

مختصر توصيف المقرر

(Course Information)

معلومات المقرر*

اسم المقرر:	موجات واهتزازات
رقم المقرر:	فيز 2312
اسم ورقم المتطلب السابق:	فيز 2042
اسم ورقم المتطلب المرافق:	-
مستوى المقرر:	الرابع
الساعات المعتمدة:	3 (0+0+3)
Module Title:	Waves and Vibrations
Module ID:	PHYS 2312
Prerequisite:	PHYS 2042
Co-requisite:	--
Course Level:	Fourth
Credit Hours:	3 (3+0+0)

Module

وصف المقرر :

Description

Periodic motion -- Simple harmonic oscillation - Damped oscillation - Forced oscillation - Application of damped and forced oscillations - Superposition of simple harmonic oscillations- traveling waves, standing, Beats - Transverse wave in wires - Longitudinal wave in rods - Application of longitudinal wave in open and closed air columns -Fourier analysis -Doppler effect

Module Aims

أهداف المقرر :

1	To give students an understanding of oscillations and waves	1
2	Appreciation of their importance in the study of physics	2
3	To introduce the mathematical tools used in their analysis	3

Learning Outcomes:

مخرجات التعليم:

1	<p>Knowledge:</p> <ul style="list-style-type: none"> Analyze various systems of oscillation. Analyze the behavior of various types of waves. Analyze various systems of oscillation. Analyze the role of driving and damping forces in oscillating systems. 	1
2	<p>Cognitive skills:</p> <ul style="list-style-type: none"> Generalize the idea of oscillation to other physical systems. Investigate wave nature based on the superposition concept. Describe resonance and normal modes in oscillations. 	2

	• Explain Doppler Effect.	
3	Interpersonal skills and responsibility: • Learn how to search for information through library and internet. • Present a short report in a written form and orally using appropriate scientific language	3
4	Communication, Information Technology and Numerical Skills: Operate questions and communicate with teacher through solve problems and work in groups.	4
5	Psychomotor Not applicable.	5

Course Contents:

محتوى المقرر:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
6	2	CHAPTER 1: Periodic motion
6	2	CHAPTER 2: Simple harmonic oscillation, Damped oscillation - Forced oscillation: Application of damped and forced oscillations
9	3	CHAPTER 3: Superposition of simple harmonic oscillations- traveling waves, standing, Beats
9	3	CHAPTER 4: Transverse wave in wires - Longitudinal wave in rods
9	3	CHAPTER 5: Application of longitudinal wave in open and closed air columns
6	2	Chapter 6: Fourier analysis -Doppler effect

Textbook and References:

الكتاب المقرر والمراجع المساندة:

سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
(1993)	Cambridge University Press	Iain G. Main	Vibrations and waves in physics
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
(2006)	Dover	John R. Pierce	Almost All About Waves
(2009)	Wiley	George C. King	Vibrations and waves