Physics 2426 – University Physics II
Course Syllabus

Contact Information

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Course Information

Course: Physics 2426
Lecture/ Lab:
Text: Text: Essential University Physics (2nd Edition) vol. 2 -- Wolfson
Physics Web Page: http://www.odessa.edu/dept/physics/lestep/

Course Prerequisites

PHYS 2425 (University Physics I)

Course Description

This course is primarily a study of classical mechanics -- with thermodynamics -- for students aspiring to professional academic degrees in the fields of physical science, various engineering specialties, and mathematics. The delivery of instruction uses both text and lectures. The lectures will parallel the text but add detail that may not be in the text. Also, the text may cover details not in the lecture. The student must be alert to both text and lectures. Further, multimedia will be used to further enhance and reinforce concepts. The student is responsible for these presentations as well. The student will be involved in reading information or problems and using critical thinking skills and mathematics to organize the information or to arrive at an answer; also requires student writing skills in order to communicate the information acquired in a written format. (ICOs 1,2,3,4)

Course Objectives & Student Learning Outcomes

The objective of the study of a natural sciences component of a core curriculum is to enable students to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the bases for building and testing theories.

Upon successful completion of this course, students will:

1. Articulate the fundamental concepts of electricity and electromagnetism, including electrostatic potential energy, electrostatic potential, potential difference, magnetic field, induction, and Maxwell's Laws.
2. State the general nature of electrical forces and electrical charges, and their relationship to electrical current.
3. Solve problems involving the inter-relationship of electrical charges, electrical forces, and electrical fields.
4. Apply Kirchhoff's Laws to analysis of circuits with potential sources, capacitance, and resistance, including parallel and series capacitance and resistance.
5. Calculate the force on a charged particle between the plates of a parallel-plate capacitor.
6. Apply Ohm's law to the solution of problems.
7. Describe the effects of static charge on nearby materials in terms of Coulomb's Law.
8. Use Faraday's and Lenz's laws to find the electromotive forces.
9. Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.
10. Articulate the principles of reflection, refraction, diffraction, interference and superposition of waves.

11. Solve real-world problems involving optics, lenses, and mirrors.

Laboratory learning outcomes and objectives include:

Upon successful completion of this course, students will:

1. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
2. Conduct basic laboratory experiments involving electricity and magnetism.
3. Relate physical observations and measurements involving electricity and magnetism to theoretical principles.
4. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
5. Design fundamental experiments involving principles of electricity and magnetism.
6. Identify appropriate sources of information for conducting laboratory experiments involving electricity and magnetism.

Khosla Endowment Scholarship

The Dr. Ashok Khosla Endowment provides a scholarship that is available to Physics and Engineering Students at OC. The scholarship provides $750 per semester to a qualified student. Please contact Dr. Lee Estep for further details.

Course Attendance

Course attendance is the responsibility of the student. Excessive absences will not result in a student being dropped from a course. However, the student is wholly responsible for any assignments/labs missed. Attendance will be taken in class. Attendance will be taken in class.

Late Work Policy

Homework is due on the assigned date. Late homework will only be accepted if a valid reason is provided for the work being late. If no valid reason is provided, then 20% reduction in grade will occur for each day late. Any given pre-lab assignments are due at the beginning of the laboratory. Completed laboratory reports are to be turned in at the beginning of the next lab period.

Academic Honesty

Odessa College expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the code of Student Conduct found in the student handbook. Cheating will not be tolerated in any form.

Students with Disabilities

Odessa College complies with Section 504 of the Vocational Rehabilitation act of 1973 and the ADA of 1990. Students with special needs or issues pertaining to access and participation in this class must contact me immediately. Further, you may call the Office of Disability services at 432.335.6861 to request assistance and accommodations.

