Jordan University of Science and Technology

Faculty of Computer & Information Technology

Network Engineering And Security Department

NES711 Advanced Algorithms
First Semester 2022-2023

Course Catalog
3 Credit Hours. 3 Credit hours (3 h lectures). The course offers advanced concepts in: Strategies of algorithms synthesis and analysis. Design methodologies of classical algorithm categories such as: divide-and-conquer, greedy method, dynamic programming, search and traversal, backtracking, and branch-and-bound. Computational complexity and important theoretical results from lower-and upper-bound studies, Evolutionary algorithms, NP-hard, and NP-complete problems. The research component is a core part of this course.

Text Book	
Title	Book 1: Introduction to Algorithms, 4th edition
Author(s)	Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, & Clifford Stein
Edition	4th Edition
Short Name	Ref #1
Other Information	04/2022

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #2	Book 2: Algorithms (4th Edition)	Book2: Robert Sedgewick and Kevin Wayne's	4th Edition	
Ref #3	Book 3: Algorithms for Optimization	Book3: Mykel J. Kochenderfer and Tim A. Wheeler	1st Edition	

Instructor	
Name	**Dr. Qanita Bani baker**
Office Location	-

Office Hours	Sun : 10:45 - 12:30 Mon : 11:30 - 12:45 Wed : 11:30 - 12:45 Thu : 10:45 - 12:30
Email	qmbanibaker@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun : 12:30 - 14:30 Room: LAB

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To understand and be familiar with the basic and advanced topics in algorithms.	20%	
To design algorithms for problems in applications and build the correct analysis framework.	20%	
To be familiar with how to build a background/ Related works and do research on a topic in algorithms	60%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7

Policy	
Attendance	Attendance is very important for the course. In accordance with university policy, students missing more than the ruled percentage 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.
Homework/ Assignments/ Project	Students are expected to keep up with the material as it is presented and submit the required works on time.
Exams	All exams will be CLOSE-BOOK; necessary algorithms/equations/relations will be supplied as convenient. The date of the Exams will be scheduled later.
Note	Some adjustments in the topics and the timeline per week could be modified as required.

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