



Hashemite University
College of Engineering
Department of Computer Engineering
Data Structure (4 Credit Hours/Dept. Compulsory)
Spring 2023/2024

Instructor		Grading info		Class Info	
Dr. Mohammad Al-hammouri		Midterm Exam	35%	Days	Sun, Tue, Thu
Email:	alhammouri@hu.edu.jo	Internal lab	20%	Time	11:00 – 11:40 13:00- 13:40
Office:	E-3042	Quizzes	5%	Location	
Contact via Email		Final	40%		

Course	
Course Number:	110408213
Prerequisite:	Object-oriented programming
Textbook:	<ul style="list-style-type: none"> - Data Structures and Algorithms in Java™, 6th Edition, Michael T. Goodrich and Roberto Tamassia, 2014 - Java How to Program, Early Objects, 10th Edition, Deitel & Deitel
Course Description:	This course, Data Structures and Algorithms in Java introduces data structures, including their design, analysis, and implementation. The course gives an overview of data structure concepts in Java, such as arrays, linked lists, stacks, queues, trees, graphs, and others. Additionally, it discusses various implementations of these data objects, programming styles, and run-time representations.
Specific Outcomes of Instruction (Course Learning Outcomes)	<ol style="list-style-type: none"> 1. Understand the basic concepts involved in structured problem solving. (1) 2. Understand the advantages of object oriented programming. (1,2) 3. Learn in a systematic way the most commonly used data structures with emphasis on their abstract properties. (1,2) 4. Be able to compare different data structures for solving the same problem, and choose the best. (2) 5. Design and implement assignments and projects to improve students' knowledge and understanding of the topics discussed during the course (2,6)
Important material	<ul style="list-style-type: none"> - Lecture notes - Text books - Internet resources

Major Topics Covered and Schedule in Weeks:

Topic	# Weeks	# Contact hours*
Introduction to Object Oriented in Java (Revision)	2	
Analysis of algorithms and complexity	1	
Introduction, review of arrays and linked lists.	1	
Stack, queues, deques	1	
Lists	1	
Trees and binary trees	2	
Heaps	1	
Maps and binary search trees	1	
Graphs	1	
Hash Tables	1	
Internal Lab		
Internal Lab 1: Revision and Introduction to Java Compiler and IDEs	1	

Internal Lab 2: Introduction to Object-oriented in Java	1	
Internal Lab 3: Using arrays and linked lists	1	
Internal Lab 4: Stack and queue	1	
Internal Lab 5: Lists	1	
Internal Lab 6: Tress	1	
Internal Lab 7: Binary trees	1	
Internal Lab 8: Maps	1	
Internal Lab 9:	1	
Internal Lab 10:	1	
Internal Lab 11:	1	

Course Policy

Lectures:

- The course will follow selected subjects as listed on the course schedule.
- Students are responsible for reading extra material to enhance their knowledge in the concepts discussed during the course.
- Students are responsible for solving assignments and projects given in the lab.
- Students are expected to attend and be on time.
- There will be **NO** make-up exams (in very special circumstances, written excuse and official proofs are required for making-up exams).
- **Grading policy:**
 - **Midterm Exam: 35%**
 - **LAB 20%**
 - **Quizzes 5%**
 - **Final exam: 40%**

Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(1)	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. <i>(Previously SO's (a, e, k))</i>	H
(2)	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. <i>(Previously SO's (c, k))</i>	H
(3)	An ability to communicate effectively with a range of audiences. <i>(Previously SO (g))</i>	M
(4)	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. <i>(Previously SO's (f, h, j))</i>	
(5)	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives. <i>(Previously SO (d))</i>	
(6)	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. <i>(Previously SO's (b, k))</i>	
(7)	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. <i>(Previously SO (i))</i>	

H=High, **M**= Medium, **L**=Low

Prepared By: Dr. Mohammad Al-hammouri

Date: 20/Feb/2024