	Hashemite University Prince Al-Hussein bin Abdullah II Faculty for Information Technology Department of Computer Science and its Applications	

Course Syllabus

Year: 2018-2019 **Semester: (2)**

Course No.	Course Title	Designation	Prerequisite	Co-requisite	Credit Hours Lectures /Lab.
151001351	Algorithms	Required	151001250	-	3 / 0

Instructor Name	E-mail	Office No.	Office ext.	Office Hours
Dr. Sahar Idwan Dr. Ahmad Qawasmeh	sahar@hu.edu.jo ahmadr@hu.edu.jo	Dean Office IT 236	-	Sun,Tue,Thu (11-12), Mon (8-9:30) Sun,Tue,Thu (10-11), Mon (8:30-9:30)

Coordinator's Name:	Dr. Sahar Idwan

Course Description	This course gives a broad introduction to the analysis and design of computer algorithms. General topics to be covered include: growth of functions, recurrences, sorting, divide-and-conquer, various data structures, dynamic programming, greedy algorithms, graph searching and graph algorithms.

a) Textbook (s):
1. Thomas Cormen, Charles Leiserson, Ronald Rivest, and Cliffor Stein, "Introduction to Algorithms", 3rd edition, MIT press 2009.
b) References:
1. Richard Johnsonbaugh, and Marcus Schaefer, Algorithms, 1st edition, Pearson edition, 2004.
2. Sara Baase, and Allen Van Gelder, Computer algorithms, Introduction to design and analysis", 3rd edition, Addison Wesley, 2000.
3. Anany Levitin, Introduction to the Design and Analysis of Algorithms, 2nd edition, Pearson International Edition.

Course Learning and Outcomes CLOs
1. Understand the covered algorithms and algorithmic techniques. (1, 2)
2. Discuss the correctness and analyze the running time of a given algorithm. (2)
3. Understand how searching algorithms such as BSTs and red-black tree are implemented. (2)
4. Analyze different sorting algorithms such as heap sort and merge sort. (2)
5. Define the concepts of dynamic programming and apply them to solve specific problems. (1, 2)
6. Define the concepts of greedy algorithms and apply them to solve specific problems. (1, 2)
7. Understand how graph algorithms are implemented. (1, 2)
Addressed Student Learning Outcomes (SLOs)
1 and 2

Topic Details	Course ILO number	Reference	No. of Weeks	Contact hours*
1. Introduction to analysis of algorithms	1, 2	Ch1,2,3,4	3	9
2. Sorting algorithms	4	Ch2,6,7	2	6
3. Searching algorithms	3	Ch12,13	2	6
4. Dynamic programming	5	Ch15	3	9
5. Greedy algorithms	6	Ch16	2	6
6. Graph algorithms	7	Ch23,24	3	9
Total			15	45

Assessment method	Grade	Comments
First Exam	30%	Covers Chapters 1, 2, 3, 4, 6, 7
Second Exam	30%	Covers Chapters 12, 13, 15
Final Exam	40%	Covers all topics
Total	100%	