

مختصر توصيف المقرر

(Course Information)

معلومات المقرر\*

	أسس الرياضيات	اسم المقرر:
	رياض 131	رقم المقرر:
	--	اسم ورقم المتطلب السابق:
	--	اسم ورقم المتطلب المرافق:
	الأول	مستوى المقرر:
	(0+0+3) 3	الساعات المعتمدة:
<b>Module Title:</b>	Mathematics Basis	
<b>Module ID:</b>	MTH 131	
<b>Prerequisite:</b>	--	
<b>Co-requisite:</b>	--	
<b>Course Level:</b>	First	
<b>Credit Hours:</b>	3 (3+0+0)	



Module

وصف المقرر :

Description

Review on common number sets ( $\mathbb{N}, \mathbb{Z}, \mathbb{Q}, \mathbb{R}, \mathbb{C}$ )- Equations of the first and second degree. Application to solve Inequalities and equations of degree great than 3- Mathematical Logic- Proof Methods, Mathematical Induction- Functions and their properties- Sets and their properties- Relations and their properties- Equivalence relation- Binary operations- Polynomials on the set of real numbers - Partial fractions

Module Aims

أهداف المقرر :

1	To make a check up on the common number sets with a particular attention to the complex numbers	1
2	Solve equations and apply them to study the sign of a polynomial with respect to the values of the variable. Learn the principal techniques to solve an equation of degree great than 3	2
3	Studying Introduction to Mathematical Logic	3
4	Study the different Methods of proofs ( contraposition, contradiction, case by case direct and Induction methods)	4
5	Introduce the principal concepts of Set theory	5
6	Binary operations	6
7	Equivalence Relations and construct for a given equivalence relation its equivalence Classes	7
8	Mappings are introduced and their principal properties are defined and many examples are also introduced. (images and inverse images of a sets under mappings)	8
9	Countable and finite sets	9

10	Studying the concepts of Binary operations-homeomorphisms	10
11	The set of polynomial can be introduced without talking about the ring of polynomials.	11
12	Many calculus can be performed for partial fractions	12

**Learning Outcomes:**

**مخرجات التعليم:**

1	<p><b>The student should to be able to:</b></p> <ul style="list-style-type: none"> <li>- Perform calculus on a given number set.</li> <li>- Solve equations of degree 2 in <math>\mathbb{R}</math> and <math>\mathbb{C}</math>. Apply his skills to study the sign of a polynomial with real variable.</li> <li>- Recognize when does a composed assertion is true or false.</li> <li>- Use the adequate Methods to prove a statement.</li> <li>- Determine the union, the intersection of two sets, the complement of Set the power set and the Cartesian product.</li> <li>- Show that an operation is binary and deduce its properties.</li> <li>- Show the a relation is an Equivalence Relations and determine explicitly the equivalence classes.</li> <li>- Determine the principal properties of a Mapping and perform all its parameters as the direct images and inverse images of a sets under mapping.</li> <li>- Countable and finite sets.</li> <li>- Perform all the calculus on Polynomials with real coefficients.</li> <li>- Add, multiply Partial fractions. Reduce some elementary partial fractions to simple forms.</li> </ul>	1
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**Course Contents:**

**محتوى المقرر:**

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
3	1	المجموعات العددية، الأعداد المركبة، كتابات المختلفة للأعداد المركبة
3	1	المعادلات، دراسة إشارة كثيرة حدود، المعادلات من الدرجة الثالثة
6	2	المنطق الرياضي
3	1	طرق البرهان الاستنتاج الرياضي
6	2	الدوال وانواعها واهم الخصائص عليها
3	1	المجموعات وانواعها واهم الخصائص عليها
3	1	العلاقات والعلاقات المتكافئة
3	1	العلاقات المتكافئة
3	1	القوانين الداخلية الثنائية
3	1	حلقة كثيرة الحدود
3	1	حساب على الكسور الجزئية

## Textbook and References:

## الكتاب المقرر والمراجع المساندة:

سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
2012	WCB/Mc Graw-Hill	Kenneth H. Rosen	Discrete Mathematics and Its Applications
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
2003	Wiley 2003	David S., Foote, Richard M Dummit	Abstract Algebra
1990	McGraw Hill	J. Mathos, R. Campanha	A Book of Abstract Algebra: Second Edition
2012	Mc Graw Hill Second Edition	Rhonda Huettenmueller	Precalculus Demystified
2006	دار الخريجي للنشر والتوزيع	معروف سمحان وفدوي أبو مريفة	أسس الرياضيات

