**Orange High School**

**To Educate, Elevate, and Empower Every Student!**

**Department of STEM-focused Learnng**

**Principles of Engineering Course Syllabus**

Instructor: Ms. Sonya Noebels (AKA Ms. Nikolaidis)

Email: nikolaso@orange.k12.nj.us

Period 4 (9:29am to 11:09am) room 173 (room 169 on Fridays)

Period 9 (2:00pm to 2:40pm) room 173

**Course Description**

Principles of Engineering (POE) is a high school level course that is appropriate for students who are interested in engineering and robotics. The course assumes that students have taken a prior PLTW engineering course, generally Engineering Essentials, and are familiar with the basics of the engineering design process and CAD (computer-aided design). Additionally, students should be prepared to use Algebra and Geometry skills to solve challenging mathematical problems.

The major focus of POE is to expose students to typical problems in mechanical, structural and chemical engineering as well as broaden their understanding of developing fields such as robotics, environmental sustainability and artificial intelligence. Students will develop solutions to engineering challenges using the engineering design process; they will keep an engineering journal where they will record their test results and show their calculations; and they will expand their use of CAD software to aid in communicating their ideas. Later in the year, they will design, build, and program machines using VEX.

This course is a Project Lead the Way (PLTW) course and is followed by Design of Electronics (DE).

**Course Outline**

Unit 1- Product Design and Development

Unit 2- Designing Infrastructure and Developing Sustainability

Unit 3- Mechanical Design

Unit 4- Application of Robotics

**Course Materials**

Project Lead the Way, available online at [my.pltw.org.](https://my.pltw.org/login)

**Required Supplies**

• **Engineering notebook**. You may use your notebook from last year if you still have it, otherwise I will give you a new one. Do not lose your notebook, you will not receive another one!

• **Classwork folder** for storing graded classwork and homework assignments

• **Pencils with erasers**

• **District-issued chromebook** or other personal device with charging cord

**Grading**

Your POE grade is made up the following categories and their corresponding weights:

|  |  |
| --- | --- |
| Authentic Assessments | 25% |
| Tests | 25% |
| Classwork / Participation | 20% |
| Quizzes | 20% |
| Homework | 10% |

**Authentic Assessments:** Minimum of 2 authentic assessment projects per marking period. These will almost always be group projects completed over several days, with an individual component that should not be copied from another student or the internet.

**Tests:** Minimum of 2 test grades per marking period. In POE this will usually mean one individual, traditional 40-minute test and one individual project such as a research paper or presentation.

**Classwork:** Minimum of 8 classwork grades per marking period. Whether it is individual work or group work, students are expected to actively work on these assignments.

**Quizzes/Checkups:** Minimum of 3-4 quizzes per marking period. This may be a mix of traditional, individual (silent) quizzes on paper and online quizzes that allow multiple attempts where students can collaborate. I will also periodically collect and grade your engineering notebook for a quiz grade.

**Homework:** Minimum of 8 homework assignments per marking period. Each time we complete a lesson, I will assign that lesson’s conclusion questions to google classroom, to be answered in 1-2 paragraphs per question. Please answer all conclusion questions in your **own** words and without the use of generative AI prompts (for example: chatGPT).

**Please complete your homework on time!** I will accept late homework for **half credit at most**, unless you come to see me after school. I will **not** accept unit 1 homework after the unit 1 test.

* Don’t be afraid to ask me for help on the homework! I will be in room 173 after school each day.

**Rules of Conduct & Guidelines**

* **Be respectful** to yourself, your classmates, and your teacher(s)
* **Do not become a disruption or a distraction** in class. This will not be tolerated, and the student will receive detention and/or be removed from class if this occurs, receiving a 0 for participation.
* **Be on time**. You must arrive within the first two minutes of class to be considered on time. Once a week, I will check absences and tardies and call home. Repeat offenders will be assigned teacher detention, have a parent conference scheduled, and/or receive administrative action.
* **Follow proper start up procedure.** If we are in the middle of a project, please take out your project materials to keep working as soon as you enter the room. If we are starting a new project, please take out your engineering notebook and look for Warm Up questions posted on the board.
* **Do your classwork with purpose and urgency**. All members of a group project are expected to participate equally, and each member will receive an individual grade reflecting their own contribution. Complete classwork with the intention to LEARN something, not just check it off.
* **ALL Orange High School Rules and Procedures MUST be followed in class and out of class**. Please visit our Orange High School Website to review the Student/Parent Handbook.

**New School Policies:**

Please be informed of the following new school policies:

|  |  |  |
| --- | --- | --- |
| Mandatory Parent Contact:I will contact parents/guardians once per week, usually on Fridays, to inform you if your child has been late or absent to class 3 times or more, or is missing 2 or more graded assignments (exit slips, quizzes, tests). Please provide me with an **updated** phone number or email, indicating how you wish to be contacted.  | Academy Intervention Plans: All students whose grades are below 70 after progress reports will be placed on an academic intervention plan. Please sign and return the plan to me within one week. Students who fail to adhere to the academic intervention plan and do not improve their grades may receive a failing grade for the marking period.  | Progressive Discipline: If there are issues with student attendance or behavior, I will: 1. First call home to inform you of the issue;
2. Then assign teacher detention after school from 2:40-2:55pm;
3. Then call home to schedule a parent-teacher conference;
4. Then refer the matter to a school administrator
 |

**Absence Policy:**

If a student is absent from class, they are still responsible for learning what they have missed. To accomplish this, students should consult with their group mates and copy any missed notes into their engineering notebook. Students with questions are also encouraged to see me in room 173 after school.

Absent students do **not** need to make up missed classwork, but they **do** have to complete homework assignments and make up any quizzes, tests or authentic assessments they missed. Students have as many days as they were absent to make up their assignments – for example, if a student was absent one day and missed a test they must make up the test the next day; if a student was absent five days and missed a quiz and an authentic assessment they will have five days to make up these two assignments.

**Cell Phone Policy:**

On test and quiz days, students will be **required to place their cell phone** in the organizer at the front of the class. Each student will receive their own, numbered spot on the organizer, which will not be accessible to other students during class time. During the last three minutes of class, students will have time to retrieve their personal belongings.

As they place their cell phone in the organizer, students also will take their own numbered calculator (or ruler, compass or other supply for the day) from the same numbered spot.

On days when we are not taking a quiz or test, students are expected to act appropriately and to put their phones away if requested. I also ask that parents/guardians refrain from contacting their children during class time unless it is a true emergency. Please either call the main office, or text your child to call you back later. Thank you.

------------------------------------------------Please return this page!!!!--------------------------------------

**To Students and Parents**

**To Parents/Guardians: I have read Ms. Noebels’ Principles of Engineering 2024-2025 Syllabus in its entirety – but especially page 3!! - and I agree to support my child in these areas:**

□I have read and understood the **parent contact** policy

□I have read and understood the **absence** policy

□I have read and understood the **cell phone** policy

**Guardian Name** **Guardian Signature**  **Date**

**Daytime Phone Number Alternate Phone Number (if needed)**

**Email**

**Preferred Method of Contact? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**To students: I understand that I am responsible for upholding all requirements and guidelines to succeed in this course. I know what I have to do to receive the grade I want.**

**Student Name Student Signature Date**

**Class Period? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**