South Plains College

Common Course Syllabus: PHYS 1402

Revised Spring 2024

Department: Science
Discipline: Physics
Course Number: PHYS 1402.001
Course Title: General Physics 2
Available Formats: face to face
Campus: Levelland

Instructor: Dr. Kimberly Bouldin
Office: S70 Levelland campus
Office hours: MW 12:30-1pm, 3:45-4:00,
TTh 10-11am, 12:30-1pm, & 3:45-4:00pm, **F** 9am-noon
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SOUTH PLAINS COLLEGE IMPROVES EACH STUDENT'S LIFE.

Course Room: S65
Course Description: Fundamental principles of physics, using algebra and trigonometry; the principles and applications of electricity and magnetism, including circuits, electrostatics, electromagnetism, waves, sound, light, optics, and modern physics topics; with emphasis on problem solving.

Pre-requisite: PHYS 1401
Credit hours: 4 **Lecture hours:** 3 **Lab hours:** 3

Course Textbook: Physics, 5th Edition by James Walker, required (online access code not required)

Supplies: Students will each need a three ring binder, a spiral notebook or loose leaf paper that will fit inside the binder, a notecard or notecards no larger than 3" by 5", a scientific calculator (not a phone), and writing utensils.

This course partially satisfies a Core Curriculum Requirement: Life and Physical Sciences Foundational Component Area (030)

Core Curriculum Objectives addressed:

Communication skills--to include effective written, oral, and visual communication.
Critical Thinking skills--to include creative thinking, innovation, inquiry and analysis, evaluation and synthesis of information.
Empirical and Quantitative skills--to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
Teamwork skills--to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Student Learning Outcomes:
Upon successful completion of this course, students shall be able to:

1. Solve problems involving the inter-relationship of fundamental charged particles, and electrical forces, fields, and currents.
2. Apply Kirchhoff's Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.
3. Solve problems in the electrostatic interaction of point charges through the application of Coulomb's Law.
4. Solve problems involving the effects of magnetic fields on moving charges or currents, and the relationship of magnetic fields to the currents that produce them.
5. Use Faraday's and Lenz's laws to determine electromotive forces and solve problems involving electromagnetic induction.
6. Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves.
7. Describe the characteristics of light and the electromagnetic spectrum.

Student Learning Outcomes Assessment: A pre- and post-test will be used to determine the extent of improvement that the students have gained during the semester.

Breakdown of Grading:

Lab exercises/homework	10%
Quizzes	10%
Exam 1	25%
Exam 2	25%
Midterm project	25%
Final	5%

Grading scale:
100---A---90, 89---B---80, 79---C---70, 69---D---60, 59---F---0
(**Bonus points** may be given for assignments and activities that are considered above and beyond course requirements. All bonus points will be added to one quiz grade. *Students are strongly encouraged to attempt all bonus assignments.*)

Attendance Policy:
Attendance in this class will be taken from completed assignments. Everything done face-to-face in class will be recorded and posted on Blackboard. If a student feels ill with ANY symptoms of COVID-19, the student will be required to stay home and complete the assignments for the day at home.
South Plains College is committed to maintaining a safe and healthy learning and work environment for students, faculty and staff as the SPC Texan Community returns to campus amid the COVID-19 pandemic. To accomplish this goal, it is imperative that everyone join together to do their part. SPC has developed a Return to Campus Plan that outlines how the college will operate and the measures that will be implemented to help protect you and your loved ones. We look forward to welcoming you back to campus, as we continue to emphasize the following points:

- All students, faculty and staff should monitor their health and notify appropriate personnel and their health care provider if they experience any symptoms related to COVID-19.
- All students, faculty and staff who have symptoms of COVID-19 should contact DeEtte Edens, BSN, RN in Health Services at dedens@southplainscollege.edu or at (806) 716-2376.
- Cleaning and sanitization process will be emphasized in every area of our campus.

