ACE Physics, Principals of Physics I, Algebra Based
PHYS 1730
Spencer – Van Etten High School

Instructor: Jessica Browne, Room 203

E-mail: jbrowne@svecsd.org

Text: Principals of Physics Cutnell & Johnson 6th edition

Course Description:
This course is an introduction to the principals of classical and modern physics. Mechanics of solids, periodic motion and sound, and heat and properties of matter will be covered.

Course Objectives:
The student will be able to:

- Model and solve applications of vector forces acting on objects in classical mechanics.
- Analyze and predict two-dimensional motion for objects governed by Newton's laws.
- Interpret and calculate physical characteristics of objects in circular motion.
- Describe conservation of energy as applied to mechanical systems.
- Analyze and solve work, power, and energy applications in mechanics.
- Describe conservation of momentum and impulse in two-dimension collisions.
- Apply the four laws of thermodynamics.

Approach:
Class time is divided between lecture, demonstrations, problem solving, and labs. Laboratory sessions enable the student to see theory applied to experimental work. The student must prepare formal laboratory reports. They must be complete in both theory derivation and error analysis where appropriate. Homework assignments will be graded. The final exam is comprehensive and will reflect the areas covered in the assignments.

Prerequisites:
Math: Successful completion of Trigonometry and currently enrolled in or passed Pre-Calc.
Science: An 85% or higher on all past science regents/finals as well as overall average

Materials Needed:
A graphing calculator is required. Texas Instruments is preferred.
1 – 3 ring binder (2" preferred)
Loose leaf paper
A metric ruler and protractor will be helpful but is not required

Homework:
Problem solving is a skill that determines a student's success in science. Since this skill requires practice, the value of doing the homework cannot be overemphasized. Physics is not an easy subject. Many homework problems will require a considerable incubation period between first acquaintance and final solution. Often it is advised to walk away for a minute when difficulty is encountered. You should limit the time you stare at a problem to 15-20 minutes, and then reread the appropriate section of the text and/or seek help. I would be happy to help you.

Attendance:
Attendance is necessary for your success in this course. If you miss a class, you are still responsible for the material covered. For each day you miss you are given a day to make it up. This is your responsibility.

Quizzes:

You can expect a quiz at the beginning of class at least twice a week on the material covered in the text, lectures and homework. Missed quizzes MUST be made up ASAP.

Labs:
Lab attendance is required. Not all laboratory time will be used for experimentation. On occasion, problem solving, supplemental lecture, or demonstration will be conducted. Laboratory reports are due as announced, USUALLY ONE WEEK after the lab is performed. All labs must be neatly typed as a formal lab report. See the lab manual for additional information. Late reports will result in a loss of credit. Five (5) points will be taken off for every day the lab is late.

Tests:
There will be test given for each unit. There will also be a comprehensive final. Corrections will be available, and points awarded will vary depending on the test.

Academic Honesty:
If it has been determined that a student has cheated on exam or has copied another students materials, the minimum penalty will be a zero for that activity. The student will also have a referral sent to their file and may have to meet with administration on the matter.

Classroom Conduct:
Student conduct should be befitting of an adult. Any student who is disruptive will be asked to leave class. Coming late to class, chatting during class, sleeping during class, or any other disruptive behavior will not be tolerated. Continued offences may lead to the instructor withdrawing you from the class.

Electronic Device Policy
All cell phones, Ipods, MP3 players, and other electronic devices must have all sound turned OFF, and stored out of sight during class. You may NOT use your cell phone or Ipod as a calculator. Receiving, making calls or text messaging during class is strictly forbidden. They will be taken and not returned until the end of the day or possible handed over to administration.

Grading:

Quizzes	20%	Homework	20%		
Exams	20%	Labs	20%	Final Exam	20%

Grading Scale:

A	93-100	B	83-86	C	70-76
A-	90-92	B-	80-82	D	60-69
B+	87-89	C+	77-79	F	0-59

Extra Help:
If you feel that you need extra help on a topic please arrange a time to come in and meet. If arrangements are made, and must be broken for some reason, PLEASE stop by, e-mail, or call to let me know before the time we were supposed to meet.

Planned Labs:

1 Introduction to lab
2 Linear Motion
3 Acceleration Due to Gravity
4 Path of a Projectile
5 Newton's Second Law
6 Friction
7 Centripetal Force
8 Problem Solving Lab
9 Conservation of Energy
10 Conservation of Momentum
11 Equilibrium of a Rigid Body
12 Moment of Inertia
13 Linear Expansion of Metals
14 Educated Guess
15 Mechanical Equivalent of Heat