	١ ـ بيانات المقرر

المستوى: الرابع	اسم المقرر : Data Structure	كود المادة : Math 441
عدد الوحدات الدراسية: ٢ ساعة معتمدة نظرى ٢: تمارين: ٠ عملى: ١		التخصص : الإحصاء وعلوم الحاسب

For students undertaking this course, the aims are to: • This course will introduce students to the use of various data structures. The data structures to be studied include lists, stacks, queues, trees, and graphs. • For these structures, generic operations and their efficiencies will be examined, as well as specific applications for these structures and operations. • Recursive algorithms will be studied, and searching techniques will be evaluated.	٢ ـ هدف المقرر:

	٣ـالمستهدف من التدريس المقرر:
a- Knowledge and Understanding : **On completing this course, students will be able to:** a1- Understand the basic of Big-O notation. a2- Understand the meaning of the different Abstract Data types used in developing advanced programs. a3- Understand the basic concepts of Lists and Stacks. a4- Understand the basic concepts of Queues and circular Queues. a5- Understand the basic concepts of trees and binary search trees a6- Understand the basic concepts of Graphs. a7- Understand mathematical models described in algebraic, analytical or topological terms.	أـ المعلومات والمفاهيم:
b- Intellectual Skills: **On completing this course, students will be able to:** b1- Be able to evaluate the complexity of algorithms. b2- use the Java interface construct to formally specify an ADT b3- Make use of appropriate data structures. b4- Ability to analyze mathematical models and assess their adequacy and solvability. b5- Ability to differentiate and select between methods of treatment of mathematical problems (numerical, analytical, symbolic … etc.).	ب- المهارات الذهنية
c-Professional and Practical Skills: **On completing this course, students will be able to:** c1- Be able to write efficient algorithms. c2- Translate abstract ideas into practice. c3- Use of data structures to represent data in real application. c4- Using computers and appropriate software to solve mathematical problems.	ج- المهارات المهنية الخاصة بالمقرر:
d-General and Transferable Skills: **On completing this course, students will be able to:** d1- Participate in team-based activities. d2- Participate in team-based activities. Ability to gather material and problem solving methods.	دـ المهارات العامة :

d3- participate in team-based activities. d4- computer skills: ability to use computer; internet. d5- understanding of problem solving strategies.	
• Comparing Algorithms: Big-O Analysis • Abstract data types (ADTs) • The List and the Stack ADT • The Queue ADT • Trees and Binary search trees • Graphs	٤ـ محتوى المقرر:
4 -Lectures using data show and board. 4 - Home works, reports and discussion groups. 4 - Lab work.	٥ـ اساليب التعليم والتعلم:
The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.	٦ـ أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة:

	٧ـ تقويم الطلاب :

-Student Assessment Methods			أ ـ الأساليب المستخدمة :
Final exam	to assess	All	
Midterm exam	to assess	b1,b2, c1, c2, c3, c4, d3	
Practical exam	to assess	A1,a2,a3,b3,c3,d3	
Quizzes	to assess	.a1,a2, a3, b1,b2, b3	
Report	to assess	A3,b3,c3,d3	

Assessment Schedule			ب ـ التوقيت :
Assessment 1	Week #	3,5,9	
Assessment 2	Week #	7	
Assessment 3	Week #	13	
Assessment 4	Week #	15,16	
Assessment 5	Week #	11	

Weighting of Assessments		ج- توزيع الدرجات :
Final-Term Examination	60	
Midterm Examination	10	
Practical Examination	20	
Oral exam	10	
Other types of assessment	0	
Total	100	

	٨ـ قائمة الكتب الدراسية والمراجع :
	أ ـ مذكرات:
	ب ـ كتب ملزمة
- Data Structures 7 Algorithms , 4th Edition,Michael T. Goodrich,Roberto Tamassia John Wiley & Sons, Inc., 2006 ISBN 978-0-471-73884-8 - Object-Oriented Data Structures Using JAVANell Dale, Daniel T. Joyce, and Chip Weems Jones & Bartlett, 2nd Edition, 2006 ISBN 0-7637-3746-7 - Data Structures with Java William Ford and William Topp Prentice Hall, 2005 ISBN 0-13-047724-9.	ج- كتب مقترحة :
	دـ دوريات علمية أو نشرات..

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
• Comparing Algorithms: Big-O Analysis	1-2	a1	b1	c1	d1-
• Abstract data types (ADTs)	3-4	a2	b2	c2	d2
• The List and the Stack ADT	5-6	a3	b3	c3	d3
• The Queue ADT	7-9	**a4**	b3	c3	d3
• Trees and Binary search trees	10-11	**a5**	b3	c3	d3
• Graphs	12-13	**a6**	b3	c3	d3

أستاذ المقرر: د./محمود محمد أحمد عبد اللطيف

رئيس مجلس القسم العلمى : أ.د. مجدى الياس فارس