: المنصـــورة

كـــلية: العلـــــوم

قـــســـم:الفيزيـــاء

توصيف مقرر دراسى

١-بيانات المقرر		
الرمز الكودى :Phys 102	**أسم المقرر: Electricity and Magnetism - Optics**	**المستوى: الأول**
التخصص: رياضيات	**عدد الوحدات الدراسية: ٣ ساعة معتمدة نظرى ٢: تمارين: ١ عملى: ٢**	

٢- هدف المقرر:	
For students undertaking this course, the aims are : 1- Aims at introducing the students to the basics and fundamentals of Electricity and Magnetism including, Electric current and ohm's law, Network theorem, Work, power and energy, Capacitance and inductance, Magnetism and electromagnetism, Electromagnetic induction. 2- Aims at introducing the students to the basics and fundamentals of geometric Optics including, Nature of light, propagation of light, deviation of light by prisms and dispersion, image formation, perception of light, color vision and Lasers	
٣- المستهدف من تدريس المقرر:	
a- Knowledge and Understanding : **On completing this course, students will be able to:** a1- Introduce the principles of Electricity and Magnetism. a2-Outline the basic information of electric current and ohm's law, network theorem and work. a3-Enable the student to use different concepts of capacitance and inductance in physics lab. a4-Use the principles of magnetism, electromagnetism and electromagnetic induction to increase the student's knowledge about the behavior of magnetic materials. a5-Introduce different application of network theorem. a6-Introduce the principles of geometrical optics. a7-Outline the basic information of nature of light, propagation of light, deviation of light by prisms and dispersion, image formation, perception of light, color vision and Lasers. a8-Enable the student to use make experiments in physics lab related to geometric Optics course.	**أ- المعلومات والمفاهيم:**

a9-Use the principles of geometric optics to increase the student's awareness about different behavior of optical materials	
b- Intellectual Skills: **On completing this course, students will be able to:** b1- Know more informations about electricity and magnetism and its applications. b2- Define the physial terms like Electric current and ohm's law, Network theorem, Work, power and energy, capacitance and inductance, magnetism and electromagnetism, electromagnetic induction. b3- Explain the principles of geometrical optics and its applications. b4- Predict optical behavior of materials by discussing related physical phenomena b5- Know more information about geometrical optics and their applications. b6- Define the physial terms like nature of light, propagation of light, deviation of light by prisms and dispersion. b7- Explain the principles of image formation, perception of light, color vision and Lasers.	**أ- المهارات الذهنية**
c-Professional and Practical Skills: **On completing this course, students will be able to:** c1- Choose and classify data obtained from physics experiments related to electricity and magnetism course. c2- Design physics experiments to apply electricity and magnetism phenomena in physics lab	**ج- المهارات المهنية** **الخاصة بالمقرر:**

c3- Use mathematical formula in solving challenging problems related to c4- Choose and classify data obtained from physics experiments according to the c5- Design physics experiments to apply geometric optics principles. c6- Design a diagram graphically for image formed due to geometric optics phenomena. c7- Use mathematical formula in solving problems related to geometric optics course.	
d-General and Transferable Skills: **On completing this course, students will be able to:** d1- Present data in graphical using IT methods. d2- Managements of self time, data and knowledge d3- Search for information related to electricity and magnetism course topics. d4- Search for information related to geometric optics course topics. d5- Present results in oral and writing means. d6- Communicate effectively with students by discussing results obtained from experimental physics lab.	**د- المهارات العامة :**
Electricity and Magnetism : Electric current and ohm's law Network theorem Work Power and energy Capacitance and inductance Magnetism and electromagnetism Electromagnetic induction **Optics** : Nature of light Propagation of light Deviation of light by prisms and dispersion Image formation	**٤- محتوى المقرر:**

Perception of light and color vision

Lasers

٥- اساليب التعليم والتعلم:

1- Lectures using data show and board.

2- Discussion sessions.

3- Class activity.

4- Laboratory work.

٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة:

The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.

٧- تقويم الطلاب :

أ- الأساليب المستخدمة :

7- Student Assessment Methods

Final exam	to assess	a1-a9, b1-b7, c1-c7 and d1-d6
Oral exam	to assess	a1-a10, b1-b8 and c1-c7
Practical exam	to assess	a3, a7, a8, b1-b2,, b4, c1-c2 and d1,d5
Mid-Term Exam	to assess	a1-a9, b1-b7, c1-c7and d1-d6

ب- التوقيت :

Assessment Schedule

Final exam	Week #	16
Oral exam	Week #	16
Practical exam	Week #	15
Mid-Term Exam	Week #	7

ج- توزيع الدرجات :	*Weighting of Assessments*	
	Final-Term Examination	10%
	Oral Examination	60 %
	Practical Examination	20%
	Mid-Term Exam	10%
	Other types of assessment	0%
	Total	100%

٨- قائمة الكتب الدراسية والمراجع :

أ- مذكرات:	Notes Electricity & Magnetism Notes of Optics prepared by the physics department.
ب- كتب ملزمة	
ج- كتب مقترحة :	Raymond A. Serway ,Physics for Scientists and Engineers, John W. Jewett 6th Edition, 2004.
د- دوريات علمية أو نشرات..	http://en.wikipedia.org

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
Electric current and ohm's law	1-2	a1-a2	b1	c1	d1-d5
Network theorem	3-4	a2	b1	c1	d1-d5
Work	5-6	a2	b1	c1	
Capacitance and Inductance	7-8	a3	b1	c1	
Magnetism and electromagnetism	9-10	a3	b1		d1-d5
Electromagnetic conduction	11-13	a4	b2		
Nature of light	14	a4	b2		d1-d5
Propagation of light	1-2	a6, a7	b3, b4	c4, c5	
Deviation of light by prisms	3-4	a7	b5, b6		
Image formation	4-7	a8	b5, b6	c6	

Precipitation of light and color vision	8-11	a8, a9	b6	c6, c7	
Lasers	12-14	a9	b7		

أستاذ المادة: د./ شلبية ابراهيم محمود بدر

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