MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	**Finite Mathematics**		**Module Delivery**
Module Type	Core		• ☐ **Theory** • ☒ **Lecture** • ☐ **Lab** • ☒ **Tutorial** • ☐ **Practical** • ☐ **Seminar**
Module Code	**MATH1205**		
ECTS Credits	**4**		
SWL (hr/sem)	**100**		
Module Level		**Semester of Delivery**	1
Administering Department	MATH	**College**	Type College Code
Module Leader	Dr.Fatimah Al-Taie	**e-mail**	fatimah.altaie@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	me	**e-mail**	E-mail
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	

Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims **أهداف المادة الدراسية**	The aim of this course is for the students to be primarily concerned with applying mathematics problem-solving and reasoning to real-world phenomena, making finite mathematics a critical area of knowledge for students pursuing careers in business, social sciences, computer science, and other practical career disciplines.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	Learning the basic concepts of mathematics, such as: 1. To be able to deal with Sigma Notation, and mathematical induction. 2. To be familiar with complex numbers and their properties. 3. To deal with matrices: definition and some applications, and solution of mathematical equations with first, and higher degrees. 4. To learn about polynomials and their properties with applications and definitions. 5. To have experience in applications of Linear functions.
Indicative Contents **المحتويات الإرشادية**	1. Mathematical induction: summation, induction. 2. Complex numbers: definitions, solutions, polar coordinates, Demoiver's Theorem, square roots of complex numbers. 3. Matrices: definitions, type of matrices, operations on matrices, determinants, the inverse of matrices, linear systems, solving linear systems. 4. Polynomials: definitions, properties, number of the roots, Cardan method, solution of nonlinear systems. 5. Applications: linear functions, definitions, slope, two methods of the graph of linear equations.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The subject will be given to the students on a whiteboard through a series of lectures with problem-solving practice carried out in interactive tutorials. These tutorials will be supported by practice and directed study outside the classroom. Formative assessment takes place during tutorials and feedback is given during these tutorials.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.46
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	2, 6	LO #1, 3
	Assignments	2	10% (10)	3, 8	LO # 2 and 3
	Projects / Lab.	-	10% (10)	continuous	
	Report	1	10% (10)	14	LO # 4, 5
Summative assessment	**Midterm Exam**	2	10% (10)	4,12	LO # 1,2 and 2-4
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Sigma Notation: Summation, changing index summation, properties of Sigma notation, summation formulas
Week 2	Mathematical Induction, principles, definition, method of solution
Week 3	Complex Numbers: Definitions, Properties, Some areas of applications, Operations on complex numbers
Week 4	Mid-Term Exam + Complex conjugates, laws of Algebra, solving for parameters
Week 5	Polar representation for complex numbers, Demoiver's Theorem
Week 6	Matrices: definitions, types, properties, operations of matrices
Week 7	Determinants, different methods of computing determinants, properties, solving linear systems using determinants

Week 8	The inverse of matrices, definition, two methods of computing matrix inversion
Week 9	solving linear systems using the inverse of matrices, solving equations formulas
Week 10	Polynomials: definitions, properties, operations
Week 11	A quick method for computing the quotient of two polynomials, roots of a polynomial equation
Week 12	Mid-Term Exam + upper and lower bounds of the real roots of the polynomial equation,
Week 13	Relation between roots and coefficients of (2 by 2) polynomials, (3 by 3) polynomials, (4 by 4) polynomials, and (n by n) polynomials
Week 14	Applications of Linear functions: the slope, increasing and decreasing of functions
Week 15	Calculating the rate of change, two methods of graphing linear functions
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الاسبوعي للمختبر**	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	

Learning and Teaching Resources **مصادر التعلم والتدريس**		
	Text	**Available in the Library?**

Required Texts	Applied method, د. رياض شاكر نعوم , د. سليم الكتبي,د. كاظم محمد الصومعي Introduction to finite mathematics, د. مصطفى احمد , د. جلال نعوم , د.محمد سردار	Yes
Recommended Texts	Mathematics with application brief version	No
Websites	https://www.khanacademy.org/math , www.mathhandbook.com , www.google.com ,	

Grading Scheme **مخطط الدرجات**				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	**امتياز**	90 - 100	Outstanding Performance
	B - Very Good	**جيد جدا**	80 - 89	Above average with some errors
	C - Good	**جيد**	70 - 79	Sound work with notable errors
	D - Satisfactory	**متوسط**	60 - 69	Fair but with major shortcomings
	E - Sufficient	**مقبول**	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	**راسب (قيد المعالجة)**	(45-49)	More work required but credit awarded
	F – Fail	**راسب**	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.