You should always check Blackboard before coming to class in order to make sure that class has not been cancelled due to the instructor's illness.

Computer/Software requirements
Minimum Computer Requirements:
1. Personal computer with a 1 GHz Pentium processor and at least 512 MB of RAM memory, a minimum 5 GB of free hard drive, running Windows 7 / MacOS 10.8 or later (Windows 10 / MacOS 10.12 recommended).
2. Web Browser: Google Chrome seems to work the best with Blackboard and HOL.
3. A high speed internet connection of 5+ Mbps.
4. Microsoft Office and Microsoft PowerPoint and Word software (a recent version, preferably 2016 or higher).
5. Windows Media Player (the latest version).
6. Soundcard and functioning speakers.
7. Knowledge of how to navigate Google Chrome web pages and how to deal with pop-up blockers and other devices and warnings on Google Chrome.
8. Knowledge of how to download files from the Google Chrome and find them on your computer once they are downloaded.
9. Knowledge of basic operations of Microsoft Word and Microsoft PowerPoint.
10. Knowledge of how to view and adjust videos with Windows Media Player.

For information regarding official South Plains College statements about intellectual exchange, disabilities, non-discrimination, Title IX Pregnancy Accommodations, CARE Team, and Campus Concealed Carry, please visit https://www.southplainscollege.edu/syllabusstatements/.

PHYS 1402 General Physics 2 Tentative Daily Schedule Spring 2024

Week 1 Jan 16, 18 Introduction, Ch 19 Lab 1—Electrostatics: electrostatics kit	Week 10 March 26, 28 Ch 22 cont Lab 8—Simplest Motor
Week 2 Jan 23, 25 Ch 19 cont Lab 2—Electrostatics: Van de Graff generator	Week 11 April 2, 4 Ch 22 cont Lab 9—Simple Motor Review for **Exam 2** **(April 8: Solar Eclipse!)**
Week 3 Jan 30, Feb 1 Ch 19 cont, Ch 20 Lab 3—Electrostatics: repelling charged pith balls HW Ch 19 due Feb 1 **Quiz 1 on Ch 19 on Feb 1**	Week 12 April 9, 11 **Exam 2 on Ch 21-22 on April 9** HW for Ch 22 due April 9 **Midterms projects are due on April 11 by 1pm.** **Day 1 Midterm presentations April 11**
Week 4 Feb 6, 8 Ch 20 **Draw Midterm topics and discuss rubric** Nova Fabric of the Cosmos Ep 1	Week 13 April 16, 18 Ch 23 **Quiz 2 over midterm presentations**
Week 5 Feb 13, 15 Ch 20 cont Lab 4—Introduction to multimeters **Review for Exam 1**	Week 14 April 23, 25 Ch 23 cont Lab 10—Optics: diffraction, interference Nova Fabric of the Cosmos Ep 4
Week 6 Feb 20, 22 **Exam 1 on Feb 20 on Ch 19-20** Lab 5—Mapping the Electric Field HW Ch 20 due Feb 20 Start Ch 21	Week 15 April 30, May 2 Ch 23 cont Lab 11—Optics: Refraction, Nuclear Decay and Half life HW for Ch 23 due by May 2 Review for **Final Exam** All Bonus assignments will be due by May 2 at 4pm.
Week 7 Feb 27, 29 Ch 21 cont Lab 6—Resistors and multimeters Nova Fabric of the Cosmos Ep 2	**Final exam will be in class Tuesday, May 7 from 1-3pm.**
Week 8 March 5, 7 Ch 21 cont Lab 7--Kirchhoff's Law problem *(March 11- 15 Spring Break)*	(Exemption from the final exam will be a fidget spinner motor, surrendered to the instructor, which runs continuously for at least 2 full minutes in the instructor's presence.)
Week 9 March 19, 21 Ch 22 Nova Fabric of the Cosmos Ep 3 HW Ch 21 due March 19	