PHY 116 Fundamental of Physics I

Summer 2024

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

COURSE OBJECTIVES

This course covers mechanics and thermodynamics through lectures, labs, and exams. Topics include position, velocity, acceleration, force, Newton's laws, gravitation, work, energy, torque, and waves. It requires algebra, geometry, trigonometry, vectors, and some calculus. While calculus is used, its exam application is limited. Proficiency in algebra, vectors, geometry, and trigonometry is crucial. Problem-solving involves quantitative analysis and conceptual reasoning.

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

1. Inspire students to embrace science and contribute to our society.
2. Learn classical mechanics, mathematical tools, and scientific methodology, laying groundwork for future academic and research endeavors.
3. Explore real-life mechanics examples, analyze independently, submit reports, and practice self-directed learning by previewing upcoming material.
4. Discussions on frame of reference, force, and Newton's laws cultivate logical thinking.

PREREQUISITES

MAT 110 Calculus I

GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
2 Homework	20 Points
Midterm 1	15 Points
Midterm 2	15 Points
2 Lab Reports	20 Points
Final Exam	30 Points
Total	100 Points

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

$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$.

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

COURSE MATERIALS

Required Texts:

Douglas C. Giancoli, ***Physics: Principles with Applications***, 7th Edition,Person,2016.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	**Topics:** Topic 1: Introduction, Measurement, Estimating Topic 2: Describing Motion: Kinematics in One Dimension Topic 3: Kinematics in Two Dimensions; Vectors Topic 4: Dynamics: Newton's Laws of Motion **Assessments:** Homework 1
Module 2	**Topics:** Topic 5: Circular Motion; Gravitation Topic 6: Work and Energy Topic 7: Linear Momentum Topic 8: Rotational Motion **Assessments:**

	Homework 2 Lab Report
Module 3	**Topics:** Topic 9: Static Equilibrium; Elasticity and Fracture Topic 10: Fluids Topic 11: Oscillations and Waves Topic 12: Sound **Assessments:** Midterm#1 Lab Report
Module 4	**Topics:** Topic 13: Temperature and Kinetic Theory Topic 14: Heat Topic 15: The Laws of Thermodynamics Topic 16: Electric Charge and Electric Field **Assessments:** Midterm#2 Lab Report due
Module 5	**Topics:** Topic 17: Electric Potential Topic 18:Electric Currents Topic 19: DC Circuits Topic 20: Magnetism **Assessments:** 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.