



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Computer Science Department

CS284 Analysis And Design Of Algorithms

Summer Semester 2019-2020

Course Catalog

3 Credit Hours. This course is an introductory course to the design, implementation and analysis of computer algorithms. Topics covered include the growth of functions, the time complexity of algorithms, recurrence relations and their solutions, the design and analysis of various sorting algorithms (insertion, merge, quick, and heap sort), graph searching algorithms (breadth-first and depth-first search), and spanning trees. Programming projects.

Text Book

Title	Introduction to Algorithms
Author(s)	Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, & Clifford Stein
Edition	3rd Edition
Short Name	Textbook
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #1	Algorithm Design	Jon Kleinberg, Eva Tardos	1st Edition	
Ref #2	Algorithms	Sanjoy Dasgupta, Christos Papadimitriou, Umesh Vazirani	1st Edition	
Ref #3	The Algorithm Design Manual	Steve S. Skiena	2nd Edition	

Instructor

Name	Dr. MARYAM NUSER
Office Location	A1 L-3

Office Hours	Sun : 11:30 - 12:30 Mon : 11:30 - 12:30 Tue : 11:30 - 13:30 Wed : 11:30 - 13:30
Email	msnuser@just.edu.jo

Class Schedule & Room
<p>Section 1: Lecture Time: Sun, Mon, Tue, Wed : 08:30 - 10:00 Room: منصة الكترونية</p> <p>Section 2: Lecture Time: Sun, Mon, Tue, Wed : 10:00 - 11:30 Room: منصة الكترونية</p>

Prerequisites		
Line Number	Course Name	Prerequisite Type
1732112	CS211 Data Structures	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Introduction	Ch1 From Textbook
Weeks 2, 3, 4	Algorithm Analysis	Ch2 From Textbook
Weeks 4, 5	Growth of Functions	Ch3 From Textbook
Weeks 6, 7	Recurrences	Ch4 From Textbook
Weeks 8, 9	Heapsort	Ch6 From Textbook
Weeks 10, 11	Quicksort	Ch7 From Textbook
Weeks 11, 12, 13	Graph Algorithms	Ch22, Ch23 From Textbook
Week 14	Greedy Algorithms	Ch16 From Textbook

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Analyze the complexity of algorithms, and use Big-O, Omega, and Theta notations correctly. [1SO1]	25%	First Exam, Activites
Design and analyze various sorting algorithms such as: insertion, merge, quick, and heap sort. [1SO1, 1SO2, 1SO6]	35%	First Exam, Activites, Final Exam
Distinguish Graph terminologies and design, and analyze elementary graph algorithms and MSP (Minimum Spanning Trees). [1SO1, 1SO2, 1SO6]	20%	Final Exam

Design and select a best algorithm for a certain problem. [1SO1, 1SO2, 1SO6]	20%	Final Exam
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Relationship to Program Student Outcomes (Out of 100%)					
SO1	SO2	SO3	SO4	SO5	SO6
50	25				25

Evaluation	
Assessment Tool	Weight
First Exam	30%
Activites	20%
Final Exam	50%

Policy	
Attendance	Attendance is very important for the course. In accordance with university policy, students missing more than 10% 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/Lab	Students are expected to keep up with the material as it is presented and submit assignments 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.

Date Printed: 2020-09-24