Course Syllabus

Course Code:	CPE112
Course Name:	Programming with Data Structures
Course Credit:	3 (2-2-6)
Semester/Year:	2/2024
Course Prerequisite:	CPE100 Computer Programming for Engineers
Class Meeting:	Lecture Wednesday 8.30 – 10.20, Classroom 1121 Lab Wednesday 10.30 – 12.20, Classroom 1116, 1121
Class Website:	https://leb2.kmutt.ac.th
Course Instructor:	Dr. Piyanit Ua-areemitr Email: piyanit.wep@kmutt.ac.th Dr. Taweechai Nuntawisuttiwong Email: taweechai.nunta@kmutt.ac.th
Office Hour:	By appointment
Teaching Assistant:	Kittipong Tapyou (P'Puen) Wongsatorn Sungsilpawech (P'Tor) Apichat Aimimpak (P'Yim)
Course Description:	Computer programming course with an emphasis on dynamic data structures such as dynamic arrays, linked lists, trees, graphs and hash tables. Creation of general, reusable modules and their use in multimodule software systems. Weekly lab sessions will focus on applications of the concepts covered in lectures.
Learning Outcome:	After completing this course, the student should be able to **CLO1.** Identify and explain concepts of linear and non-linear data structures. **CLO2.** Analyze problems and implement in linear and non-linear data structures.
Teaching Method:	Lectures and problem-based learning

Student Evaluation:	Labs and assignments	20%
	Project	20%
	Quizzes and exams	60%

Reference:

- Thareja, Reema. *Data structures using C*. Oxford University Press, Inc., 2011.
- Hubbard, Huray. *Data Structures with Java.* University of Richmond, Peason Inc., 2004

Class Policy:

- Students are responsible for all announcements and changes made in class.
- **Academic integrity and the honesty policy will be strictly enforced.**

Course Schedule

The following topics will be covered in our schedule. The instructor may revise parts of the outline to conform to the background, knowledge, and interests of the student.

Week	Date	Topics	Activities
1	15 Jan	Introduction to Data Structure	Lab 0 – Setup Lab Environment
2	25 Jan	Array, String, Structure, and Union	Lab 1 - Array
3	29 Jan	Linked List	Lab 2 - Linked List
4	5 Feb	Stacks and Queues	Lab 3&4 – Stacks and Queue
5	12 Feb	Public Holiday	Submit Lab Assignments
6	19 Feb	Exam Period (TBA)	
7	26 Feb	Trees 1	Lab 5 – Binary Trees
8	5 Mar	Trees 2	Lab 6 – BST Tree
9	12 Mar	Graph 1	Lab 7 – AVL Tree
10	19 Mar	Graph 2	Lab 8 – Graph 1 Term Project Assignment & Group Discussion
11	26 Mar	-	Active Learning
12	2 Apr	Exam Period (3 Apr)	
13	9 Apr	Exam Period	
14	16 Apr	Public Holiday	
15	23 Apr	Project Topics	Lab 9 – Graph2
16	30 Apr	-	App Review Activity
17	7 May	-	Term project presentation
18	14 May	Coding Exam	
19	21 May	-	All work submissions & prepare for examination
20	28 May	Exam Period	

Note: Any additional modifications to the syllabus will be announced in class.