

توصيف مقرر دراسي

جامعة : المنصورة

كلية : العلوم

قسم : الرياضيات

١- بيانات المقرر		
المستوى: الثالث	اسم المقرر : Abstract Algebra (2)	كود المادة : Math 315
عدد الوحدات الدراسية: ٢ ساعة معتمدة نظري ٢: تمارين: ١ عملي: ٠		التخصص : رياضيات

For students undertaking this course, the aims are to: - Introduce quotient structures and their connection with homomorphism in the context of rings and then again in the context of groups; - Present further important examples of groups and rings and develop some of their properties with particular emphasis on polynomial rings, factorization in rings and group actions. As a prerequisite to the advance course of algebra .		٢- هدف المقرر :
٣- المستهدف من تدريس المقرر		
a- Knowledge and Understanding On completing this course, students will be able to: a1- Understand the basic definitions and theories of rings and Fields. a2 - Know the algebraic structures of factor rings. a3 - Demonstrate their understanding of how to produce roots of polynomials in extension fields.	أ- المعلومات و المفاهيم :	
b- Intellectual Skills On completing this course, students will be able to: b1- Find the structures of all different kinds of factor rings. b2- Learn the basic concepts of extension algebra b3- Study some important kinds of the extension fields	ب- المهارات الذهنية:	
c- Professional and Practical Skills On completing this course, students will be able to:	ج- المهارات المهنية الخاصة بالمقرر:	

c1 – Use Gauss theorem and Eisenstein' criterion in solving problems			
c2– Solve a range of problems which require understanding of rings and fields			
d- General and Transferable Skills On completing this course, students will be able to: d1- Use Internet and Library to get information d2- Manage the time d3- Problem solving d4- Work in a team.			د- المهارات العامة:
– What is a ring and all essential kinds of rings – Integral Domain and its properties – Unites, primes and irreducible elements – Subrings and ideals. Prime and maximal ideals – Factor rings and homeomorphisms theorems. – Fields, subfields and prime subfields – extension of an integral domain to a field – Euclidean domain and its properties – Polynomials over a ring and over a field – Prime and irreducible polynomials – Gauss theorem and Eisenstein' criterion – Field extensions, Splitting fields – Finite fields and its properties – Classification of extensions			٤- محتوى المقرر:
1- lectures, exercise sheets and solution sheets 2- Tutorials 3- Internet facilities			٥- أساليب التعليم والتعلم:
The same as normal students, only skeletal disabilities are allowed in the faculty of science.			٦- أساليب التعليم والتعلم للطلاب ذوي القدرات المحدودة:
٧- تقويم الطلاب:			
1- Final exam	to assess	a1-a3,b1-b3,c1-c2	أ- الأساليب المستخدمة
2- Oral exam	to assess	a1-a3,b1-b3,d1-d4	
3- Mid-Term Exam	to assess	a1-a2,b1-b2, c2	
1- Final exam	week	16	ب- التوقيت
2- Oral 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 و المراجع :			
- Lecture Notes			أ- المذكرات
Elements of Abstract Algebra, by Dean			ب- الكتب ملزمة
1- Algebra, by Serge Lang.			ج- كتب مقترحة
2- Abstract Algebra, by John A. Beachy and William D. Blair.			
3- John B. Fraleigh, A first course in Abstract algebra, Addison-Wesley			
4- R.B.J.T. Allenby, Rings, Fields and Groups an Introduction to Abstract algebra, Addison-Wesley			
http://joshua.smcvt.edu/linearalgebra/			د- دوريات علمية أو نشرات ... الخ
http://www.math.unl.edu/~tshores1/linalgtext.html			
http://www.math.niu.edu/~beachy/aaol/			

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
What is a ring and all essential kinds of rings	1	a1	b1	c2	d1
Integral Domain and its properties	2	a1	b1	c2	d1
Unites, primes and irreducible elements	3	a1	b1	c2	d1
Subrings and ideals. Prime and maximal ideals	4	a1	b1	c2	d1- d3
Factor rings and homeomorphisms theorems	5	a2	b2	c2	d1
Fields, subfields and prime subfields	6	a1	b1	c2	d1
extension of an integral domain to a field	7	a1	b2	c2	d1
Euclidean domain and its properties	8	a1	b1 - b2	c1- c2	d1
Polynomials over a ring and over a field	9	a3	b2	c2	d1
Prime and irreducible polynomials	10	a3	b2	c1	d3
Gauss theorem and Eisenstein' criterion	11	a3	b3	c1	d3
Field extensions, Splitting fields	12	a1- a2	b3	c2	d3
Finite fields and its properties	13	a1- a2	b3	c2	d4
Classification of extensions	14	a3	b3	c2	d1

أستاذ المادة : د. سعاد عبد المحسن السواح

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