Jordan University of Science and Technology

Faculty of Computer & Information Technology

Computer Science Department

CS211 Data Structures

First Semester 2021-2022

Course Catalog
3 Credit Hours. This course introduces the students to data structures using an object-oriented programming language. This includes logical and physical representation of data structures, collection types, array-based lists, linked lists, stacks, queues, and basics of algorithm analysis, binary trees, binary search trees, hashing, and heaps. Applications and algorithms based on data structures are covered in this course. Throughout the semester, problem-solving skills will be stressed and applied to solving computing problems. Weekly homework experiments will provide hands-on experience in topics covered in this course.

Text Book	
Title	Data Structures Using C++
Author(s)	D. S. Malik
Edition	2nd Edition
Short Name	Textbook
Other Information	

Instructor	
Name	**Mrs. Wafa' Alqarqaz**
Office Location	-
Office Hours	
Email	waalqarqaz@just.edu.jo

Instructor	
Name	**Dr. Rasha Obeidat**
Office Location	-

Office Hours	Sun : 10:00 - 11:15 Mon : 09:00 - 11:00 Tue : 10:00 - 11:15 Thu : 08:30 - 10:00
Email	rmobeidat@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Sun : 08:30 - 10:00
Room: N4202

Section 2:
Lecture Time: Sun : 11:30 - 13:00
Room: N4202

Section 3:
Lecture Time: Sun : 13:00 - 14:30
Room: N4203

Section 4:
Lecture Time: Mon : 10:00 - 11:30
Room: N4203

Section 5:
Lecture Time: Mon : 08:30 - 10:00
Room: N4203

Section 6:
Lecture Time: Tue : 08:30 - 10:00
Room: N4202

Section 7:
Lecture Time: Tue : 11:30 - 13:00
Room: N4202

Section 8:
Lecture Time: Tue : 13:00 - 14:30
Room: N4203

Section 9:
Lecture Time: Wed : 10:00 - 11:30
Room: N4203

Section 10:
Lecture Time: Wed : 08:30 - 10:00
Room: N4203

Section 11:
Lecture Time: Sun : 10:00 - 11:30
Room: M1306

Section 12:
Lecture Time: Tue : 10:00 - 11:30
Room: M1306

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
1761120	SE112 Introduction To Object- Oriented Programming	Prerequisite / Pass
902411	MATH241 Discrete Mathematics	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2	Big O Notation	**Ch1** From **Textbook**
Week 3	Array-Based Lists	**Ch3** From **Textbook**
Weeks 4, 5	Linked Lists	**Ch5** From **Textbook**
Weeks 5, 6	Stack	**Ch7** From **Textbook**
Weeks 7, 8	Queue	**Ch8** From **Textbook**
Weeks 8, 9	Recursion	**Ch6** From **Textbook**
Weeks 10, 11	Searching algorithms and Hashing	**Ch9** From **Textbook**
Weeks 11, 12	Binary Trees	**Ch11** From **Textbook**
Week 13	Graphs	**Ch12** From **Textbook**
Week 14	Sorting Algorithms	**Ch10** From **Textbook**

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Able to understand, describe, and implement several data structures such as Lists, Stacks, Queues, and trees. [1SO1]	50%	Mid Exam
Able to utilize the Recursion technique to write functions that solve various programming problems. [1SO1]	7%	Final Exam
Write and analyze sorting and searching algorithms. [1SO1]	15%	
Explain how represent, traverse, compute the shortest paths in Graphs structures. [1SO1]	8%	
Being able to Implement and evaluate a computing based solution of real life problems using the suitable data structures and by utilising the recursion, search and sorting techniques they learned [1SO2]	20%	Activities (Quiz and assignments)

Relationship to Program Student Outcomes (Out of 100%)					
SO1	SO2	SO3	SO4	SO5	SO6
80	20				

Evaluation	
Assessment Tool	**Weight**
Mid Exam	30%
Activities (Quiz and assignments)	20%
Final Exam	50%

Policy	
Attendance	Attendance is very important for the course. In accordance with university policy, students missing more than 20% of total classes are subject to failure. Penalties may be assessed without regard to the student's performance. Attendance will be recorded at the beginning or end of each class
Exams	All exams will be CLOSE-BOOK; necessary algorithms/equations/relations will be supplied if required.
Quizzes	No makeup for quizzes. Every student is expected to do the quizzes in his/her section.
Assignments	Assignments must be submitted before due date, there will be discussions for the assignments scheduled after submissions.

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