

توصيف مقرر دراسي

جامعة : المنصورة
كلية : العلوم
قسم : الرياضيات

١- بيانات المقرر		
المستوى : الثانى	اسم المقرر : Algebra & Geometry	الرمز الكودي: Math 111
عملى : ٠	نظري ٢ : تمارين : ٢	التخصص : إحصاء وعلوم الحاسب

<p>The aims of this course are to: 1- provide students with various methods, theories in algebra and geometry. 2- Know and understand the fundamental concepts in algebra and geometry.</p>	٢- هدف المقرر:
٣- المستهدف من تدريس المقرر	
<p>a- Knowledge and Understanding On completing this course, students will be able to a1-acquire an understanding of basic concepts of algebra and geometry. a2 - recognize notions of mathematical induction, complex numbers, partial fractions and binomial theorems. a3-be aware of the geometric properties of straight lines and conic sections</p>	أ- المعلومات و المفاهيم :
<p>b- Intellectual Skills On completing this course, students will be able to: b1 –interpret mathematical problems using basic concepts of algebra and geometry. b2- simplify the algebraic expressions. b3- construct elementary proofs of mathematical statements utilizing inductive arguments and arguments by contradiction; b4 – illustrate geometrical problems expressed in terms of polar coordinates</p>	ب- المهارات الذهنية :
<p>c-Professional and Practical Skills On completing this course, students will be able to c1-analyze basic concepts and results in algebra and geometry and apprehend their applications. c2- solve problems in algebra and geometry c3- use information technology to solve some related problems in algebra and geometry.</p>	ج- المهارات المهنية الخاصة بالمقرر :
<p>d-General and Transferable Skills On completing this course, students will be able to d1. Think independently, set tasks and solve problems on a scientific basis. d2. use , efficiently, information and communication technology d3. Work effectively in groups.</p>	د- المهارات العامة :
<p>Algebra</p> <ul style="list-style-type: none"> • Mathematics induction. • Partial fractions • Binomial theorem. • simple method for sum of series • Solution of cubic equations • Solution of 4th degree equations • Sets, subsets, set operations and inductively definition of sets • Equivalent relations, equivalence classes, partitions and partial order . • Maps, composition of maps, kinds of maps and inverse functions, 	٤- محتوى المقرر :

<ul style="list-style-type: none"> • permutation on finite sets. • equivalent sets and cardinality of sets • binary operations, examples of groups and fields. <p>Geometry</p> <ul style="list-style-type: none"> • Cartesian and polar coordinates in plane • Equations of straight line- The common equation of pair of straight lines • Introduction to conic section- parabola - ellipse- hyperbola • The general equation of the second degree in two variables and polar equations of some plane curves 	
1- lectures 2- tutorials 3- use information technology	٥- أساليب التعليم و التعلم
The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :	
1- Final exam to assess a1,a2,a3, c1, c2, c3 2- Oral exam to assess b1 ,b2,b3, b4, d1, d2, d3 3- Mid-Term Exam to assess a1, a2, b1, b2, d1-d3	أ- الأساليب المستخدمة
1- Final exam week 16 2- Oral exam week 16 3- Mid-Term Exam week 7	ب- التوقيت
- Mid-Term Examination 10% - Final-Term Examination 80% - Oral Examination 10% - Practical Examination 0 - Other types of assessment 0 Total 100%	ج- توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
- Lecture Notes: " Analytic geometry in plane"	أ- المذكرات
A.C. Burdette, "An introduction to analytical geometry and calculus", Academic press , London 1969	ب- الكتب ملزمة
- E. Swokowski, M. Olinick & D.Pence, "Calculus", 6th Edition, PWS Publishing Co- Schaum's series , Analytic Geometry, 1994. -P.J. Eccles, An Introduction to Mathematical Reasoning: Numbers, Sets and Functions, Cambridge University Press, 1997.	ج- كتب مقترحة
http://www.math.niu.edu/~beachy/aaol http://mathworld.wolfram.com/Abacus.html	د- دوريات علمية أو نشرات

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
Algebra					
Mathematics induction.	1	a1, a2	b1, b2	c1, c2, c3	d1,d3
Partial fractions	2	a1, a2	b1, b2	c1, c2, c3	d1,d3
Binomial theorem.	2	a1, a2	b1, b2	c1, c2, c3	d1,d3
simple method for sum of series	3	a1, a2	b1, b2	c1, c2, c3	d1,d3
Solution of cubic equations and solution of 4th degree equations	3	a1, a2	b1, b3	c1, c2, c3	d1,d3
Sets, subsets, set operations and inductively definition of sets	4	a1, a2	b1, b2	c1, c2, c3	d1, d2, d3
Equivalent relations, equivalence classes, partitions and partial order .	5	a1, a2	b1, b2	c1, c2, c3	d1,d3
Maps, composition of maps, kinds of maps and inverse functions, permutation on finite sets.	6	a1, a2	b1, b2	c1, c2, c3	d1,d3
equivalent sets and cardinality of sets	7	a1, a2	b1, b2	c1, c2, c3	d1
binary operations, examples of groups and fields.	7	a1, a2	b1, b2	c1, c2, c3	d1, d2, d3
Geometry					
Cartesian and polar coordinates in plane	8	a1, a3	b1, b4	c1, c2, c3	d1,d3
Equations of straight line- The common equation of pair of straight lines	9	a1, a3	b1, b4	c1, c2, c3	d1,d3
Introduction to conic section- parabola - ellipse- hyperbola	10-13	a1, a3	b1, b4	c1, c2, c3	d1,d3
The general equation of the second degree in two variables polar coordinates and polar equations of some plane curves	14	a1, a3	b1, b4	c1, c2, c3	d1, d2, d3

أستاذ المادة : د. عواطف شاهين

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

