PHY 113 Introduction to Physics II

Winter 2024

Course Credits: 4
Contact Hours: 56 hours
Instructor: TBA
Email:TBA

COURSE OBJECTIVES

This course is the second semester of the introductory physics courses. Our course will focus primarily on electricity, DC circuits, magnetism, light and optics. As students progress through this course, they will not only master the intricacies of physics concepts but also gain valuable problem-solving skills and the ability to critically analyze and communicate scientific ideas effectively.

Upon Completion of this Course, students will be able to:

1. Perform quantitative calculations in situations involving electric and magnetic fields, and demonstrate knowledge of the relevant basic units, vector addition, and application of basic calculus;
2. Understand the behavior of resistive, capacitive, and inductive elements in alternating current (AC) circuits;
3. Understand electromagnetic induction and its applications using Faraday's Law;
4. Explain polarization of light and its practical applications;
5. Demonstrate proficiency in conducting laboratory experiments related to electric and magnetic forces, circuits, and electromagnetic radiation.

PREREQUISITES

PHY 112 Introduction to Physics I

GRADING

Grades will be determined by accumulating points, with 100 points being the

maximum, as follows:

ITEM	POINTS
5 Labs and Assignments	50 Points
2 Quizzes	20 Points
Midterm Exam	10 Points
Final Exam	20 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

A ≥ 90 > B ≥ 80 > C ≥ 70 > D ≥ 60 > F.

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

College Physics, 11th Edition by Serway & Vuille.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	**Topics:** Topic 1: Electric Forces and Fields Topic 2: Electric Flux and Gauss's Law Topic 3: Electric Potential Energy and Electric Potential Topic 4: Energy in a Capacitor/Capacitors with Dielectrics. **Assessments:** Lab #1 Assignment #1

Module 2	**Topics:** Topic 5: Electric Current Topic 6: Current and Voltage Measurements In Circuits Topic 7: Resistance, Resistivity, and Ohm's Law Topic 8: Electrical Energy and Power **Assessments:** Lab #2 Assignment #2 Quiz #1
Module 3	**Topics:** Topic 9: Direct-Current Circuits Topic 10: RC Circuits Topic 11: Magnetic Fields Topic 12: Ampere's Law **Assessments:** Lab #3 Assignment #3 Midterm Exam
Module 4	**Topics:** Topic 13: Induced Voltages and Inductance Topic 14: Faraday's Law of Induction and Lenz's Law Topic 15: Energy Stored in a Magnetic Field Topic 16: Alternating-Current Circuits and Electromagnetic Waves **Assessments:** Lab #4 Assignment #4 Quiz #2
Module 5	**Topics:** Topic 17: Reflection and Refraction of Light Topic 18: Mirrors and Lenses Topic 19: Wave Optic Topic 20: Optical Instruments **Assessments:** Lab #5 Assignment #5 Final Exam

ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

1) Late assignments are not acceptable and are subjected to grade deductions.
2) Assignments submitted in the wrong format will be counted as not submitted.
3) Failure to submit or fulfill any required course component results in failure of the class.
4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

ACEDEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors

and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.