

Syllabus
Principles of Technology
2011-2012

Instructor: Pat Brunson

Conference period: by appointment

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Course Description:

Principles of Technology I is a high school course in applied physics for those who plan to pursue careers as technicians or just keep pace with the advances in modern technology. Principles of Technology I blends an understanding of basics and principles with practice. Furthermore, Principles of Technology I builds a firm foundation for understanding technology with today's technology and tomorrow's technology. Each unit is devoted to the study of an important concept of technology, such as: force, work, rate, resistance, energy or power. Each unit explains what the principle is and how it is used in mechanical, fluid, electrical and thermal systems

Materials: Textbook: *Physics in Context: An Integrated Approach*, Cord Communications 2005

Workbook: *Physics in Context: An Integrated Approach*

Lab book: *Physics in Context: An Integrated Approach*

Supplemental materials: Student will receive worksheets, lab and other information handouts from various sources when appropriate

Supplies

Computer with Internet access for Ren Web, research, to help students learn, reinforce and review concepts

Three-ring binder (may also be used for other classes)

Note taking materials – paper, blue or black pens, #2 pencils, red pen

Loose-leaf notebook paper

Colored pencils

Basic calculator (+,--, x, --, square root, %)

Protractor

Compass

Grading Policies:

Tests, quizzes	60%
Homework, participation	20%
Lab	20%

Weighted averages

A = 90-100%

B = 80 - 89%

C = 70 - 79%

F = below 70%

Test and quizzes – Tests will be of two types: those given at the end of each section and those over several related sections. Test will include text information, supplemental lecture information, information from handouts and corresponding laboratory exercises. Quizzes may be given each class period. I am available during enrichment to assist you with your understanding of the course materials.

Homework, participation –Problem solving and other tasks assigned for homework, bell work, class-work problems and review/study questions are grouped in this category. Homework may include web based assignments.

Lab – laboratory exercises will from the lab manuals and other relevant sources. Pre lab preparations (reading, answering questions, setting up tables and graphs, etc.) are to be completed prior to lab day. Post lab work may include questions, sketches, tables; graphs, labeling and formal lab reports that will need to be completed outside of class. The lab grade will be calculated as follows: 20% pre lab completion, 30% lab participation, 10% lab clean up, 40% lab report. I am available during enrichment to assist you with your understanding of the labs.

Projects – There may be various types of projects throughout the year. Projects may require, but are not limited to any of the following: research with a written report, poster presentation, oral presentation, models and leading and participating in class discussion. Project grades will be calculated into the above grade categories as noted on the instructions and rubric of each project.

Classroom policies:

1. You may have plain bottled water during class. No other drink, food or gum is allowed.
2. To avoid a loss of points, please be sure that all assignments contain the correct school heading. All written work should conform to the standard writing policies of the school. (Available from your English teacher). Assignments turned in without a name on them will be posted in “Whoville” and a zero will be posted on RenWeb.
3. Being on time is important as it allows you the full allotted time on your quiz and bell work and allows you to avoid the hassle of a tardy.

4. Come prepared to learn. This means that you will have completed the reading assignments and any other homework or lab work assignments as scheduled. Additionally, you will bring **all** books and supplies each day.
5. Be obedient, respectful and use good manners. Adhere to the Honor Code.
6. Please wait until you have my permission before you talk or move about the room/lab.
7. Students may have a maximum of two bathroom passes each semester at the teacher's discretion.
8. There is expectancy, that you, as young adults, will be responsible for any makeup work, (test, labs and other assignments). Students involved in co-curricular and extra-curricular activities are to get their assignments prior to their scheduled absence, and turn their assignments in by the scheduled due date. Makeup work for other students with an excused absence is to be completed as per the handbook. Students/parents are to use Ren Web or call and request assignments when students are absent.
9. **Copied, shared and plagiarized** work will receive a grade of zero and disciplinary action for all students involved. Assume an assignment is individual work unless you have been given clear instructions that it is group work.
10. Assignments are due when class begins. Assignments may be turned in up to 24 hours late, but the grade will be reduced by 30%. Assignments due on Friday will be accepted late on Friday 3:00 (with a 30 % reduction) or Monday (with a 50% reduction).
11. Homework policies - Homework will include, but not necessarily limited to:
 - Problem solving** – application of formulas and principles. In order to receive full credit for math/formula based problems require that all assigned steps be followed.
 - Reading** – Reading assignments include your text book, handouts, lab assignments, web source information and other supplemental materials.
 - Writing** – Some problems applying concepts and formulas require a written response rather than/in addition to solving the problem. Written homework also includes Pre lab preparations, post lab analysis, conclusions, and questions. Some research projects will require a written report.
 - Research** – Research topics may include, but are not limited to: physics and technology as a human endeavor, current topics in physics and technology, modern and ancient marvels, etc.

Other things to Know

General

- Assignments are posted on Ren Web. You are responsible for changes announced in class and/or posted on Ren Web.

Written work

- All papers must have a proper school heading. Points will be deducted if the proper heading is incomplete.
- Your written work is to be done in #2 pencil unless otherwise instructed. All lab work is to be done in pencil except where noted.
- Any assignment that requires notebook paper must be done on standard size notebook paper. These assignments will not be graded if done on other paper.
- Any paper or lab you are assigned to type will conform to school policy (available from your English teacher).

Companion site and text resources

- It is in your best interest to become familiar with the companion web site resources.
- **Reading** - For each section of the text it will help you if you will: read the intro to the chapter and the objectives for that section. Use the "Internet connection" tools as prescribed. Read the assigned materials. Ask for help if you do not understand a concept.

Lab Policies:

Safety

1. All classroom policies apply to the lab.
2. A signed lab safety contract must be on file before you can participate in lab. Use the safety procedures as noted in the labs or indicated by the instructor.
3. Horseplay is not allowed. Horseplay will result in a significant grade reduction for that lab.
4. Instruments, tools, and specimens are to be handled carefully. You are responsible for breakage or damage due to irresponsibility.
5. Unless instructed do not touch, turn on, or move anything (chemicals, equipment, switches, tools, or appliances).
6. Wear safety gear when instructed to do so.
7. Closed toe shoes are always required in lab. You will not be able to participate in lab if you do not wear properly fitting closed toe shoe.
8. Long hair or hair that falls forward must be pulled back in a secure manner. You will not be able to participate in lab if your hair is not properly secured.

Lab preparations, procedures and reports

1. Pre lab preparations and lab completion will be part of homework. You will be allowed to only observe a lab that you have not prepared for. You will receive no credit for the pre lab and your lab participation grade will be significantly reduced. Pre lab will consist of: reading through the entire assigned lab, answering any assigned pre lab questions, take the necessary measures to understand the pre lab objectives, preparing data tables and graph layouts, and other assigned pre lab preparations.
2. All lab work is to be done in pen unless otherwise noted. Charts and graphs may be enhanced/keyed with colored pencils. All formal labs are to be typed as per school policy. See LTF 4 handout.
3. Changes in lab materials or procedures will be announced by the teacher, or written on the board. You are responsible for making notes in you lab manual/handout of these changes.
4. Lab drawings/sketches are to be done as per given instructions. Students may be required to draw/ sketches some specimens in their lab notebook and others on white computer paper.
5. Clean up is part of lab exercises. Your station and equipment will be checked after each lab. Poor cleanup will lower your lab grade.
6. Missed labs must be made up within a week of the missed lab. If the teacher determines that a lab cannot be re set, then a written assignment will be given
7. Pre lab assignments and post lab analysis and conclusion are to be based on information from your lab book or lab handout, text book, lecture and lab experience. Unless you are specifically instructed you are not to obtain lab information from any other source. See classroom policy #9.