

Pre – Engineering

Course Description:

Versatility is the main driver for employment in an everchanging and globalized economy and many local, regional, and international employers turn to engineers and technicians to fill that demand. The Pre-Engineering course is intended for students that are interested in engineering and technical careers. Using a variety of engineering methods and principles to solve problems students will gain understanding into what goes on behind the scenes of the machines, devices, and objects of modern life. Employing designs, parametric models, and introductory engineering theory students will be able to communicate their ideas and solutions to peers and professionals throughout the course.

Standards: Iowa Core Curriculum 21st Century Skills, ITEA Standards for Technical Literacy

Course Goals/Objectives:

Creativity and trying new things is how many innovations and inventions get started. Students will gain an appreciation for design processes and technical concepts to complete course objectives. Over the course of the semester students will learn introductory concepts that will allow them to create their own innovation at the end of the semester.

Course Outline

Topics below are in course order and will be completed by finishing various projects and activities.

- Careers in Engineering
- Introduction to Design
- Parametric Modeling
- Introduction to basic Engineering Physics
- Reverse Engineering
- Design and Ethical Responsibilities
- Introduction to Aerospace
- Introduction to Mechanical Engineering
- Introduction to Civil Engineering
- Introduction to Inventions and Innovations (Final Project)

Assessment/Grading

Students will be using classroom computer lab and district lap tops to access assignments and quizzes using school Canvas software. Canvas software will allow for rapid feedback of student performance.

All projects will be graded using Iowa Common Core Standards in Rubric form.

This class will have a student engagement component that meets Iowa Common Core Employability Standards to help prepare students for careers and post-secondary ambitions. Below is the following criteria for daily student engagement grade:

5 – Exceptional: on-time/present, organized, completed exit ticket, on task, engaged in activities and classroom work

4 – Good: present, completed exit ticket, on task and engaged in class activities most of the time

3 – Good: Tardy, completed exit ticket, on task and engaged in class activities most of the time.

2 – Poor: Disorganized, late exit ticket, not engaged in class activities

1 – Poor: Tardy, disorganized, late exit ticket, not engaged in class activities

0 – Not present, Incomplete exit ticket, no activities made up

Behavior Expectations:

***Every student must return a signed copy of this syllabus, before beginning work in the lab area. ***

- It is the expectation of this class that students follow the expectations as outlined in the 2017-18 student handbook
- Work safely
- Report any injury to me immediately after it happens
- You are responsible for the tools and equipment you are using. If you break something because of carelessness, you are responsible for it
- Report anything that is missing or damaged immediately
- Clean up at the end of each class period
- No food or drink are to be brought into the classroom. Individual music players cannot be worn during class without approval from the instructor. Cell phones must be kept out of sight during class or they will be put into my desk drawer for the remainder of the class period

***STUDENTS WHO ARE DISRUPTIVE OR POSE A THREAT TO THEMSELVES OR OTHERS MAY BE

REMOVED FROM CLASS AND SENT TO THE AP OFFICE. ***

Communication:

The best way to contact me with questions or concerns is via email (gmoklestad@dbqschools.org). You may also reach me by school telephone and Canvas program. Messages left will be returned as soon as possible. I will also update PowerSchool on a regular basis.

Parent Awareness:

Parents/guardians and students should both be aware of the requirements of the class. Remove, sign, and date below to indicate you have read this syllabus and are aware of the expectations and responsibilities of the class. Return to Mr. Moklestad.

Student Name (Print):

Student Signature:

Date: _____

Parent/Guardian Signature:

Date: _____