Course Syllabus for Physics 1401

Department : Mathematics and Engineering

Discipline : Physics

Course Number : Phys 1401

Course Title : General Physics I

Credit : 4 (includes lab) ; This course satisfies a lab requirement

Instructor: Dr. Gerald Bottrell
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Conference: M – Th 12:12 – 1:05
F(A) 11:59 – 1:05
F(B) 8:20 – 9:28

General Policies:

- Homework assigned alternate days, but not collected
- Quiz over selected homework problems
- Late work: 1 class day late – subtract 20 points
  2 class days late – subtract 40 points
  > 2 class days late – score of 0
- No extra credit

This course satisfies a core curriculum requirement: Yes – Life and Physical Science

Core 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

Prerequisites : Math 1316 or equivalent knowledge of trigonometry

Available Formats : conventional

Textbook : Physics, 6th Edition, Giancoli, Prentice Hall, 2005

Supplies: standard notebook paper and calculator

Course Specific Instruction : None

Course Description : **This course is a non-calculus introductory physics course designed to provide students with a background for further studies and related**

areas. Topics include mechanics, sound and heat. *Not intended for engineering and other degree plans.*

Course Goal : The goal of this course is to provide foundational principles in physics and serves as prerequisite for Physics 1402.

Course Requirements : Students should attend every class session, lab, and perform each task as designated by the instructor

I. Student Learning Outcomes/Competencies :

1. Mechanics: Student will demonstrate a basic understanding of classical mechanics

1.1. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.
1.2. Solve problems involving forces and work.
1.3. Apply Newton's laws to physical problems.
1.4. Clarify the distinction between Force and Energy and identify different forms of energy.
1.5. Solve problems using principles of conservation of energy.
1.6. Define the principles of impulse, momentum, and collisions.
1.7. Use principles of impulse and momentum to solve problems.
1.8. Determine the location of the center of mass and rotation for rigid bodies in motion.
1.9. Discuss rotational kinematics and dynamics and the relationship between linear and rotational motion.
1.10. Solve problems involving rotational and linear motion.
1.11. Define equilibrium, including the different types of equilibrium.
1.12. Discuss simple harmonic motion and its application to real-world problems.

2. Thermal Energy : Student will be introduced to heat and the kinetic theory of matter

2.1. Introduce the relationship between kinetic energy, temperature and heat.
2.2. Introduce specific and latent heat with respect to physical states of matter.

II. Student Learning Outcomes/Competencies for Laboratory Work:

1. Prepare laboratory reports that communicate experimental information compared with theoretical expectations.
2. Conduct basic laboratory experiments involving classical mechanics.
3. Relate physical observations and measurements of classical mechanics to theoretical principles.
4. Evaluate the accuracy of physical measurements and potential sources of error in measurements.
5. Work effectively with others in coordinating and executing laboratory experiments.

ADA Accommodation: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability. For more information, call or visit the Disability Services Office in the Student Health & Wellness Office, 806-716-2577.

Equal Opportunity, Diversity, and Learning Environment : South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a community college setting without regard to race, color, national origin, religion, gender, disability or age.

Accordingly, students will be expected to conduct themselves in a respectful and orderly manner conducive with intellectual exchange in a positive learning environment. (This includes no food and drink, cell phones off, or no distracting behavior)

Attendance Policy : Attendance and effort are important activities for success in this course. If you are absent, I encourage you to call regarding your assignments as necessary. A student who misses two consecutive weeks of classes or has missed five classes cumulatively may be dropped from this course. Please refer to the sections of your catalog listed as "Class Attendance" and "Drop and Withdrawals".