



MODULE DESCRIPTION FORM

Module Information			
Module Title	MATHEMATICS		
Module Type	SUPLEMENT	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input checked="" type="checkbox"/> Semina	
Module Code	ZU-SC-CREQ1101		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGII/ One		Semester of Delivery
Administering Department	MPHY	College	College of Science
Module Leader	Abdullah Shaalan Nafnaf	e-mail	abdullah.shaaan@alzahu.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	M.Sc.
Module Tutor	Indihar Malik Hady	e-mail	entidhar.malik@nahrainuniv.edu.iq
Peer Reviewer	Zaid Malk Abbas	e-mail	zaid.malk@nahrainuniv.edu.iq
Review Committee Approval	15/10/2026	Version Number	1.0

Relation with other Modules

Prerequisite module	NON	Semester	
Co-requisites module	None	Semester	



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Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	<p>The aim of this course is for student to gain proficiency in computations. In calculus, we use two main tools for analyzing and describing the behavior of functions: limits and derivatives. Students will use these tools to solve application problems in a variety of setting ranging from physics and chemistry to business and economics.</p>
Module Learning Outcomes	<ol style="list-style-type: none">1. To determine the solution set of inequalities involving absolute value,2. To determine domain, range and operation of someone variable functions and the graphs.3. To determine limit and continuity of one variable functions.4. To determine derivate of one variable functions.5. To determine the solution of problems involving the derivate of one variable function.6. To determine inverse function and its derivative.7. To learn about application of derivatives.8. Real number, inequalities, absolute value, Cartesian coordinate system, function and its graph, operation on function, trigonometry function.9. Definition, theorems of limit, trigonometry function limit, limit on infinity, infinite limit, continuity function,10. Definition and rule of derivate, derivate of trigonometry function, chain rule, higher order derivate, implicit derivate, related rate, basic concept of differential,11. Maximum and minimum, monotonicity and concavity, graphing one variable function, mean value theorem for derivate.12. Natural logarithm function, inverse function and its derivate, natural exponential function, general exponential function, general logarithm function, hyperbolic function and its inverse.



Indicative Contents	<ol style="list-style-type: none">1. Teaching the student the basic concepts of mathematical.2. Providing the student with the skills of discussing and solving applied problems related to mathematical.3. Linking theoretical concepts with practical applications.
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Learning and Teaching Strategies

Strategies	The module will be presented to the students through a specified series of lectures, supported by 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 throughout the module during tutorials and feedback is given during these tutorials.
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Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	4.2
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4.1
Total SWL (h/sem)	125		



Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10% (10)	2, 5, 10, 12	LO #1, 2, 10 and 11
	Online Assignments	2	10% (10)	Continuous	All
	Onside Assignments	2	10% (10)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	Midterm Exam	2 hr	10% (10)	14	LO # 1-13
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Functions and their graphs.
Week 2	Trigonometric functions.
Week 3	Exponential function, inverse functions, logarithms.
Week 4	Derivative: motivation. Informal definition of limits
Week 5	Limit laws. Squeeze theorem.
Week 6	Continuity, asymptotes.
Week 7	Definition of derivative. Derivative as a function.
Week 8	Derivative of polynomials. Product and quotient rule
Week 9	Derivatives of trig functions
Week 10	Chain rule, implicit differentiation.
Week 11	Derivative of the logarithm. Applications



Week 12	L'Hospital's rule, more graph sketching and Anti derivatives.
Week 13	statistics
Week 14	Mid Exam
Week 15	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

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	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Calculus and Analytic Geometry Thomas International, edition 30th edition in 2014	YES
Recommended Texts	Schaumu's series, 6th edition in 2013	YES



Websites	Any website related with mathematical physics https://www.christs.cam.ac.uk/sites/default/files/inline-files/0a187866618ca3049030ec5014860ae8-original.pdf
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Grading Scheme			
Group	Grade	Marks %	Definition
Success Group (50 - 100)	A - Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(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.			

Name of the Instructor:

Abdullah Shaalan Nafnaf