, which is 50 minutes into the class or until that component of the lecture is complete. 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 Describe the Java package system
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Analyze and employ common data structures	2.1 Explain and use generic types 2.2 Describe the nature of arrays, lists, maps, sets, and queues 2.3 Discuss the advantages and disadvantages of common data structures 2.4 Use common data structures in appropriate contexts
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Describe Object Oriented Programming (OOP) principles and write OOP applications	3.1 Explain the relationship between classes and objects 3.2 Describe components of a class, such as attributes, methods, accessors, mutators, etc 3.3 Use static blocks, attributes, and methods and explain how they are distinct from regular attributes and methods 3.4 Explain and make use of inheritance and polymorphism in working programs 3.5 Describe method overloading and overriding 3.6 Create classes that implement interfaces 3.7 Create classes that extend other classes

	3.8 Create and extend abstract classes

Course Outcome 4	Learning Objectives for Course Outcome 4
4. Use testing to validate software	4.1 Describe the value of verifying and validating software 4.2 Write unit tests to validate the correct functioning of application code 4.3 Make use of a testing library to aid in test writing 4.4 Identify important tests to include in a test suite to ensure good test coverage 4.5 Use mocks to help write unit tests

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Lab Assignments	35%
Oral Assessment	15%
Quizzes	10%
Test 1	20%
Test 2	20%

Date: June 14, 2023

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