



MODULE DESCRIPTION FORM



نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	MATH110		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	1
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Ali M Mifin	e-mail	ali.m.miftin@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	Name	e-mail	E-mail
Scientific Committee Approval Date	3/09/2024	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 student will study mathematical theories and application. On completion of this course the student will be able to: 1. Introduce the concept of functions 2. Introduce the concept of trigonometric functions 3. Differentiate equations 4. Apply differentiation to find maximum and minimum points, optimization
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand graph of a function 2. Understand identities of trigonometric functions 3. Understand how to find maximum and minimum values of any functions 4. Understand inverse functions and logarithms.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - Functions</u> Graph of functions, combining functions, Exponential Functions, Inverse Functions and Logarithms. [15 hrs.] <u>Part B - Limits and Continuity</u> Rates of Change and Tangents to Curves, Limit of a Function and Limit Laws, The Precise Definition of a Limit, One-Sided Limits, Continuity, Limits Involving Infinity; Asymptotes of Graphs.. [6 hrs.] <u>Part C - Derivatives</u> Tangents and the Derivative at a Point, The Derivative as a Function, Differentiation Rules, The Derivative as a Rate of Change, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation, Inverse Trigonometric Functions, Linearization and Differentials, Related Rates. [24 hrs.] <u>Part D - Applications of Derivatives</u> Extreme Values of Functions, Monotonic Functions and the First Derivative Test, Concavity and Curve Sketching, Indeterminate Forms and L'Hôpital's Rule. [15 hrs.]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Assessment is based on hand-in assignments, written exam, Quizzes,.
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Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem.) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	6
Unstructured SWL (h/sem.) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.8
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	2	10% (5)	5, 10	LO #3, 4
	Online Assignments	10	10% (1)	1,2, 3,4,6,7,9,10, 11, 12	All
	On site Assignments	2	10% (5)	4,10	All
	Seminars	2	10% (5)	5,8	All
Summative assessment	Midterm Exam	2hr	10% (10)	8,15	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Functions -Vertical line test -Increasing and decreasing functions - common functions
Week 2	-Inequalities

	-Absolute Value -Combining Functions; Shifting and Scaling Graphs
Week 3	-Trigonometric Functions -Graphing with Software
Week 4	-Inverse Functions and Logarithms - Inverse Functions
Week 5	-Logarithms - Limits /Rates of Change and Tangents to Curves
Week 6	-Limits / The Precise Definition of a Limit - Limits / One-Sided Limits
Week 7	-Limits Involving Infinity; Asymptotes of Graphs
Week 8	-MID EXAM - Derivatives -Tangents and the Derivative at a Point - Differentiation Rules -The Chain Rule
Week 9	-Implicit Differentiation -Derivatives of Inverse Functions and Logarithms
Week 10	- Inverse Trigonometric Functions - Related Rates
Week 11	- Applications of Derivatives -Extreme Values of Functions
Week 12	- Monotonic Functions and the First Derivative Test - Concavity and Curve Sketching
Week 13	-Indeterminate Forms and L'Hôpital's Rule
Week 14	- Applied Optimization -Antiderivatives

Week 15	-MID EXAM
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	

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Thomas' calculus : early transcendentals	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	Microsoft Math soft MathCad Autograph	

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.