

**Syllabus**  
**PHYS 1101 - Lab**  
**General College Physics**

**Western Texas College**  
**2020-2021**

- I. Basic Course Information:
  - A. Course Description: Laboratory activities will reinforce fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton's Laws of Motion, and gravitation and other fundamental forces; emphasis will be on problem solving.
  - B. Prerequisites: Math 1314 College Algebra and Math 1316 Plane Trigonometry or Math 2312/2412 Pre-Calculus.
  - C. Online course content is administered through the college's learning management system (LMS), Moodle, also called eCampus. A link to eCampus can be found on [my.wtc.edu](http://my.wtc.edu) and to Moodle (the big M with a graduation cap) on the college's home page, [www.wtc.edu](http://www.wtc.edu).
  
- II. Student Learning Outcomes (SLO)
  - A. Demonstrate techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.
  - B. Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.
  - C. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.
  - D. Apply Newton's laws to physical problems including gravity.
  - E. Solve problems using principles of energy.
  - F. Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.
  - G. Use principles of impulse and linear momentum to solve problems.
  - H. Solve problems in rotational kinematics and dynamics, including the determination of the location of the center of mass and center of rotation for rigid bodies in motion.
    - I. Solve problems involving rotational and linear motion.
  - J. Demonstrate an understanding of equilibrium, including the different types of equilibrium.
  - K. Discuss simple harmonic motion and its application to quantitative problems or qualitative questions.
  - L. Solve problems using the principles of heat and thermodynamics.
  - M. Solve basic fluid mechanics problems.
  
- III. Testing Requirements
  - A. The lab final exam must be proctored by an approved testing organization. (Ask your instructor for more details).

- B. Students are NOT allowed to use their book or notes of any kind while taking their lab final exam.
  - C. Students are allowed to use the formula sheet provided for the lab final exam.
- IV. Major Course Requirements
- A. Major Requirements 1: There will be 7 unit lab write-ups with the average grade for labs based on the highest six labs.
  - B. Major Requirement 2: Lab final exam.
- V. Grading System
- A. See the First Day Handout for the percentages of the average in this course and the letter grade breakdown for the final grade.
- VI. Information on Books and Other Course Materials
- A. Instructor will provide students a list of supplies needed for experiments.
- VII. Other policies: Please refer to the WTC Course Catalog for the following: <http://www.wtc.edu/publications.html> then on the appropriate catalog to find the following information.
- A. Campus Calendar
  - B. Final Exam Schedule
  - C. How to drop a class
  - D. Withdraw information
  - E. Student conduct/ Academic Integrity
  - F. Class Attendance
  - G. Students with disabilities
- VIII. Course Organization and Schedule

<b>Labs</b>	<b>Topics</b>
Lab 1	Measure and uncertainties
Lab 2	Graph and Curve Fitting
Lab 3	Motion with constant acceleration (Projectile Motion)
Lab 4	Forces/Newton's Laws
Lab 5	Circular Dynamics/Centripetal Acceleration
Lab 6	Conservation of Energy
Lab 7	Collisions and Conservation of Momentum

Disclaimer: Schedule and content is subject to change at the instructor's discretion.

