

**Aerospace Engineering (AE)**  
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**Course Description:**

This course propels students' learning in the fundamentals of atmospheric and space flight. As they explore the physics of flight, students bring the concepts to life by designing an airfoil, propulsion system, and rockets. They learn basic orbital mechanics using industry-standard software. They also explore robot systems through projects such as remotely operated vehicles.

**Program:**

Project Lead the Way-Pathway to Engineering (PLTW-PTE)

**Course Outline:**

|                                            |              |
|--------------------------------------------|--------------|
| Unit1: Introduction to Aerospace (25 days) | 40% of Final |
| Unit2: Aerospace Design (27 days)          | 25% of Final |
| Unit3: Space (15 days)                     | 23% of Final |
| Unit4: Alternative Applications (18 days)  | 12% of Final |

**Sample Course Projects**

Rocket Design/Build/Launch  
Mars Rover AGV  
Airfoil Design/Build/Test

**Essential Questions:** How do aircraft use the thin fluid of air to sustain flight?

**Grading:**

80% of final grade  
    40% - Activities & Projects  
    15% - Engineering Notebook  
    35% - Major Tests  
    10% - Participation  
20% - Final Exam - AE EOC (end of course) Standardized Test

**Fees:**

A lab fee of \$26 is required for this class for students not participating in free and reduced lunch program

## **Aerospace Engineering (AE)**

### **Engineering Notebook:**

All notes, vocabulary, sketches, activities, and projects will be documented in your Notebook. Students may use their notebook for major tests, excluding the EOC Exam.

### **Career and Technical Student Organization (CTSO):**

**TSA** – All students are encouraged to become members of TSA, Technology Student Association. Membership is required for participation in TSA Competitions. Local, State and National dues are \$20/yr.

### **Industry Credentials:**

AE coursework includes Autodesk Inventor and offers the student an opportunity to obtain industry recognized user certification.

### **Google Classroom:**

Students and parents will be provided individual online accounts to access all course assignments, activities, grades, portfolio, syllabus, and presentations

### **Expectations:**

Students are expected to develop soft skills essential to successful careers:

1. Effective Communication (participation)
2. Teamwork
3. Time Management (meeting deadlines and no tardies)
4. Ethics
5. Safety
6. Proper PC Usage

### **Makeup Work and Exams**

1. Students who do not make up their work or make arrangements with their teacher within three days of absence will receive a zero.
2. There are no longer exam exemptions. All students are required to take a comprehensive exam for all classes.