

مواصفات المقرر بصريات إلكترونية

- البرنامج الذي يقدم المقرر من خلاله (إعداد معلم الفيزياء)
- يمثل المقرر عنصرا (رئيسيا) بالنسبة للبرنامج
- القسم العلمي المسئول عن البرنامج (متعدد)
- القسم العلمي المسئول عن تدريس المقرر (قسم الفيزياء)
- السنة الدراسية / المستوى (الفرقة الثالثة عام . شعبة الطبيعة / الفصل الدراسي الأول)
- تاريخ اعتماد توصيف البرنامج ()

Basic Data

بيانات أساسية

- (1) العنوان : بصريات إلكترونية
- (2) الكود : 312 ph
- (3) الساعات المعتمدة Five credit hours
- المحاضرات: 2 h lect. /w
- الدروس العملية: 3h lab / w.
- المجموع: 5 credit hours

Professional Data

بيانات مهنية

1) General goals of the course

(1) الأهداف العامة للمقرر

- Developing and understanding the applications of electron motion in E.M field namely construction of electronic lenses and electron microscope.

2) Operational learning objectives of the course

(2) الأهداف الإجرائية للمقرر

By the end of this course, student teachers are expected to achieve the following objectives:

A) Knowledge and Comprehension:

أ- المعرفة والفهم:

The students have to recognize the following :

- a.1 Electron motion in E.M field.
- a.2 The structure of electronic lenses of different configuration and comparison with optical lenses.
- a.3 Basic construction and performance transmission and scanning electron microscope and applications.

B) Cognitive Skills:

ب- المهارات العقلية:

- b.1 Apply mathematics, including calculus and statistics, to investigations in physics and the analysis of data.

- b.2 Relate the concepts of physics to contemporary, historical, technological, and societal issues; in particular, relate concepts of physics to current controversies, such as those around energy uses and medical research, as well as other issues.

C) Practical Skills:

ج- المهارات العملية:

- c.1 Locate resources, design and conduct inquiry-based open-ended investigations in physics, interpret findings, communicate results, and make judgments based on evidence
- c.2 Construct new knowledge for themselves through research, reading and discussion, and reflect in an informed way on the role of science in human affairs.
- c.3 Understand and promote the maintenance of a safe science classroom, including the appropriate use and storage of scientific equipment, and the safe storage, use, and disposal of chemicals.

D) Enabling Skills:

د- المهارات العامة والمنقولة:

- d.1 Demonstrate competence in the practice of teaching as defined within the Entry-Level Standards .
- d.2 Create and maintain an educational environment in which conceptual understanding will occur for all science students.
- d.3 Demonstrate competence in the practice of teaching through investigative experiences and by demonstrating the application of the scientific process and assessing student learning through multiple processes.
- d.4 Develop an understanding and appreciation for the nature of scientific inquiry.

Contents

المحتويات

Week	Topic	Assigned hours		
		Lectures	Rec	Total
First	• Introduction to electron optics.	6	9	15
Second				
Third				
Fourth	• Motion of electrons in uniform: electrostatic and magnetic fields.	4	6	10
Fifth				
Sixth	• Types and design of electron lenses.	4	6	10
Seventh				
Eighth	• Physical similarity of light and electron lenses.	6	9	15
Ninth				
Tenth				
Eleventh	• Types of electron microscope and applications	6	9	15
Twelfth				
Thirteenth				

Activities, tasks and assignments:

أنشطة التعلم والتعليم

Lectures.
Laboratory experiments.
Problems essay and assignments

Assessment and Evaluation tools:

أدوات التقييم

Semester activities including classroom interactions and Quizzes.
Mid – term exam
Oral exam.
Final exam.

Summative Evaluation table

جدول التقييم

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Assessment	Final exam	Fifteenth Week	الأسبوع الخامس عشر	نهاية الفصل الدراسي	التقييم
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النسبة المئوية لكل تقييم

Assessment	Score وزن الدرجة Weight	التقييم
2. Final written exam	%68.58	1. امتحان نهاية الفصل الدراسي
3. Practical exam	%20	2. الامتحان العملي
4. assignments	%11.42	3. أعمال فصلية
Total	%100	المجموع

References:

قائمة المراجع

- Text books.
- 1- An Introduction to atomic and nuclear physics by H.Semat.
- 2- Advanced Physics by Kieth Gibbs.
- 3- Modern Physics by Weidner and sells

الإمكانات المطلوبة للتعليم والتعلم

Educational sources:

- Computer simulation programs and slides.
- Transparencies.
- Manual of solved problems (answer and solutions)

Course coordinator:

• منسق المقرر:

Head of the Department:

• رئيس القسم:

Date:

• التاريخ: