Ministry of Higher Education
Pkfokam Institute of Excellence
Department of Computing and Software Engineering
Course Code: CS 1302L
Course Name: Programming and Problem Solving II Lab
Semester: Fall 2021

SYLLABUS

Instructors Information:

Instructor's Name: Mr. MEKONTSO Herman
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Phone: (+237)693 031 561
Office Hours: By appointment

Lecture Meeting Times:
Saturday: 04:00 pm – 07:00 pm

Required course material:
Required Text: Introduction to Java Programming, Comprehensive Version, 10th Edition By Y. Daniel Liang, Pearson Publishing, 2015, ISBN#: 978-0-13-376131-3

Pre - requisite: CS1301 Lab

Overview:

This course aims at putting into practice the concepts studied in the Programming and Problem Solving II (CS 1302) through Labs and projects. In addition to the practical exercises given in class, successful students will complete a small real world project.

Learning Outcomes:

1. Demonstrate more advanced skills in programming, including the ability to handle multi-dimensional arrays;
2. Design and use classes, including inherited classes;
3. Demonstrate file handling and exception coding in a program;
4. Recognize the difference between iterative and recursive methods and use them correctly in a program;
5. Demonstrate the ability to use linked lists, stacks, and queues in problem solutions;
6. Compile and run Java programs in a Windows environment;
7. Understand both the "program driven" and "event-driven" approaches to user interaction, including the relationship between event-driven programs and Graphical User Interfaces;
8. Mastering of the scene builder app to develop more efficient graphical user interfaces.

Grading Plan

Grading Scale:	These are minimums. The final grades will be determined by distribution.
900 +	A
800 - 899	B
700 - 799	C
600 - 699	D
below 600	F

Schedule and Topic Coverage:

Week	outlines	Reference in the text book
1	ArrayList revision [ArrayList] (Algebra: perfect square) Write a program that prompts the user to enter an integer m and find the smallest integer n such that m * n is a perfect square. (Hint: Store all smallest factors of m into an array list. n is the product of the factors that appear an odd number of times in the array list. For example, consider m = 90, store the factors 2, 3, 3, and 5 in an array list.	Chap 11
2	[Inheritance and Polymorphism] A University Human Resource Management Module. This lab combines ArrayLists, inheritance and polymorphism to manage people in a university, considering the fact that in this context, we have different categories of people (students, faculties, administrative staff, etc.) which share some common properties and operations.	Chap 11, 12
3	Application of abstract classes and interfaces to the implementation of geometric objects.	Chap 13
4	Revisiting lab 2 to store objects of the Human Resource Management Module to files and retrieve them as objects.	Chap 17
5	Simple banking Application	Chapter 11, 12, 13, 17
6	JavaFX Basics: creating a detailed clock	Chapter 14
7	Revisit lab 6 (detailed clock) to add the animation into this class and add two methods start() and stop() to start and stop the clock, respectively. Write a program that lets the user control the clock with the Start and Stop buttons,	Chap 15
8	Create a part (with controls and events handling) JavaFX GUI for the Human Resource Management Module. This part concerns students management.	Chap 16
9	Introduction to Scene Builder: create a google like login connection interface using scene builder	Ref Book on Scene Builder
10	Complete Lab 9 to create a simple mail box. Students should complete this for their end of semester project. Mails a stored in files.	Ref Book on scene builder.

11	Generics Complex Matric with subclasses of the Number Class	Chap 19
12	Lists, Stacks, Queues & Priority Queues a. Checking whether a string is a palindrome or not using stack b. Bank queues handling using a priority queue	Chap 20
13	Projects finalization	The whole program
14	Projects presentation	

Lab Rules:

1. Students are expected to attend lab each day that a lab is scheduled.
2. Labs are expected to be done and completed during lab time. Each lab is worth a maximum of 15 points.
3. Students work individually on the labs. Communications are not allowed.
4. Labs are due at the end of the lab period.
5. If a student must miss a lab due to class cancellation, holidays, illness, work travel or other valid excuse, he/she must make alternate arrangements with the instructor.