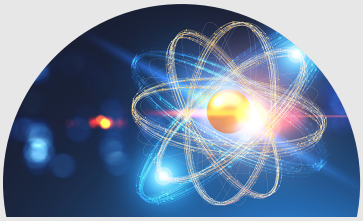

PTP 102

Lectures will be provided by
Dr. Ahmed Kamel
Dr. M. Nashaat

Instructor Info

Dr. Ahmed Kamel (Room:104)
Dr. M. Nashaat Room (B 303)

Office Hrs: will be announced soon

Physics Department.

Lectures will be avaliable on Blackboard.

akamel@sci.cu.edu.eg;
majed@sci.cu.edu.eg.

Course Info

Prereq: Student may revise scalar and vector rules.

Date: Saturday.

Time: From 11:00 a.m. to 1:00 p.m.

Lecture: Online.

LAb Instructors

Dr.Mohamed Abdel Mohsen
Dr. Bassem Hussein.

Lab Info

Wensday

11:00 a.m. to 1:00 p.m.

Physics Lab (1).

Welcome back for the Spring 2021 term

Dear students we will work together to maintain health and safety standards, while sustaining the academic excellence. Your success is central to our mission at Physics department. Please do not hesitate to contact us whenever you have questions. All the best.

Overview

In this term we are going to mastery some parts of classical electricity. We will try to cover the topics related to electric and magnetic fields, forces on stationary and moving charges. Also, we plan to include currents due to electrostatic and magnetic fields, Gauss' Law, capacitance, current, resistance. Moreover we will study DC circuits and AC circuits.

Material

Required Texts

University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.

Lecture notes

After each lecture the notes will be published on the same day with homework on the Blackboard.

Grading Scheme

10 degrees	Student participation
10 degrees	Midterm Exams
20 degrees	Lab Grades
60 degrees	Final Exam

Grades follow the standard scale according to the faculty regulations.

Final Exam Scheme

The final exam will follow the faculty instructions:

75%	Related to the main course topic.
25%	Completely new problem, the student should apply what she / he learned during the course to solve it.

Calculator will be allowed in the midterm/ final exam. No derivation questions of models, which will be studied in the course, will be included in the exam (but the mathematical methods may be needed to solve the exam problems).

Course Outcomes

- Students will learn the concept of Charge, and how to apply Coulombs Force Law.
- Learn basic concepts of the electric field.
- How Gauss law is used to find the electric field through a different object.
- Understand concept of the electric Potential.
- Capacitance, Current, Resistance.
- Apply Kirchhoff's Rules in electronic circuits.
- Sources of Magnetic Fields and Faraday's Law of Induction.
- AC Circuits , Resonance.

Course Syllabus

- Quick Review on Vectors, Scalar and Vector Fields.
- Charge, Coulombs Force Law.
- Electric Field and Gauss's Law.
- Electric Potential and Capacitance.
- Current, Resistance, DC Circuits, Kirchhoff's Rules.
- Magnetic Field and Sources of Magnetic Fields.
- Faraday's Law of Induction.
- AC Circuits , Resonance.

Lectures Schedule

Week 1	Quick Review on Vectors, Scalar and Vector Fields.	Lec. Ref: Lecture note. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.
Week 2	Charge, Coulombs Force Law.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.
Week 3	Electric Field.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.
Week 4	Gauss's Law.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.
Week 5	Electric Potential and Capacitance.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.
Week 6	Current, Resistance, DC Circuits, Kirchhoff's Rules.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.
Week 7	Magnetic Field and Sources of Magnetic Fields.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.
Week 8	Faraday's Law of Induction.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.
Week 9	AC Circuits , Resonance.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.

Week 10, 11, ..	Topics will be announced according to our progress.	Lec. Ref: Lecture note handouts. University Physics with Modern Physics, any edition after 13th. by Hugh D Young, and Roger A. Freedman.