Course Evaluation

Course grades are a culmination of weekly homework assignments, daily quizzes, weekly labs, and exam grades. The percent breakdown for each of these is as follows:

5%	Research
25%	Homework
20%	Labs
50%	Exams

While the laboratory constitutes only 25% of the course grade, it is important to understand that physics is fundamentally a **laboratory-based science**. *Therefore, a failing grade in the lab will result in a failing grade in the course.* While you will never receive a score lower than that actually earned, I do reserve the right to rescale grades as I see fit at any time during the semester. Final grades will be assigned as follows:

A	90 – 100
B	80 – 89
C	70 – 79
D	60 – 69
F	00 – 59

Cell Phone and Laptop Use in Class

Cell phones, while an important communication tool in modern society, are a severe interruption to classroom instruction. Thus, cell phones are, as a rule, strictly prohibited from being seen or heard. If you must have a cell phone available to you in case of an emergency, your phone must be put up on your person (not in a desk, but it your pocket or on a belt) and set on vibrate or silent. You may at any time excuse yourself from the classroom to attend to your personal business. **There will be no cell phone or laptop use allowed in class.** Strictly, no texting or Internet surfing. During exams, in order to maintain integrity of the testing environment, all cell phones will be required to be **off and put out of sight**. Also, electronic media players (Ipods, etc.) are **not to be used** during class or laboratories.

Video /Audio Recording

Video /audio recording of lectures or class activities is strictly prohibited unless special accommodations are warranted for students with disabilities. Violation of this policy will result in the student being removed from the class and receiving a grade of F.

Sleeping in Class

Sleeping in class or laboratory can be a distraction for others around you and of no academic benefit to you as a student. Please attempt to stay alert while in class.

Food and Drink in Class or Lab

In lecture or laboratory, while it is okay to bring something to drink into class, food of any kind in not allowed.

Course Outline

Week	Topics	Chapters	Labs
1	Electric Forces Electric Fields DC Circuits	Ch 21 - 25	X
2			1
3			2
4			Exam 1
5			3
6	Magnetic Forces Magnetic Fields AC Circuits	Ch 27 - 31	4
7			5
8			Exam 2
9			6
10			8
11		Ch 32 - 36	7

12	EM Waves		Exam 3
13	Light & Optics		9
14			10
15			X
16	Final Exams		Exam 4

Expectations for Engagement – Face to Face Learning

To help make the learning experience fulfilling and rewarding, the following Expectations for Engagement provide the parameters for reasonable engagement between students and instructors for the learning environment. Students and instructors are welcome to exceed these requirements.

Reasonable Expectations of Engagement for Instructors

1. As an instructor, I understand the importance of clear, timely communication with my students. In order to maintain sufficient communication, I will
    - provided my contact information at the beginning of the syllabus;
    - respond to all messages in a timely manner through telephone, email, or next classroom contact; and,
    - notify students of any extended times that I will be unavailable and provide them with alternative contact information (for me or for my supervisor) in case of emergencies during the time I'm unavailable.

2. As an instructor, I understand that my students will work to the best of their abilities to fulfill the course requirements. In order to help them in this area, I will
    - provide clear information about grading policies and assignment requirements in the course syllabus, and
    - communicate any changes to assignments and/or to the course calendar to students as quickly as possible.

3. As an instructor, I understand that I need to provide regular, timely feedback to students about their performance in the course. To keep students informed about their progress, I will
    - return classroom activities and homework within one week of the due date and
    - provide grades for major assignments within 2 weeks of the due date or at least 3 days before the next major assignment is due, whichever comes first.

Reasonable Expectations of Engagement for Students

1. As a student, I understand that I am responsible for keeping up with the course. To help with this, I will
    - attend the course regularly and line up alternative transportation in case my primary means of transportation is unavailable;
    - recognize that the college provides free wi-fi, computer labs, and library resources during regular campus hours to help me with completing my assignments; and,
    - understand that my instructor does not have to accept my technical issues as a legitimate reason for late or missing work if my personal computer equipment or internet service is unreliable.

2. As a student, I understand that it is my responsibility to communicate quickly with the instructor any issue or emergency that will impact my involvement with or performance in the class. This includes, but is not limited to,

- missing class when a major test is planned or a major assignment is due;
- having trouble submitting assignments;
- dealing with a traumatic personal event; and,
- having my work or childcare schedule changed so that my classroom attendance is affected.

3. As a student, I understand that it is my responsibility to understand course material and requirements and to keep up with the course calendar. While my instructor is available for help and clarification, I will
    - seek out help from my instructor and/or from tutors;
    - ask questions if I don't understand; and,
    - attend class regularly to keep up with assignments and announcements.