

توصيف مقرر دراسي

١ - بيانات المقرر		
المستوى: الرابع	اسم المقرر : Lattice Theory	كود المادة : Math 418
عدد الوحدات الدراسية: ٢ ساعة معتمدة نظري ٢ : تمارين: ١ عملي: ٠		التخصص : الإحصاء وعلوم الحاسب

<p><b>For students undertaking this course, the aims are to:</b></p> <p>1 - This course is basic course , it is intended for undergraduate students for mathematicians and computer science and others. One of the interesting applications of Boolean lattices in switching and logic circuits.</p> <p>2 - Outline the basic information of advanced courses related with lattice theory such as universal algebra.</p> <p>3 - In this course students learn all types of order such as partially order, totally order, lattices, and others.</p>	٢ - هدف المقرر:
٣ - المستهدف من التدريس المقرر:	
<p><b>a- Knowledge and Understanding :</b></p> <p><b>On completing this course, students will be able to:</b></p> <p>a1 - Understand all different types of lattices.</p> <p>a2 -Historical acknowledgement about lattice theory</p>	أ-المعلومات والمفاهيم:
<p><b>b- Intellectual Skills</b></p> <p>On completing this course, students will be able to:</p> <p>b1 - Recognize different kinds of lattices and its important properties.</p> <p>b2 -Distinguish and to analyze the properties of each type of lattices.</p>	ب - المهارات الذهنية
<p><b>c-Professional and Practical Skills:</b></p> <p><b>On completing this course, students will be able to:</b></p> <p>c1- Learn how to determine the congruence lattice for an algebra in general for universal Algebras.</p>	ج- المهارات المهنية الخاصة بالمقرر:
<p><b>d-General and Transferable Skills:</b></p> <p><b>On completing this course, students will be able to:</b></p> <p>d1- Transfer some natural problems to a certain type of lattices and solve</p> <p>d2- Learn how to use the properties of lattices.</p>	د- المهارات العامة :
<p>–Partially ordered, totally ordered and inductively ordered sets.</p> <p>–Lattice and complete lattice.</p> <p>–Sub lattices and direct product of lattices.</p> <p>–Lattices and ordered homomorphism and the other kinds of homeomorphisms</p> <p>–Distributive and Modular lattices.</p> <p>–Complemented lattices</p> <p>–Ideals and congruence relations.</p>	٤ - محتوى المقرر:
<p>1- Lectures</p> <p>2- Tutorial</p>	٥ - اساليب التعليم والتعلم:
<p>The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.</p>	٦ - أساليب التعليم والتعلم للطلاب ذوي القدرات المحدودة:

		٧- تقويم الطلاب :
1- Oral Exam.	to assess	أ- الأساليب المستخدمة :
2- Final Exam	to assess	
3- Mid-Term Exam	to assess	
1- Oral Exam	week 16	ب- التوقيت :
2- Final Exam	week 16	
3- Mid-Term Exam	week 7	
- Mid-Term Examination	10	ج- توزيع الدرجات :
- Final-Term Examination	80	
- Oral Examination	10	
- Practical Examination	0	
Total 100%		
٨- قائمة الكتب الدراسية والمراجع :		
1- Lecture Notes.		أ- مذكرات:
1 G. Birkhoff Lattice Theory , Americain math. Soc., Colloquium Publications, Vol. 25, Revised Edition, 1948.		ب- كتب ملزمة
2 - H. Gericke, Theorie der Verbände, 2. Auflage, Hochschultachenbucher-Verlag, Bibliographisches Institut Mannheim, 1969.		
3 - Gratzer, General Lattice Theory, 2nd Edition, Birkh?user (1998).		
4 - H. Hermes, Einfuhrung in die Verbandstheorie, Die Grundlehen der mathematischen Wissenschaften in Einzeldaratellungen Band 73, 2 Auflage, Springer-Verlag Barlin Heidelberg New York., 1967.		
5 - B. Nation, Notes on Lattice Theory, Internet.		
		ج- كتب مقترحة :
		د- دوريات علمية أو نشرات..

#### مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
Partially ordered, totally ordered and inductively ordered sets.	1-2	a1	b1	c1	a1
Lattice and complete lattice.	3 - 4	a1 & a2	a1&c1	a2 & c1	a1
Sub lattices and direct product of lattices.	5 - 6	b1 - b2	b1&b2	b1 & a2	b1 & a2
Lattices and ordered homomorphism and the other kinds of homeomorphisms	7 - 8	a1 & b1	a1&d1	a1 & d1	d1 & b2
Distributive and Modular lattices.	9 - 10	b1	a2&d2	a2 & d2	b1 & a2
Complemented lattices	11 -12	a1 & c1	d1&c2	d1 & c1	c1
Ideals and congruence relations.	13 -14	c1	d1&d2	d1 & d2	d2 & b2

أستاذ المادة : د. مجدى حكيم

رئيس مجلس القسم العلمي : ا.د. مجدى الياس فارس