



Baghdad College of Economic Sciences
University – Department of cyber
security



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	mathematics		Module Delivery
Module Type	CORE		Theory Lecture Lab Tutorial Practical Seminar
Module Code	MATH112		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Lec.hanna rasool	e-mail	hannaalmosawi@baghdadcollege.edu.iq
Module Leader's Acad. Title	Lecture	Module Leader's Qualification	M.Sc
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval	2024/11/1	Version Number	

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	1. To learn how solve and develop problem solving skills
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learning how solve equations by hand without computer. 2. Develop the brain ability.
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <ul style="list-style-type: none">➤ Mathematical background➤ Matrix<ul style="list-style-type: none">• Types of matrix• Matrix addition, subtraction, and multiplication• Determinant, transpose, symmetric of matrix and rank of matrix• Inverse of matrix, absolute value, and polynomials• Grammar rule for solving system of equation.➤ Functions<ul style="list-style-type: none">• Function Definition• Domain and range of functions• Graphing of function➤ Limits<ul style="list-style-type: none">• Definition of limits• Theorems of limits• Type of limits• One side and two sides limits• Limits as infinity• Sandwich theorem and continues functions➤ Derivation<ul style="list-style-type: none">• Mathematical definition of derivation, rule of derivation• Derivation of trigonometric, inverse trigonometric, logarithm, exponential hyperbolic, inverse of hyperbolic function.• Implicit derivation, chain rule, higher derivation➤ Derivation<ul style="list-style-type: none">• L'hospital rule• Application of derivation, velocity and acceleration➤ Series➤ Integration

	<ul style="list-style-type: none"> • Indefinite integral • Rules of integral • Method of integration • Multiple integral • Definite integral • Application of integral area under the curve • Area between two curves
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	5% (5)	5, 10	LO #1 and 2
	Assignments	1	3% (3)	2, 12	LO #1 and 2
	Projects / Lab.				
	Report	1	2%(2)	13	LO #1 and 2
Summative assessment	Midterm Exam	2 hr	20% (20)	7	LO #1 and 2
	Final Exam	3hr	70% (70)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	<ul style="list-style-type: none">➤ Mathematical background➤ Matrix Types of matrix, Matrix addition, subtraction, and multiplication, Determinant, transpose, symmetric of matrix and rank of matrix
Week 2	Inverse of matrix, absolute value, and polynomials, Grammar rule for solving system of equation.
Week 3	<ul style="list-style-type: none">➤ Functions , Function Definition, Domain and range of functions
Week 4	Graphing of function
Week 5	<ul style="list-style-type: none">➤ Limits Definition of limits, Theorems of limits, Type of limits, One side and two sides limits.
Week 6	Limits as infinity Sandwich theorem and continues functions
Week 7	<ul style="list-style-type: none">➤ Derivation Mathematical definition of derivation, rule of derivation Derivation of trigonometric, inverse trigonometric, logarithm, exponential.
Week 8	Derivation of hyperbolic, inverse of hyperbolic function
Week 9	Implicit derivation, chain rule, higher derivation
Week 10	L'hospital rule, Application of derivation, velocity and acceleration.
Week 11	<ul style="list-style-type: none">➤ Series
Week 12	<ul style="list-style-type: none">➤ Integration Indefinite integral, Rules of integral.
Week 13	Method of integration
Week 14	Multiple integral, Definite integral, Application of integral area under the curve, Area between two curves.
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر (ليس مرتبط بمختبر)

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas, G. Calculus and Analytic Geometry, Fifth Edition, Addition Wesley, 1999	Yes
Recommended Texts		
Websites	https://youtube.com/@soraali5120	

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required