

مختصر توصيف المقرر

:(Course Information)

معلومات المقرر *

اسم المقرر:	مختبر الفيزياء الحديثة
رقم المقرر:	فيز 3932
اسم ورقم المتطلب السابق:	فيز 2512
اسم ورقم المتطلب المرافق:	--
مستوى المقرر:	الخامس
الساعات المعتمدة:	2 (0+4+0)
Module Title:	Modern Physics Lab.
Module ID:	PHYS 3932
Prerequisite :	PHYS 2512
Co-requisite :	--
Course Level:	Fifth
Credit Hours:	2 (0+4+0)

Module

وصف المقرر :

Description

The Balmer series of hydrogen and determination of Rydbergs constant, Franck- Hertz experiment, characteristics of microwaves, Milikan oil drop, Kerr effect, Faraday effect, Pockels effect, Zeeman effect, Planck's constant, Studying X-ray spectra.

أهداف المقرر :

Module Aims

1	To thoroughly understand the physical principles by applying it experimentally.	1
2	To improve the experimental skills in dealing with the equipment, and to motivate the student for research and discovery.	2
3	Improve the skills of data analysis.	3

Learning

مخرجات التعليم:

Outcomes:

1	Knowledge Knowing the basic phenomena of modern physics and learns how to calculate the physical quantities related to the experiment and compare it with literature.	1
2	Cognitive Skills <ul style="list-style-type: none"> To perfect the skills of operating and reading from the instruments. To learn the accuracy and caution when operating an instrument. To perfect the research skills. To perfect the skills of results evaluation and searching for possible errors. 	2

3	Interpersonal Skills and Responsibility <ul style="list-style-type: none"> The skills of self-dependency and helping the others. Learning the group work and developing the team spirit. Practicing the discussion with the others and exchange the different point of views. Take the responsibility of taking care of the instruments and the public properties. 	3
4	Communication, Information Technology and Numerical Skills <ul style="list-style-type: none"> The skill of analyzing the data manually. The skill of using the computer to analyze the data. The skill of dealing with the software operating the instruments. The skill of searching the internet. 	4
5	Psychomotor Not applicable.	5

Course Contents:

محتوى المقرر:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
4	1	Training on using Excel and/or Origin softwares to process data
8	2	Photoelectric effect and Planck's constant determination
4	1	Milikan oil drop experiment تجربة ميليكان لنقطة الزيت
4	1	Balmer series and Rydberg's constant determination
4	1	Zeeman effect تجربة تأثير زيمان
8	2	Surface tunneling effect
4	1	Moseley's law using x-ray machine
4	1	Energy spectrum of certain materials using x-ray machine
4	1	Effect of voltage and current on the XRD pattern
4	1	Seminar سيمنار
4	1	Substitution week أسبوع التعويض
4	1	Final exam الاختبار النهائي

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
			Lab. Manual
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
3 rd edition, (2012)	Wiley	K. Krane;	Modern Physics
3 rd edition, (2004)	Brooks Cole	Raymond A. Serway, Clement J. Moses, Curt A. Moyer	Modern Physics