مدونة المناهج السعودية

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الموقع التعليمي لجميع المراحل الدراسية

في المملكة العربية السعودية

معلومات المقرر *

(Course Information):

اسم المقرر:	فيزياء رياضية 3
رقم المقرر:	فيز 3072
اسم ورقم المتطلب السابق:	فيز 2052
اسم ورقم المتطلب المرافق:	--
مستوى المقرر:	الخامس
الساعات المعتمدة:	3 (0+0+3)

Module Title:	Mathematical physics III
Module ID:	PHYS 3072
Prerequisite :	PHYS 2052
Co-requisite :	--
Course Level:	Fifth
Credit Hours:	3 (3+0+0)

Module Description   **وصف المقرر :**

Series method for soling linear differential equations, Legendre polynomials, Hermite polynomials, Lagurre polynomials, Bessel functions, Fourier transformation and in its application, Laplace transformation and its application, eigenvalue problem, differential equation of boundary value problem.

Module Aims   **أهداف المقرر :**

1	The student should learn complex analysis like: Fourier series, linear differential equation	
2	Improve student level in mathematical theories	
3	Teach students how to express physical concepts in a correct mathematical way	
4	Develop cognitive skills for students**.**	
5	Train student on comprehensive skills like, knowledge, cognitive skills, personal relations skills, communication skills. computer skills	

Learning Outcomes:مخرجات التعليم:

1	**Knowledge:** • The student should learn Fourier Series • Student will be able to read the physical question in a correct mathematical way • Student should be able to connect mathematical concepts with its different physical applications. • Develop cognitive skills for students.	1
2	**Cognitive skills:** • Solve different exercises in the course book. • Student will acquire general knowledge about linear algebra.	2

	• Student will be able to analysis mathematical exercise • Student will be able to read the physical question in a correct mathematical way.		
3	**Interpersonal skills and responsibility**: • The ability to form groups and distribute the duties. • The skills of presentation in front of the others. • The skill of constructive criticism, and discussion. The ability to express opinions clearly and accept others opinion		3
4	**Communication, Information Technology and Numerical Skills**: • To be able to use the email to connect with the teacher and the colleagues. • Search the web to get any update information concerning the assigned experiment		4
5	**Psychomotor** Not applicable.		5

محتوى المقرر: Course Contents:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
6	2	Series for solving linear differential equations
3	1	Legendre polynomials
3	1	Hermite polynomials
3	1	Lagurre polynomials
3	1	Bessel functions
3	1	Fourier series
3	1	Fourier transformation and its application
6	2	Laplace transformation and its application
6	2	Eigen value problem
3	1	Differential equations of boundary value problem

المقرر والمراجع المساندة: Textbook and References:

سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
10th ed. (2011) ISBN: 0534408443	Brooks Cole	Erwin Kreysziy	Advanced Engineering Mathematics
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
3rd ed., (2005) ISBN: 0471198269	Wiley	Mary L Boas	Mathematical Methods in the Physical Sciences
(2003) ISBN: 0133274616	Prentice Hall College	E. B. Saff and A. D. Snider	Fundamentals of Complex Analysis for Mathematics, Science and Engineering