MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	**Mathematics for computer science**		**Module Delivery**	
Module Type	Core		☒ Theory ☒ l Lectures	
Module Code				
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	1	**Semester of Delivery**		1
Administering Department	Type Dept. Code	**College**	Type College Code	
Module Leader	Naser Oda Jassim	**e-mail**	Nasir.jasim@uobasrah.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	Name	**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	Mathematics for computing	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	-Cognitive Goals 1. Upon Successful completion of this subject, students should : 2. Be able to use algebra accurately; 3. Be able to plot and interpret graphs 4. Be able to use exponential, logarithm, and trigonometric functions in applications; 5. Be able to calculate the sums of arithmetic and geometric series and use them in simple financial calculations; 6. Be able to use basic rules of differentiation and calculate derivatives of simple functions; 7. Be able to use matrix in solving linear system of equations; -Skill goals 1. Enable the student to refer the mathematical problem to a program and find a solution through the computer. 2. Student realization of the close relationship between mathematical problems and computer programs
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 1. This subject is designed for students who enter university without a strong background in mathematics 2. It is also for students who are planning to enroll in subjects requiring basic numeracy skills such as sciences, computing and information technology. 3. The subject reinforces calculation skills, basic algebra . 4. This subject is designed to work with formula. 5. It is also to use applications of exponential and logarithmic functions. 6. It is designed how applying matric to solve linear system of equations.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Sequences and series Sequence is a function whose domain is the set of natural numbers. The terms of the sequence are the function values. There will be studied two types of

sequences: arithmetic and geometric sequences with their partial sums. While series means that the infinite sum of geometric sequence. [12 hrs]

Part B – Matrices

Matrices are simply a rectangular array of numbers with **m** rows and **n** columns . There will be studied some: types of matrices, algebra of matrices. It is also studied how to find inverse of matrix, how to use matrix and its inverse to solve linear system of equations, how to find determinant of matrix and use it to solve linear system of equations. [12 hrs]

Part C – Derivatives and integrals

Derivatives mean that if $f: x \to y$ is a function, the derivative of a function f at a point x_0 written $f'(x_0)$; is given by

$f'(x_0) = \lim\limits_{x \to x_0} \frac{f(x) - f(x_0)}{x - x_0}$, If this limit exists and finite. There will be studied the derivatives of usual functions, implicit derivatives, derivatives of trigonometric functions, derivatives of exponential and logarithm functions. Graphical of exponential and logarithm functions. While integrals means that if $f(x)$ function defined at some interval, let $F(x)$ be another function such that $F'(x) = f(x)$, $F(x)$ called an infinite integral of $f(x)$ and is written as the following form $\int f(x)dx = F(x)) + C$. [12 hrs].

Part D – Interest

Interest is the rental fee charged by a lender to a business or an individual for the use of money . There will be studied simple and compound interests. Simple interest means that the interest is calculated *only once* for the entire time period of the loan. At the end of the time period, the borrower repays the principal plus the Interest . while compound interest means that means that the interest is calculated more than once during the time period of the loan. [9 hrs].

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	1.Explain the topic in detail by the teacher by writing the topic and explaining it on the board and other teaching aids

	2. Discussion during the lecture period		
	3. Doing homework		
	4. See the websites of the subject		

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		