"Investing In Quality & Affordable Education for Your Future"

SCHOOL OF INFORMATION TECHNOLOGY

SEMESTER 1 - 2025

Program: **DIPLOMA IN INFORMATION TECHNOLOGY**

Subject Code: **4009 DATA STRUCTURES & ALGORITHM (DSA)**

COURSE OUTLINE By Mr. Semos & Ms. Tita

About the Course

This course provides an introduction to the theory, practice and methods of data structures and algorithm design. You will learn elementary data structures such as arrays, stacks, queues, linked lists, sequences, trees and graphs in Java language, and the algorithms designed for manipulating these data structures.

The objective of this course is to introduce students to both data structures and algorithm design. The goal of the lecture is twofold: 1) to discuss different data structures to represent real world problems and, 2) to study various ways to design algorithms to solve the problems. As an important part of the course, the Java programs that implement all the algorithms discussed will be analyzed and compared to develop deep knowledge on programming.

Content & Assessment Overview

WEEK	TOPICS (C = Chapter)	ASSESSMENT	WEIGHT (%)
1	C1: Course overview and Java Basics		
2	C1: Java Basics (1/2). Objects, classes, methods, modifiers, parameters, constructors, statement blocks & local variables		
3	C1: Java Basics (2/2). Expressions, casting. Control flows & simple input & output		
4	C2: Object Oriented Design		
5	C3: Arrays		
6	**Test 1** ***10%***		
7	C4: Linked List		
8	Mid-term in-class coding activity and assessment return		
9, 10 & 11	**MID SEM. EXAM** ***20%***		
12	C5: Stacks		
13	C6: Queue		
14	C7: Lists and Iterators. Array lists & iterators.		
15	**Test 2** ***10%***		
16	C8: General trees & Binary Trees	**Major Assignment**	***20%***
17	C10: Maps & Dictionaries - The Map ADT, Hash tables, & dictionary of ADT		
18 & 19	**FINAL EXAM** ***40%***		

Assessment Schedule

Assessment	Due Date	Weighting	Marks
Test 1	Week 6	10%	TBA
Test 2	Week 15	10%	TBA
Major Assignment	Week 16	20%	TBA
Mid Semester Exam	Week 9/10	20%	TBA
Final Exam	Week 18/19	40%	TBA

Assessment Grading System

The grading system and cut off marks that will be used to assess you are as follows:

GRADED PERCENTAGES, DISTRIBUTION AND CODES

Marks Range	Grade	Description	Grade Point (GP)
< 50	F	Fail	0.00
50 - 54	P	Pass	1.00
55 - 59	P+	Pass Plus	1.33
60 - 64	C-	Below Credit	1.67
65 - 69	C	Credit	2.00
70 - 74	C+	Credit Plus	2.50
75 - 79	D	Distinction	3.00
80 - 84	D+	Distinction Plus	3.50
85 - 89	HD	High Distinction	3.75
>= 90	HD+	High Distinction Plus	4.00

Assessment Policy

1. Students are encouraged to do all assessment items on time and handed in within the given time frame (Laziness brings poverty).
2. The only reason for missing out on a test would be the student being sick with a **medical certificate** and a death in the family with a **death certificate** to prove.
3. For any late assignment 10% of the total mark will be deducted from the mark scored every day from the due date.
4. Plagiarism or copying other people's work word for word is not tolerated in any assessment tasks. Your assessment will be heavily penalized for that matter.

Class timetable

Lecturer	Day	Time	Group
Mr. Jerome Semos Class times ***Email:*** jksemos@iti.ac.pg	Monday	08:00 – 10:00am	DIT (S1) D1 - Lab 1
	Monday	02:30 – 04:30pm	DIT (S1) D2 - Lab 2
	Tuesday	10:10am – 12:10pm	DIT (S1) D4 – Lab 1
	Wednesday	08:00 – 10:00am	DIT (S1) D3 - Lab 3

Lecturer	Day	Time	Group
Ms. Odilia Tita Class times ***Email:*** otita@iti.ac.pg	Tuesday	5:00 – 7:00pm	DIT (S1) E1 - Lab 2

Consultation times (Tentative)

Lecturer	Day	Time	Group
Mr. Jerome Semos consultation times ***Email:*** jksemos@iti.ac.pg	Tuesday	2:30 – 4:30pm	**DIT (S1) D1**
	Wednesday	10:10am – 12:10pm	**DIT (S1) D2**
	Thursday	2:30 – 4:30pm	**DIT (S1) D3**
	Wednesday	2:30 – 4:30pm	**DIT (S1) D4**

Lecturer	Day	Time	Group
Ms. Odilia Tita consultation times ***Email:*** otita@iti.ac.pg	Wednesday	9:00 – 11:00am	**DIT (S1) E1**

Course Materials

- **Data structure & Algorithm Book 1 & 2**
- **www.tutorialspoint.com/java**

ALL THE BEST in YOUR STUDIES