

North Monterey County High School / 2021-2022

Physics and Engineering

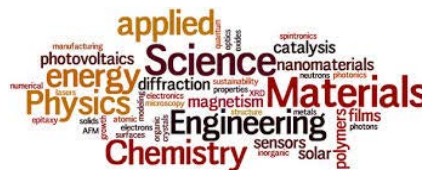
Dr. Curtis Smith

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Prep Period: 2



Comment [1]: refer to schedule for time slot

Course Description:

Physics of Engineering, PofE, is the second concentrator course in the Physics and Engineering Pathway. It is a requirement for the Robotics Capstone course. Students must earn a 'C' or above to advance to the Capstone.

In this year-long, integrated, college-preparatory course, students will develop an understanding of fundamental physics concepts in kinematics, mechanics, mechanical and electromagnetic waves, and electricity/electromagnetism while exploring robotics, computer programming, computer-aided design (CAD) and project management.

Working individually and in teams, students complete a series of design challenges to develop key skills in computer programming, 3-D modeling software, engineering technology, and physics concepts. These projects promote critical thinking, communication, collaboration, creativity and provide a foundation for data collection, analysis, reflection, presentations and technical writing skills.

By successfully completing the course, students will be prepared for success in college science and engineering as well as in high-demand careers like programming, robotics, and technology.

Course Expectations:

This is an upper-level hands-on science lab and project based class. Appropriate behavior, effort, and work are required at all times. It is designed to get students ready for college level STEM classes and real-world work environments. Students can expect to be treated as young adult learners and given considerable autonomy and flexibility. Therefore, students need to act maturely, responsibly, and safely and be proactive in their learning.

This class is a privilege, not a right. Since it is not a graduation requirement, students can be removed from the class for inappropriate behavior, lack of work, or safety violations.

Prerequisite courses/skills needed for this course:

- ✓ Integrated Science I and II (or equivalent)
- ✓ Introduction to Design and Engineering
- ✓ Design, Engineering, and Technology
- ✓ Product Development
- ✓ Math II (or equivalent)

Materials needed for this course:

- ✓ binder with tabs for student handouts
- ✓ graph paper lab book
- ✓ pencils
- ✓ ruler
- ✓ scientific calculator

**Class Grading Policy:
Standards Based Categories**

Physics Concepts (20) 0-4
Lab Skills 0-4
Coding Ability 0-4
Design/Engineering Skills 0-4
Problem Solving 0-4
Team Work 0-4
Professionalism 0-4
*Highest score for the term is accepted.

Grading Scale

A > 3.5
B 3.0-3.4
C 2.5-2.9
D 2.0-2.4
F < 2.0

4 – Thorough Understanding
3 – Adequate Understanding
2 – Partial Understanding
1 – Minimal Understanding
0 – No Understanding Evident

Lab-book:

- Students are required to keep a neat up-to-date journal of all notes, labs, and projects.
- Each section should be organized and labeled and all assignments clearly marked (see lab-book handout for further details).
- All assignments should be neat, complete, and meet the assignment requirements.
- Drawings, tables, and graphs need to be created using a ruler or computer program.
- All calculations need to be shown with formulas.
- **Sloppy lab-books will not be graded.**
- Lab-books are generally collected every 2-3 weeks.

Late Work:

- Late work is not accepted.
- If you cannot finish an assignment on time, you need to communicate with the teacher.

Projects:

- You will be expected to work by yourself, with a partner, and in groups on various projects.
- The projects require you use the knowledge and skills you learned in labs and lectures.
- Proper behavior, participation, and effort are expected at all times.

- **Failure to act appropriately will result in removal from the project, a zero grade given, and a remedial lesson required.**

Make-up Work Policy:

- **If you are absent, Check Google Classroom first for missing work, notes, or instructions and then ask the teacher if you cannot find it.**
- If you need help you are expected to approach the teacher outside of class time for makeup work and instructions the day you come back from your absence.
- **It is your responsibility to get missing work, not the teacher's.**

Instructional Procedures:

- ✓ Be in your seat before the tardy bell rings.
- ✓ Put away your cell phone.
- ✓ Read the screen for the day's instructions and objectives.
- ✓ When the teacher is delivering instruction you are expected to **SLANT**: Sit up, Listen, Activate your thinking, Notice what is going on around you, and Track the speaker.
- ✓ Throughout the period you are expected to work to the best of your ability.
- ✓ Always practice safety in the lab.
- ✓ Clean you area and neatly put away all equipment and supplies.
- ✓ The teacher dismisses the class not the bell.

Bathroom:

- Only one student at a time may leave.
- You must get teacher approval first.
- You need to use the sign in/out sheet.
- Take the pass.
- **You may not go during the first and last 10 minutes of class or during instructions.**

Condor PRIDE in the Classroom and NMCHS Expectations of Students:

Participate: In class activities by being prepared and ready to engage in learning.

Respect: Use appropriate language and volume. Purposely listen to others.

Integrity: Be accountable for your actions and words.

Determined: Show improvement and build your critical thinking skills.

Empowered: Organize time well on class activities & home practice. Make good choices.

Personal Electronic Devices (PEDs) Policy:

During instructional time, cell phones will not be permitted without teacher's direct approval. If

cell phones, headphones or electronic devices are visible without teacher approval they will be confiscated and turned into the office. Please see student handbook for NMCHS policy.

Classroom Norms and Expectations:

Positive Norms in Science Class:

1. Everyone has the ability to learn science to the highest level.
2. Mistakes are valuable.
3. Questions are really important.
4. Depth is much more important than speed.
5. Science is a way of thinking.

Classroom Rules:

1. Follow instructions.
2. Be on Time and Prepared.
3. No Teasing, Harassing, Bullying, Put Downs, or Using Inappropriate Language.
4. Keep Hands, Feet, and all Objects to Yourself.
5. No Electronics, Makeup, Food, Drink, or Gum.

Comment [2]: Modify, anchor chart, Norms

Consequences for Minor Behavior Problems:

- 1st: Warning.
 - 2nd: Removal from the situation
 - 3rd: Parent contact.
 - 4th: Referral to administration.
- **These consequences do not necessarily follow this order.**
- **Severe or repetitive behavior problems will be directly referred to administration.**

Comment [3]: Modify

Academic Policy:

Cheating, lying, and plagiarizing are not acceptable.

- *Plagiarism* is the practice of copying words, sentences, images, or ideas for use in written or oral assignments without giving proper credit to the source.
 - *Lying* is not telling the truth or whole truth for the purpose of evasion.
 - *Cheating* is defined as the giving or receiving of prohibited help on anything that has been determined by the teacher to be an individual effort.
- **First Violation** – You will receive a zero for the assignment.
- **Second Violation** – You will receive an F grade for the course