Course Code	Course Title
COMP 1022P	**Introduction to Computing with Java**

Course Description

This course is designed to equip students with the fundamental concepts of programming elements and data abstraction using Java. Students will learn how to write procedural programs using variables, arrays, control statements, loops, recursion, data abstraction and objects using an integrated development environment.

Exclusion(s): COMP 1021, COMP 1022Q (prior to 2020-21), COMP 2011, COMP 2012H, ISOM 3320; Mode of Delivery: [ONL] Pure online delivery

List of Topics

1. Course Logistics
2. Problem Solving, Introduction to Computer Programming
3. Program Comments, Primitive Data Types, Variables and Literals, Console I/O
4. Arithmetic Operations, Assignment Operations, Relational Operations, Logical Operations, Precedence of Operators, Manual Type Casting
5. Branching Statements
6. Looping Statements
7. Arrays
8. Classes and Objects
9. Inheritance
10. Static Variable and Methods
11. Recursion
12. File I/O
13. Strings
14. Abstract Data Types (Stack and Queue)

This course is comprised of two 5-module parts.

Part 1: Module 1 to 5

1. Course overview
2. Programming fundamentals
3. Fundamentals of Object-Oriented Programming
4. Scope Rules, Boolean Expressions and Branching Statements
5. Loops, Shortcut Operators, Arrays

Part 2: Module 6 to 10

6. More on Object-Oriented Programming, Subclass, Multidimensional Array, Simple Sorting
7. Character String, File I/O
8. Simple Event Driven Programming and GUI
9. Recursion
10. Abstract Data Type (ADT), Eclipse

Reference books

Books are optional for the course. Course materials are self-contained in the course portal.

Introduction to Java Programming and Data Structures: Comprehensive Version, Liang, Y. Daniel, Pearson, c2022, 12th Edition.
- Library e-copy (10th Edition): QA76.73.J38 L533 2015
- Number of pages: 1320
- ISBN: 9780133761313

Java How to Program (Early Objects), Harvey Deitel & Paul Deitel, Pearson Education, c2017, 11th Edition.
- Library copy (11th Edition)
- Number of pages: 1296
- ISBN: 9780134743356

Grading Scheme

Online activities	10%
Lab exercises	10%
Project	10%
Midterm examination	30%
Final examination	40%
Total	100%

Course Intended Learning Outcomes

On successful completion of this course, students are expected to be able to:

1. Demonstrate programming skills, with an emphasis on the Java programming language.
2. Design and develop effective solutions to computational problems using Java as a programming tool.

Assessment Rubrics

Level of Achievement	CILO 1 Demonstrate programming skills, with an emphasis on the Java programming language.	CILO 2 Design and develop effective solutions to computational problems using Java as a programming tool.
Exemplary (A- to A+)	The student is able to proficiently program in the Java language with no or very few errors, and is able to detect and fix bugs in the code on his/her own. The program can return the correct output on all input instances.	Given a problem definition, the student is able to proficiently write a Java program to solve the problem.
Competent (C to B+)	The students is able to program in the Java language satisfactorily. The code may contain a few bugs, but the student is able to identify the majority of the bugs on his/her own. Given some further help, the student is able to identify and fix all the bugs. The program can return the correct output on most input instances, but may miss some special or boundary cases.	Given a problem definition, the student is able to write a Java program that solves the program satisfactorily. The program may crash or behave incorrectly under some harsh tests.
Needs Work (D to C-)	The student is able to barely program in the Java language on his/her own, but with some help, he/she is able to write a program that behaves correctly on typical input instances. The code often contains bugs and the student is hardly able to identify or correct them.	Given a problem definition, the student is barely able to write a Java program that solves the problem. The program often crashes or behaves incorrectly.
Unsatisfactory (F)	The student is not able to program in the Java language.	Given a problem definition, the student is not able to use Java to solve it.