

General Course Description:

Principles of Engineering (POE) is a high school-level survey course of engineering. The course exposes students to some of the major concepts that they will encounter in a postsecondary engineering course of study. Students have an opportunity to investigate engineering and high-tech careers. POE gives students the opportunity to develop skills and understanding of course concepts through activity-, project-, and problem-based learning (APB). Used in combination with a team approach, APB learning challenges students to continually hone their interpersonal skills, creative abilities, and problem-solving skills based upon engineering concepts. It also allows students to develop strategies to enable and direct their own learning, which is the ultimate goal of education.

Course Objectives

- Students will add and/or improves skills in computational and analytical skills. They will sketch diagrams, calculate design element limitations, and solve equations for an unknown.
- Students will exhibit professional skills needed to successfully contribute to work in a team.
- Students will become proficient in the use of VEX Robotics, Logger Pro - Data collection, and ROBOTC programs.
- Students will apply engineering disciplines to prior knowledge involving mechanisms, simple machines, energy sources (including solar and wind), vectors, forces, machine control, programming, fluid power, statistics, and kinematics.

Materials Needed:

Please bring these to class **everyday.**

- Your Engineering Journal/notebook
- Pencil, paper, and an ink pen (any color)
- A scientific calculator (it does not have to be a graphing calculator)

Grading And Academic Integrity:

80%- Engineering notebook, class/homework, tests

20%- Classroom activities and projects

The grading scale in the student handbook will be used.

All work will be turned in using the Learning Management System (LMS) for PLTW in PDF format.

Ipad and cellphones will be used to take pictures of your work so that it can be turned in electronically. Ipad will be provided. Personal cellphones will be allowed as long as they are used respectfully, responsibly, and appropriately.

Per the student handbook, late work will be penalized 30%, **labs will NOT be accepted late, and NO work will be accepted after the chapter test unless due to an excused absence.**

See the student handbook on academic integrity. If cheating of any type occurs, all students involved will receive a zero with no chance to re-do the work.

Tests: The Marshfield High School Science Department policy is that students **do not retake tests**. It is important that students take all tests seriously and give their best effort on the first (and only) attempt.

Extra Credit: Per the Marshfield handbook, extra credit is not permitted.

Tutoring: I am available most days after school until 3:45. I can be available later or before school if you let me know ahead of time.

Absences, tardies, suspensions (ISS/OSS)

See the student handbook for rules on absences (excused and unexcused), tardies, ISS, and OSS.

It is highly recommended that students miss very little class time. This course is a hands-on course with most of the work done in class. Very few, if any, activities/labs can be done outside of the classroom setting due to limited and specific supplies needed.

Check with me before, during, or immediately upon your return from an absence for assignments.

Unless otherwise arranged, test, quizzes, and labs **MUST be made up within **one week** of returning to school.**

If you are in ISS you WILL have an assignment that is due on time. “I didn’t get the work” is NOT an excuse and you will get a zero if you turn in nothing. If you don’t get an assignment, ask for it. If we have a lab that day, you may be allowed to make-up the lab, or you will be given an alternate assignment.

Any work you chose to do during OSS is due the day you return to school.

See the student handbook on academic integrity. If cheating of any type occurs, all students involved will receive a zero with no chance to re-do the work.

Classroom Rules

1. Be respectful – to yourself and others.
2. Come to class prepared. You should not need to return to your locker for, or ask others to provide, supplies you should have every day. Plan ahead. Be in your seat and ready to grade when the bell rings.
3. All homework is due at the beginning of class. Do not expect to get time to finish it after class starts. Please come see me BEFORE class if you need extra help.
4. If you are absent, you are responsible for getting your assignment. You should get notes from a classmate. If you know ahead of time that you will not be in class (ballgame, contest, etc.), you may get your assignment ahead of time. If you are at school for part of the day but miss chemistry, you should still turn in your assignment before you leave so as to not get behind.
5. Use only your stuff. Leave everyone else’s stuff alone. Do not touch or take anything from my desk, demo table, lab, or anywhere else in the room unless you have permission.
6. Horseplay is for outside. Use an inside voice and your best school behavior.

7. Behave. Be kind. **Enjoy!**

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Lab Behavior/Expectations:

Failure to follow lab rules will result in you being dismissed from the lab and getting a zero for that assignment.

1. Be prepared to work in laboratory. You will not be allowed to start the lab late. Complete any pre-laboratory assignment/questions. ***Consequences for not doing pre-labs may include being dismissed from the lab and getting a zero score or a non-lab assignment.***
2. NEVER touch lab equipment unless and until instructed to do so. ***Specific instructions are usually added at the beginning of the lab class.***
3. Perform the experiments as directed. DO NOT do anything which is not part of an approved experimental procedure.
4. NEVER work without adult supervision.
5. Dress appropriately for the lab.
 1. Clothes should not be loose or floppy, especially in the sleeves.
 2. Dangling necklaces or bracelets should be removed for the lab. (Including your school ID)
 3. Long hair **MUST** be tied up and back to keep it clear of chemicals and/or flames.
 4. Wear shoes that cover the entire foot.
6. When required, safety goggles must be worn **at all times**. Removing them will get you dismissed from the lab. (Lab aprons will be optional and available.)
7. Learn the location and operation of emergency equipment. This includes eyewashes, safety showers, fire extinguishers, fire blankets, sinks, and first aid supplies. Know what to do in case of an emergency.
8. Act in a responsible manner at all times. **At NO time is horseplay or fooling around allowed.**
9. Write down your data as you get it. You may rewrite it later if you wish, but get it while it's hot!
10. Turn off your heat source whenever you are not using it. Never leave it unattended.
11. Clean up spills immediately. This includes water! Wash off chemicals splashed or spilled on your skin immediately and notify your teacher.
12. **Clean up your work area, put away all equipment and reagents and wash your hands thoroughly before leaving the laboratory.**
13. Please advise me of any significant allergies you may have. If the experiment you are doing involves a substance to which you are allergic, notify your instructor immediately.

Discipline:

Violations of school or class rules will result in discipline, generally a three-step process.

1. Student and teacher discuss the issue.
2. Teacher, student, and parents discuss the issue.
3. Student is sent to the office.

Flagrant violations or behavior that disrupts the entire class will bypass steps 1 and 2, and student will be sent directly to the office.