



Pre-Engineering I

2019-2020 Syllabus

Hewitt-Trussville Middle School
Matthew Michalke

Contact Information:

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Conference time: By appointment before/after school

Course Name: Pre-Engineering I

Course Description: All Pre-Engineering courses utilize Project Lead the Way (PLTW) curriculum. PLTW develops STEM curriculum for K-12 grades, providing students with project based learning which allows them to apply what they know and develop unique solutions. Hewitt-Trussville currently offers PLTW engineering and biomedical courses in grades 7-12. Pre-Engineering I and II offer units from PLTW's Gateway program. For more information on PLTW, visit their website at PLTW.org. **Design and Modeling** and **Automation and Robotics** are the two Gateway units that will be offered in Pre-Engineering I.

Design & Modeling (Fall)

Students apply the design process to solve problems and understand the influence of creativity and innovation in their lives. They work in teams to design solutions to various problems, capturing research and ideas in their engineering notebooks. Using Autodesk® design software, students create a virtual image of their designs and produce a portfolio to showcase their innovative solutions.

Automation & Robotics (Spring)

Students trace the history, development, and influence of automation and robotics as they learn about mechanical systems, energy transfer, machine automation, and computer control systems. Students use the VEX Robotics® platform to design, build, and program real-world objects such as traffic lights, toll booths, and robotic arms.

Course Outline:

Design and Modeling -

- Discover the engineering design process and utilize it to solve various technical problems.
- Review Standard and Metric measurement for use in engineering design.
- Create engineering hand sketches in order to better communicate ideas.
- Create 3D models on Autodesk Inventor modeling software.

Automation and Robotics –

- Apply a basic understanding of gears and mechanisms in order to design and build windmills and a child's pull toy out of VEX Robotics equipment.
- Write basic open and closed loop programs in RobotC.
- Design real world automated systems, such as a toll booth, elevator, and mechanical arm. The designs will be built with the VEX platform and automated by developing unique programs in RobotC.

Learning Management System: Course assignments and student submissions for this course will be delivered using **Google Classroom**. In addition, each student will have a unique username and password to access the curriculum from Project Lead the Way. Assignments, due dates, and submitted assignments will all be available for viewing in Google Classroom. Students will access the PLTW curriculum from links posted in Classroom.

In order to remain up to date on all classroom assignments, parents should log in to Google Classroom regularly to view upcoming and completed assignments.

Assessment: Grades for this course will be determined by the following:

Daily Grade	10 pts.
Activities	25 pts.
Projects	100 pts.

** The Daily Grade is a weekly grade based upon the student's ability to follow classroom procedures and properly keep their engineering notebook.*

Late Work: If a student fails to complete the assignment or the assignment does not meet the standard, students will receive a grade of a "1".

Grades will be posted at the beginning of each week and any "1" or blanks must be made up by the following Friday.

If a "1" is not turned in by the following Friday, then the grade results in a zero and cannot be made up. Once a student receives a "1", he/she can only earn up to 70% when an incomplete assignment is turned in.

Parents are encouraged to check iNow Home weekly for "1"s.

Useful Materials:

Headphones/earbuds
Pencils

Course Rules:

1. **Respect Peers, The Instructor, and Their Personal Property.**
2. **Enter the Class Each Day with All Necessary Materials, Prepared to Begin Work.**
3. **Use All Classroom Equipment for its Intended Use Only.**

Course Procedures:

1. You are to be in your seat when the bell rings and logged in to the computer.
2. Check the board for instructions when you enter the classroom.
3. Raise your hand to ask a question or make a comment.
4. Computer games will not be played during class.
5. Personal electronics will not be used in class, unless directed otherwise.
6. Save all work to your Google Drive.
7. Clean up your work area and return equipment prior to the bell.
8. Log off of your computer before leaving the classroom.
9. The Pass is needed to use the restroom. Do not ask during times of instruction.

Discipline Plan:

- I. An initial failure to follow class procedures will result in the loss of the **Daily Grade** for that day (2 pts.).
- II. A continued failure to follow procedures OR a class rule violation (defiance, disrespect, etc.) will result in a **Class I discipline plan write up**. The student and teacher will complete the class I form in the Discipline Notebook. Four Class I write ups during the 9 weeks will result in an office referral.
- III. Major rule violations will result in the immediate completion of **Class II discipline referral**. The student will be sent to the front office for further disciplinary action.

Student Info Form:

Follow the link and complete form:
[Student Info Form](#)