

جامعة : المنصورة

كلية : العلوم

قسم / الفيزياء

توصيف مقرر دراسي

١-بيانات المقرر		
المستوى : الاول	أسم المقرر : Electricity, Magnetism & Optics	الرمز الكود : ف١٠٢
عدد الوحدات الدراسية: ٣ نظري : ٢ تمارين: ١ عملي: ٢		البرنامج : الكيمياء

<p>١ - Introduce the basic concept of geometrical optics.</p> <p>2 - Use the principles of reflection and refraction of light to study their applications.</p> <p>3 - Outline the basic information of optical instrumentation and new fields.</p> <p>4 - Introduce the students the basics and fundamentals of heat and thermodynamics.</p> <p>5 - Study the basic concept of the physical quantities and their units and dimensions.</p> <p><b>For students undertaking this course, the aims are to:</b></p>	<p>٢- هدف المقرر :</p>
٣- المستهدف من التدريس المقرر:	
<p>a- Knowledge and Understanding :</p> <p><b>On completing this course, students will be able to:</b></p>	<p>أ- المعلومات والمفاهيم:</p>

<p>a1 - Know reflection, refraction and dispersion of light.</p> <p>a2 - Understand the fundamental concepts of interference and diffraction of light.</p> <p>a3 - Recognize the different behavior and properties of light waves</p> <p>a4 - Acquire an understanding of physical means; heat, energy, phase change, heat capacity, thermodynamic process, thermal conduction and radiation.</p> <p>a5 - List the principles of heat transfer (conduction, convection and radiation) and different thermodynamic processes to increase the student's knowledge about different behavior of materials.</p> <p>a6 - Explain the different variables in thermodynamic process and related to the conservation of energy law.</p>	
<p><b>b- Intellectual Skills: On completing this course, students will be able</b></p> <p>b1 - Analyze the laws of reflection, refraction and diffraction of light wave.</p> <p>b2 - Distinguish the images produced by different optical phenomena.</p> <p>b3 - Sketch and trace the image formation due to refraction of light by a prism or a lens.</p> <p>b4 - Apply the mathematical formulas in solving problems.</p> <p>b5 - Distinguish between the motion of an object in one and two dimensions and Know more information about the laws of conservation of energy on fluid flow.</p> <p><b>to:</b></p>	<p>-ب المهارات الذهنية</p>
<p><b>c-Professional and Practical Skills: On completing this course, students will be able to:</b></p>	<p>-ج المهارات المهنية الخاصة بالمقرر:</p>

<p>c1 - Choose and classify data for measuring the refractive index obtained by different methods.</p> <p>c2 - Design an experiment to measure the image formed by an optical lenses or a prism.</p> <p>c3 - Perform a method to overcome the eye-defects of vision.</p> <p>c4 - Design a diagram graphically for a thermodynamic process.</p> <p>c5 - Apply the conservation of energy rules on heat and thermodynamic processes.</p> <p>c6 - Differentiate between physical formulas for a fluid in motion.</p> <p>c7 - Reform an experiment to describe the behavior of a solid material under a longitudinal stress.</p>	
<p><b>d-General and Transferable Skills: On completing this course, students will</b></p> <p>d1 - Work in a group to perform an experiment.</p> <p>d2 - Search for information about the course materials.</p> <p>d3 - Collect the information about the heat transfer in different geometrical objects.</p> <p>d4 - Collect and analyze data obtained from an experiment in physics lab.</p> <p>d5 - Present results in oral and written means physical formula for heat transfer in different geometrical objects.</p> <p><b>be able to:</b></p>	<p>د- المهارات العامة :</p>
<ol style="list-style-type: none"> <li>1- Reflection and refraction of light at plane surface.</li> <li>2- Refraction through prisms and dispersion</li> <li>3- The electromagnetic spectrum</li> <li>4- Refraction through lenses. Problem solving</li> <li>5- The eye and optical instruments</li> <li>6- Photometry and interference, diffraction and polarization of light</li> <li>7- The laser. Problem solving</li> </ol>	<p>٤- محتوى المقرر:</p>
<ol style="list-style-type: none"> <li>1 - Lectures using data show and board</li> <li>2 - Discussion sessions</li> <li>3- Class activity</li> <li>4 - Laboratory work</li> </ol>	<p>٥- أساليب التعليم والتعلم:</p>
<p><b>The same as normal students, only skeletal disabilities are allowed in</b></p>	<p>٦- أساليب التعليم</p>

the Faculty of Science.		والتعلم للطلاب ذوى القدرات المحدود ة:
٧- تقويم الطلاب :		
<b>7- Student Assessment Methods</b>		أ- الأساليب المستخدمة :
<b>Practical exam</b>	<b>To assess</b>	c1,c4, c7
<b>Final exam</b>	<b>to assess</b>	a1-a6, b1- b5
<b>Oral exam</b>	<b>to assess</b>	a1-a4, b1, b4
<b>Assessment Schedule</b>		ب- التوقيت :
<b>Assessment 1</b>	<b>Week #final exam</b>	<b>Week 14</b>
<b>Assessment 2</b>	<b>Week #oral exam</b>	<b>Week 14</b>
<b>Assessment 3</b>	<b>Week #practical exam</b>	<b>Week 12</b>
<i>Weighting of Assessments</i>		ج- توزيع الدرجات :
<b>Final-Term Examination</b>	<b>60%</b>	
<b>Oral Examination</b>	<b>10%</b>	
<b>Practical Examination</b>	<b>20%</b>	
<b>Semester work</b>	<b>0%</b>	
<b>Mid-term examination</b>	<b>0%</b>	
<b>Other types of assessment</b>	<b>0%</b>	
<b>Total</b>	<b>100%</b>	
٨- قائمة الكتب الدراسية والمراجع :		

	أ- مذكرات:
1 - Notes of(Optics- Heat-Properties of matter) prepared by the physics department 2 - Physics for Scientists and Engineers Raymond A. Serway, John W. Jewett	ب- كتب ملزمة
	ج- كتب مقترحة :
	د- دوريات علمية أو نشرات..

### مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
1-Reflection and refraction of light at plane surface.	1,2,3,4	a1	b1	c1	d1
2- Refraction through prisms and dispersion	5,6,7,8	a2	b2	c2	d2
3- The electromagnetic spectrum	9	a3	b3	c3	d3
4- Refraction through lenses. Problem solving	10	a4	b4	c4	d4
5- The eye and optical instruments	11	a5	b5	c5	d5
6- Photometry and interference, diffraction and polarization of light	12	a6		c6	d6
7- The laser. Problem solving	13	a6		c7	

أستاذ المادة : ا. د/ نبيل ابراهيم زكى قناوى

رئيس مجلس القسم العلمي : أ.د / المتولى محمود عبد الرازق