



Pre-Engineering II

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 II

Pre-Requisite: 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. **Magic of Electrons** and **Green Architecture** are the two Gateway units that will be offered in Pre-Engineering II.

Magic of Electrons *(Fall)*

Through hands-on projects, students explore electricity, the behavior and parts of atoms, and sensing devices. They learn knowledge and skills in basic circuitry design, and examine the impact of electricity on the world around them.

Green Architecture *(Spring)*

Today's students have grown up in an age of "green" choices. In this unit, students learn how to apply this concept to the fields of architecture and construction by exploring dimensioning, measuring, and architectural sustainability as they design affordable housing units using Autodesk's® 3D architectural design software.

Course Outline:

Magic of Electrons -

- Explore the science of electricity through hands on experiments.
- Build working electromagnets and DC motors.
- Design a working prototype of a hand crank generator.
- Create wiring diagrams and build parallel and series circuits with various components.
- Build a working night light circuit.
- Solve various design problems by creating circuits that utilize digital logic gates.

Green Architecture –

- Learn how to read an architectural floor plan and use an architectural scale.
- Sketch a detailed scale drawing of the classroom and then develop a model using Autodesk Revit software.
- Explore the basic architectural features that qualify a structure as being “Green.”
- Design affordable housing for individuals in developing countries by using used shipping containers.

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

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.

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.
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 jump drive or LMS.
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](#)

PLEASE SIGN AND RETURN THIS PAGE AS SOON AS POSSIBLE:

I have read and understand the course syllabus for Pre-Engineering II.

Student's Printed Name

Class Period

Parent/Guardian's Printed Name

Signature

Date

Parent's email address

Parent's Phone Number(s)