



جامعة المجمعة
Majmaah University

وكالة الجامعة للشؤون التعليمية
إدارة البرامج الدراسية والتطوير

نموذج (5)

مختصر توصيف المقرر

(Course Syllabus)

Course) *	معلومات المقرر
(Information	
فيزياء عامة 2	اسم المقرر:
PHYS-218	رقم المقرر:
PHYS 101	اسم ورقم المتطلب السابق:
--	اسم ورقم المتطلب المرافق:
الثالث	مستوى المقرر:
(2+2) 3	الساعات المعتمدة:
Module Title:	General Physics -2
Module ID:	PHYS - 213
Prerequisite (Co-requisite):	PHYS 101
Co-requisite:	--
Course Level:	3 th
Credit Hours:	3(2+2)

Module Description

وصف المقرر:

Theoretical part: Pressure, variation of pressure with depth, Buoyant forces and Archimedes' principle, Fluid dynamics, Bernoulli's equation and applications. Motion of spring, simple harmonic motion, damped oscillations, disturbance propagation, sinusoidal waves, waves speed, reflection and transmission, energy transfer in waves, linear wave equation. Properties of sound waves, Doppler effect. Superposition and interference, standing waves in different mediums, resonance, non-sinusoidal wave patterns. Zeroth law of thermodynamics, temperature measurements and scales, thermal expansion, ideal gas. Heat and internal energy, specific heat and calorimetry, latent heat, work and heat in thermodynamics, first law of thermodynamics, energy transfer. Molecular model and molar specific heat of ideal gas, adiabatic process of ideal gas, equipartition of energy, Boltzmann distribution, mean free path. Heat engines, 2nd law of thermodynamics, heat pumps and refrigerators, reversible and irreversible processes, entropy.

Practical part: Errors and measurements, viscosity, surface tension, thermal expansion, heat pump and refrigerator, fluid dynamics, specific heat capacity, Boil's law, Joule's equivalent, resonance.

Module Aims

أهداف المقرر:

1	Understanding the fundamental principles of fluid dynamics, oscillations and mechanical wave, wave motion, sound waves, superposition and thermodynamics	1
2	The development of students thinking on how to apply the physical principles to explain the physical phenomena.	2
3	The student should be able to read and describe physical problems, to use mathematics in solving physical problems efficiently.	3
4	Understanding the kinematics and dynamics of linear and circular motions, mechanical equilibrium, work, energy, impulse and momentum, oscillation, moment of inertia, torque, rigid bodies, rotational motion in rigid bodies.	

5		5
Learning Outcomes:		مخرجات التعليم:
1	To know and describe the basic principles of fluids, waves and oscillations, temperature, and heat. To apply the formulas learned to solve the different applications of the related topics.	1
2	To distinguish between the simple and damped harmonic motion, properties of sound and mechanical waves, heat and temperature, and the three thermodynamic laws. To explain and justify the results obtained from the experiment.	2
3	To participate in class discussion. Practice the safety and organizing rules of the laboratories. To act with self-reliance when working independently. Displays teamwork and shows professional commitment to ethical practice.	3
4	To write laboratory reports, relate experiments to its related theories. To use software programs in writing, inserting and analyzing data, and plotting graphs.	4

Course Contents:		محتوى المقرر:
ساعات التدريب (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
4	2.0	Fluid Mechanics
3	1.5	Oscillatory Motion
3	1.5	Wave Motion
4	2.0	Sound Waves
3	1.5	Superposition and Standing Waves
3	1.5	Electricity and magnetism ,
4	2.0	electrical potential, Electric fields,
3	1.5	Capacitance and dielectrics, current and resistance, direct current circuit
3	1.5	Alternating current circuits
30	15	Total
List of Topics (practical)		
2	.01	Measurements experiment
2	.01	Viscosity experiment
2	.01	Surface tension experiment
2	.01	Specific heat capacity for liquids experiment
2	.01	Specific heat capacity for solids experiment
2	.01	Speed of sound in solids experiment
2	.01	Thermal expansion experiment
2	.01	Joule's equivalent experiment
2	.01	Boil's law experiment)
2	.01	Resonance experiment
2	1.0	Heat engine and refrigerator
2	1.0	Fluid dynamics

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
9 th Ed. (2013)	<i>Cengage Learning</i>	<i>Raymond A. Serway and <u>John W. Jewett</u></i>	Physics for scientists and engineers <i>ISBN-10: 013805715X</i>
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
9 th Ed. (2011)	<i>Cengage Learning</i>	<i>Raymond A. Serway, <u>Chris Vuille</u></i>	College Physics <i>ISBN-10:0840062060</i>
9 th Ed. (2012)	<i>John Wiley & Sons</i>	<i>John D. Cutnell, <u>Kenneth W. Johnson</u></i>	Physics <i>ISBN-10: 0470879521</i>

