Introduction to Engineering and Design
Mrs. Casey
ccasey@wisd.org

Mrs. Casey's Schedule:

	1st Period 8:30 – 10:00	2nd Period 10:00 – 11:30	3rd Period 11:30 – 1:30 (Includes lunch)	4th Period 1:30 – 3:00
A DAY M,W	Conference	**Introduction to Engineering & Design**	Physics	Physics
B DAY T,R	Physics	**Introduction to Engineering & Design**	**Introduction to Engineering & Design**	**Introduction to Engineering & Design**

Tutoring / Computer Hours: 3:00 – 4:00 pm every day except when we have our weekly staff meetings. It is highly encouraged that students who are falling behind attend tutoring to get help. Students will be required to sign in and out for tutoring.

   If you or your student have any questions or desire a conference with me, please call or email and set up a meeting time so that I will be able to give you my undivided attention when we meet. Please feel free to contact me at any time should you have any questions regarding your child's status in my class. I look forward to a great year this year with your student.

<u>Required Supplies</u> **(Please bring by end of first week.)**

- Pencils (mechanical pencils preferred) – will stay with student
- 2 White Magic Rub Erasers (can be found at Office Depot) – will stay with student
- Map Pencils will stay with student
- Package of Glue Sticks
- USB Memory Stick (4 gb preferred) – will stay with student. All computer work will be saved to the jump drive(you can find USB 4GB drives for under $10 at Walmart and other stores)
- Optional Classroom Supplies:
- Box of Kleenex **OR** Scissors

<u>Schoology</u>
This will be the teachers' main method of communication with students. They will need to check Schoology daily to stay up to date.

<u>Class Culture</u>
The class environment is centered around teamwork, problem solving, communication, project management, and learning through exploration and projects that develop creativity and independence.

The benefits of taking this course are:
- Awareness of high-demand careers
- Relevant application of scientific principals
- Application of knowledge to solve real-world problems

- Exposure to the latest computer software and equipment used in industry
- Opportunity to receive transcripted college credit

## Introduction to Engineering and Design (IED) Course Description
WGH requires all entering freshman to take an introductory course to engineering, IED. This course exposes our students to the different opportunities in engineering and teaches them problem solving skills, which are high in demand across all career fields. Knowing how to approach problems is truly the best way to prepare our students for future challenges, technology, and opportunities that do not even exist right now in 2013. IED students will also develop project management skills and learn the design process. Working in teams will also strengthen their ability to successfully communicate, overcome "real world" challenges, and benefit from diversity. The software package used, Autodesk Inventor, is a 3D software that will help prepare our students for the world of engineering while fostering their creativity and innovation.

After completing IED, students will have the option to continue taking engineering courses. In addition to IED, Global's engineering program currently includes Principles of Engineering, Digital Electronics, Civil Engineering and Architecture, Aerospace Engineering, and Engineering Capstone.

WGH's engineering classes will teach the objectives outlined by Project Lead the Way (PLTW). PLTW, established sixteen years ago, is a nonprofit organization that offers an entire high school engineering program that is aligned to national learning standards. This program aims to capture the hearts of students and prepare their minds by basing their coursework on rigor, relevance, and relationships. PLTW also ensures instructors are ready for the challenge by requiring extensive training and offering a strong nationwide network made up of teachers, universities, and professionals. Today, Project Lead the Way courses are offered in over 4,700 schools across the U.S., and the program is rapidly growing.

PLTW MISSION STATEMENT:
We will create dynamic partnerships with our nation's schools to prepare an increasing and more diverse group of students to be successful in engineering and engineering technology programs.
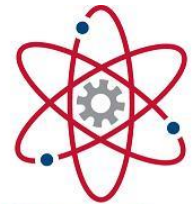
IED Course Objectives:

- Discover the wonderment of Science, Technology, Engineering, and Mathematics (STEM)
- Make connections between STEM and the "real world"
- Gain a better understanding of the different types of engineering
- Learn how to turn an idea into finished product following the design process
- Discover how engineers communicate through drawings and journaling
- Learn the basics of product design, product analysis and improvement, and the evolution of a product
- Explore the world of nanotechnology
- Develop a better sense of spatial reasoning, improving your ability to transition between 2-D and 3-D
- Learn how to use Inventor, a state of the art 3-D design software package from AutoDesk
- Explore designs using engineering processes and tools to solve problems that are of interest to you
- Strengthen teamwork and presentation skills
- Apply the concepts and skills you learn through assignments, activities, and projects
- Gain the basic skills needed for future PLTW engineering courses

Classroom Rules

1. Safety is our first priority and therefore all lab rules must be strictly followed. Students must be signed off to use tools and equipment.
2. Respect Yourself, Others, and Property even if it requires intentional effort. This means:
   - Remain positive. Speaking about others or yourself negatively is not allowed.
   - When others are speaking you will give them your full attention.
   - Please use appropriate language (No cursing).
   - Please use furniture properly.
   - Please dispose of trash whether it is yours or not.
   - Please ensure all supplies / tools are put up in their designated 'home' neatly.
   - Please do not disturb items around or in the teacher's desk, and the teacher laptop is strictly off limits.
3. Be prompt, be prepared, and participate!
4. Computers will be used for academic purposes during designated times only. Proper electronic etiquette will be followed when I am speaking (or someone else has the floor) and no games are ever allowed in my lab– no exceptions!
5. No food or drink in class (except for a medical need or for water in a container that can be secured).
6. Cell phones and other technology are only allowed at the teacher's discretion.

Classroom Procedures
1. Everyone must participate. This is the only way our class will reach its full potential.
2. The teacher dismisses class.
3. Units must be shown, and the steps used for all solutions must be <u>neatly</u> recorded.
4. Your journal should be your first resource for questions. Your second resource is your team.
5. Please bring all required materials to class each day, including your USB memory stick.
6. Any time a student needs to leave the classroom they must sign out and sign back in when they return.
7. Begin working as soon as you enter the classroom. There will always be an assignment up on the board when you enter.
8. All papers must include the proper heading as instructed by the teacher. This will include: Name, Number, Date, and Class Period.
9. All assignments are to be turned in to your class' folder. Failure to do so may result in a lost assignment.
10. Student "visitors" will not be allowed to work in / enter my room while another class is in session.

Course Structure and Evaluation
It is important that students take thorough notes, since their notes will be their main source of information (not a textbook). I will conduct unannounced checks on journals and portfolios.

We will explore engineering through exciting activities and projects that will allow a deeper understanding of the concepts being learned. Most project work can be completed in class, but the student is expected to continue this work outside the classroom as homework. A detailed design brief, grading rubric, and the project's due date will be supplied upfront so that expectations are clear. All projects will incorporate criteria centered on creativity, documentation, mathematical computations / connections, and time quality. In addition, they will all conclude with a presentation. Projects will be assessed using a rubric and will carry the weight of at least one test grade. Peer evaluations and progress checks will also factor in to a student's project grades.

Cheating and Plagiarism
Cheating and plagiarism will not be tolerated in my class and will result in the paper getting taken up and graded as is. Should the student fail a test, they are allowed a retest but must attend two tutoring sessions in addition. Students that are caught cheating in pairs will share the grade. Additionally, a disciplinary referral will be submitted for action by the principal.

Late Work
Projects are not allowed to be turned in late. Late work will be accepted one day late for a maximum grade of 70, after which the maximum grade will continue to decrease by 10 points each day. Homework is due within the first 10 minutes of class and after that it will be considered late. If you are absent it must be considered excused or any assignment will be considered late.

Retests
Retests are not allowed for projects. Any student that fails a test is able to make it up for a maximum grade of 70, and will have one week to complete the make up test. However, in addition to completing the make up test the student must attend at least one tutoring session.

Absences and Tardies
If possible, work missed due to absences should be picked up and attempted before returning to class so the student better connects with the new lessons. Make up work is the sole responsibility of the student. The student will have the amount of time they were absent to complete any make up work.

If you are going to be absent the day a project is due you must find a way to turn it in on time. This can be done through email, turning it in early, or finding a way to transport it to school the day of the presentation. This is especially important if the project is group project.

First period tardies will be sent to the secretary for a late pass. Any tardies that occur in later periods will be marked as tardy and there will be no make up work given for the time they missed (unless the tardy is excused).

Attendance
If a student misses 10 classes a semester the student will be considered absent failing and will be sent before an advisory committee. Calls will be made after the third, fifth, and seventh absence.

ISS
If a student is placed in ISS they will be given a chapter from the textbook to copy and problems to complete. The grade will substitute for any work that is missed in class.

Grading Policy
Major Grades (Tests and Projects)- 60%
Quizzes and Labs- 25%
Daily Work- 15%

* This syllabus may change at the teacher's discretion. *