	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Physics Department	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	**MATHEMATICAL PHYSICS**	**Module Delivery**	
Module Type	CORE		☒**Theory** ☒**Lecture** ☐**Lab** ☒**Tutorial** ☐**Practical** ☒**Seminar**
Module Code			
ECTS Credits	4		
SWL (hr/sem)	63		
Module Level	2	**Semester of Delivery**	3
Administering Department	Medical Physics	**College**	College of Science
Module Leader	Hassan N. Hashim	**e-mail**	hassan.hashim@nahrainuniv.edu.iq
Module Leader's Acad. Title	Assist. Professor	**Module Leader's Qualification**	PhD
Module Tutor	Fatimah Fadhil Abd Ali	**e-mail**	fatimahfadhil33@nahrainuniv.edu.iq
Peer Reviewer Name	N.A	**e-mail**	
Review Committee Approval		**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.** 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 مخرجات التعلم للمادة الدراسية	1. Enabling students to know the basics of mathematical physics. 2. Enabling students to understand the applied aspects of mathematical physics.		
Indicative Contents المحتويات الإرشادية	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 استراتيجيات التعلم والتعليم			
Strategies	1. Discussing the topics of the methodological book and auxiliary references. 2. Theoretical lectures including problem solving and discussion of homework 3. Asking students for a set of thinking questions during lectures on specific topics. 4. Giving students homework that requires finding solutions on their own.		

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 أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/ Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	All
	Assignments & H.W.	1	10% (10)	2, 12	All
	Projects / Lab.	0	0%		
	Discussing During Lectures	1	10% (10)	13	All
Summative assessment	**Midterm Exam**	2 hr	20% (20)	9,13	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction** **Special functions:** **The Factorial Function**
Week 2	**Gamma Function**
Week 3	**The Gamma function of negative number**
Week 4	**Some important formulas involving Gamma Function**
Week 5	**Solutions of some Examples**
Week 6	**Beta Function**
Week 7	**Other forms of Beta Function**
Week 8	**The Relation between Gamma and Beta functions**

Week 9	**Test #1**
Week 10	**The Error function**
Week 11	**Series: Solutions of Differential Equations**
Week 12	**Legendre's Equation**
Week 13	**Test #2**
Week 14	**Summary**
Week 15	**Preparatory Week**
Week 16	**Final 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 مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	✓ Mathematical Methods in the Physical Sciences" By: Mary L. Boas, 3rd Edition, 2006.	https://www.christs.cam.ac.uk/sites/default/files/inline-files/0a187866618ca3049030ec5014860ae8-original.pdf
Recommended Texts	**Advanced Calculus**, 3rd Edition, Angus E. Taylor, and W. Robert Mann, 1983.	Available
Websites	Any website related with mathematical physics	

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
Note:				

NB 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.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي