

جامعة : المنصورة

كلية : العلوم

قسم : الفيزياء

توصيف مقرر دراسي

١. بيانات المقرر	
المستوى : الاول	أسم المقرر: Thermal physics & Properties of matter
الرمز الكودي : ف ١٠١	
عدد الوحدات الدراسية: ٣ نظري : ٢ تمارين : ١ عملي : ٢	التخصص: الكيمياء

For students undertaking this course, the aims are to: 1 - Introduce the students the basics and fundamentals of heat and thermodynamics. 2 - Use the principle of Zeroth law of thermodynamics, thermal expansion of solids and liquids of gases. 3 - Study the heat and thermal energy, heat capacity and specific heat, latent heat, thermodynamic process and the liquefaction of gases. 4 - Introduce the principle of basics and fundamentals of properties of matter. 5 - Study the concept of the physical quantities and their units and dimensions. 6 - Acquire the student's skill to drive the applications of simple harmonic motion, oscillatory motion. 7 - Outline the basic information of rotational dynamics, Earth satellite, fluids, surface tension and elasticity.	٢. هدف المقرر:
a- Knowledge and Understanding : On completing this course, students will be able to: a - 1 - Know more information about thermal physics and its applications. a - 2 - Define the physical terms like Zeroth law of thermodynamics, thermal expansion of solids and liquids, heat and thermal energy, heat capacity. a - 3 - Understand the principles of heat capacity and specific heat capacity to increase the student's knowledge about different behavior of materials. a - 4 - Define the principles of units and dimensional analysis.	٣. المستهدف من التدريس المقرر: ١.المعلومات والمفاهيم:

<p>a - 5 - List the basic information of oscillatory motion and rotational dynamics, earth satellites.</p> <p>a - 6 - Know the student to make experiments in physics lab related to properties of matter course.</p> <p>a - 7 - Recognize the principles of fluids mechanics, surface tension and elasticity to increase the students' knowledge about materials.</p>	
<p>b- Intellectual Skills: On completing this course, students will be able to:</p> <p>b - 1 - Apply the principles of thermodynamics process and its applications.</p> <p>b - 2 - Predict thermal behavior of materials by discussing related physical phenomena.</p> <p>b - 3 - Apply more information about properties of matter and their application.</p> <p>b - 4 - Distinguish between the physical terms like units and dimensions, oscillatory motion, rotational dynamics, earth satellites and elasticity.</p> <p>b - 5 - Analyze the principles of fluids motion and surface tension and their applications.</p> <p>b - 6 - Predict behavior of materials by discussing related physical phenomena.</p> <p>b - 7 - Apply the mathematical formulas in solving problems.</p>	<p>ب.المهارات الذهنية</p>
<p>c-Professional and Practical Skills: On completing this course, students will be able to:</p> <p>c - 1 -Choose and classify data obtained from physics experiments.</p> <p>c - 2 - Design physics experiments to apply thermal physics phenomena in physics lab.</p> <p>c - 3 - Design a diagram graphically for thermodynamic processes.</p> <p>c - 4 - Reform mathematical formula in solving challenging problems related to thermal physics.</p> <p>c - 5 -Choose and classify data obtained from experiments related to properties of matter course.</p> <p>c - 6 - Design physics experiments to apply oscillatory motion, fluids, surface tension and elasticity in physics lab.</p> <p>c - 7 - Design a graph for oscillatory motion, rotational dynamics and fluids</p>	<p>ج- المهارات المهنية الخاصة بالمقرر:</p>

<p>motion.</p> <p>c - 8 - Reform mathematical formula in solving problems related to units and dimensions, oscillatory motion, rotational dynamics, fluids and elasticity.</p>	
<p>d-General and Transferable Skills: On completing this course, students will be able to:</p> <p>d - 1 - Present data in graphical using IT methods.</p> <p>d - 2 - Manage self time, data and knowledge.</p> <p>d - 3 - Work in a group to perform an experiment.</p> <p>d - 4 -Search for information about the course materials.</p> <p>d - 5 - Communicate effectively with students by discussing results obtained from experimental physics lab.</p>	<p>د- المهارات العامة :</p>
<ol style="list-style-type: none"> 1- Zeroth law of thermodynamics 2- Thermal expansion of solids and liquids 3- Heat and thermal energy 4- Heat capacity and specific heat capacity, latent heat 5- Thermodynamic process 6- Liquefaction of gases 7- Units and Dimensions 8- Oscillatory motion 9- Rotational dynamics 10- Earth satellite 11- Fluids 12- Surface Tension 13- Elasticity 14- Solve problem and revision 	<p>٤. محتوى المقرر:</p>
<p>4 - Teaching and Learning Methods:</p> <ol style="list-style-type: none"> 1 - Lectures using data show and board 2 - Discussion Sessions 3 - Class activity 4 - Laboratory work 	<p>٥. أساليب التعليم والتعلم:</p>
<p>The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.</p>	<p>٦. أساليب التعليم والتعلم للطلاب ذوي القدرات المحدودة:</p>
<p>٧. تقويم الطلاب :</p>	

Student Assessment Methods			أ- الأساليب المستخدمة :
Final exam	to assess	a1-a8, b1-b7,c1-c8,d1-d5	
Oral exam	to assess	a1-a7, b1-b7	
Practical exam	To assess	a5,a6,c2,c3,c4,c6,d1,d3-d5	
Mid-Term exam	To assess	a1,a1-a8,b1-b7,c1-c8,d1-d5	
Assessment Schedule			ب- التوقيت :
Assessment 1	Week # Final exam	Week 16	
Assessment 2	Week # Oral exam	Week 16	
Assessment 3	Week # Practical exam	Week 15	
Assessment 4	Week # Mid-Term exam	Week 10	
Weighting of Assessments			ج- توزيع الدرجات :
Final-Term Examination	60%		
Oral Examination	10%		
Practical Examination	20%		
Semester work	0%		
Mid-term examination	10%		
Other types of assessment	0%		
Total	100%		
٨- قائمة الكتب الدراسية والمراجع :			
1 - Notes (Thermal physics and Properties of matter) prepared by the physics department			أ- مذكرات:

	ب- كتب ملزمة
1 - Raymond A. Serway, physics of scientists and engineers , John W. Jewett 6th Edition, 2004	ج- كتب مقترحة
1 - http://en.wikipedia.org	د- دوريات علمية أو نشرات..

مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
1- Zeroth law of thermodynamics	1-3	a1-a2	b1-b2	c1-c2	d1-d5
2- Thermal expansion of solids and liquids	4-5	a3			
3- Heat and thermal energy	6-8	a3			
4- Heat capacity and specific heat capacity, latent heat	9-11	a3			
5- Thermodynamic process	12-14	a3		c3	d1-d5
6- Liquefaction of gases	15	a3		c4	
7- Units and Dimensions	1-2	a4	b3-b4	c5	
8- Oscillatory motion	3-5	a5		c6	
9- Rotational dynamics	6-8	a5		c6	
10- Earth satellite -Fluids	9-11	a5			
11- Surface Tension-Elasticity	12-14	a5	b5-b6	c7	
12- Solve problem and revision	15	a6	b7	c8	d1-d5

أستاذ المادة: ا. د / المتولى محمود عبدالرازق

رئيس مجلس القسم العلمي: ا. د / المتولى محمود عبدالرازق