



MODULE DESCRIPTION FORM

Module Information			
Module Title	Mathematical Physics		
Module Type	CORE	<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-MPHY2101		
ECTS Credits	6		
SWL (hr/sem)	125		
Module Level	UGII/ Tow		Semester of Delivery
Administering Department	MPHY		College
Module Leader	Abdullah Shaalan Nafnaf		e-mail
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification
Module Tutor			M.Sc.
Peer Reviewer			
Review Committee Approval	15/10/2026		Version Number
			1.0

Relation with other Modules

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	



Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	<ol style="list-style-type: none">1. Teaching the students the principles of Mathematical Physics.2. Give the Students the ability and experience to solve and discuss the problems related with Mathematical Physics.3. Make a connection between the theoretical principles and the experimental applications.
Module Learning Outcomes	<ol style="list-style-type: none">1. Enabling students to know the basics of mathematical physics.2. Enabling students to understand the applied aspects of mathematical physics.
Indicative Contents	<ol style="list-style-type: none">1. Teaching the student the basic concepts of mathematical physics.2. Providing the student with the skills of discussing and solving applied problems related to mathematical physics.3. Linking theoretical concepts with practical applications.

Learning and Teaching Strategies

Strategies	<ol style="list-style-type: none">1. Discussing the topics of the methodological book and auxiliary references.2. Theoretical lectures including problem solving and discussion of homework3. Asking students for a set of thinking questions during lectures on specific topics.4. Giving student's homework that requires finding solutions on their own.
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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 أسبوعياً	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	Continuous	All
	Online Assignments	1	10% (10)	Continuous	All
	Onsite Assignments	1	10% (10)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	Midterm Exam	2 hr	10% (10)	13	LO # 1-12
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction
Week 2	Special functions.
Week 3	The Factorial Function.
Week 4	Gamma Function.
Week 5	The Gamma function of negative number.
Week 6	Some important formulas involving Gamma Function.



Week 7	Solutions of some Examples.
Week 8	Beta Function.
Week 9	Other forms of Beta Function.
Week 10	The Relation between Gamma and Beta functions.
Week 11	(Test #1)
Week 12	The Error function.
Week 13	Series: Solutions of Differential Equations.
Week 14	Legendre's Equation.
Week 15	(Test #2) Mid Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	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	<u>Mathematical Methods in the Physical Sciences</u> ” By: Mary L. Boas, 3rd Edition, 2006.	No
Recommended Texts	<u>Advanced Calculus, 3rd Edition, Angus E. Taylor, and W. Robert Mann, 1983.</u>	YES
Websites	<u>Any website related with mathematical physics</u> https://www.christs.cam.ac.uk/sites/default/files/inline-files/0a187866618ca3049030ec5014860ae8-original.pdf	

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