Principles of Engineering Syllabus
Mr. Horwat – Room 135

Welcome to Principles of Engineering! In this course, you will explore the 5 major content areas of technology through various projects. Projects may be hands on or computer driven. The 5 areas of study include: Biotechnology, Communications, Energy-Power-Transportation, Design & Manufacturing and Construction.

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*Virtual Learning Course of Study

Unit 1 – Ages of Technology: Students will survey the 7 Ages of Technological Advancement to pinpoint key inventors, tools and the societal threats, problems and inconveniences which inspired their respective technological break throughs.

Unit 2 – Common Household Tools, Hardware and Repairs: Students will conceptualize and design Rube Goldberg machines, incorporating the six simple machines. Lessons will also include the basic mechanics behind essential household tools and their roles in common home repairs and quick fixes.

Unit 3 – Graphic Arts, 3D Modeling and Design: Students will utilize raster and vector-based drawing applications to create original digital designs, logos, and 3D models.

Unit 4 – An Introduction to Electronics: Students will be introduced to the basic elements of electronics including power sources, components and simple circuits.

Our Three Rules

1. **Effort:** Commit to classwork, follow assignment directions and **try your best**

2. **Honesty:** Communicate truthfully with teacher and peers; **academic honesty** i.e. '**doing our own work**'

3. **Presence:** Minimize outside distractions, **participate fully** in class lessons, activities, and projects

Class will use the following web-based software programs: InkScape, TinkerCad and OnShape. Please make sure your laptop is functional, charged, and ready to work every day. **A computer mouse is highly recommended for computer aided manipulation and drawing.**

For virtual learning hands-on projects throughout the semester, students will need access to the following **Supplies for Middle School Technology Education Classes**: a Hot glue Gun with hot glue sticks, Scissors, Masking tape, Colored Pencils, Markers, a Straight edge for sketching (ideally a ruler to the 16th of an inch), a 30-60-90 plastic drafting triangle, 11 by 17 inch graph paper, Recyclables such as cardboard, plastic containers, cans etc. (It is recommended that you save some of these throughout the course for use)

Teacher will notify students in advance which supplies will be necessary for each hands-on virtual learning project.

Grading Policies

Grades will be split into two different categories, **Formative (10%)**, and **Summative (90%)**. Formative activities will include shorter, in-class assignments that will typically be completed in one or two days for a range of 5-20 grade points, depending on nature of activity. Summative assignments include larger assignments such as presentations, models, and designs. For all summative assignments, you will be provided with a rubric when the assignment is distributed so you can see exactly how your grade will be calculated. Summative assignments are each worth 100 grade points.

Formative and Summative work is eligible for Second Chance Learning. It is the student's responsibility to communicate with teacher and turn in second chance assignments promptly within 2 weeks of due date. **Second Chance Learning will not be accepted during final week of marking period.**

Infinite Campus

Your Principles of Engineering assignment grades will be posted on Infinite Campus for you and your parents to view throughout the semester. Please check Infinite Campus at least once a week to monitor your progress in the class. Missing assignments will be marked as a zero until the assignment is submitted. **Be sure that any late work is completed promptly**, for this is your responsibility.

Attendance

Attendance is required. Pay close attention to start times and 'A Day' / 'B Day' schedules. Message teacher the word "here" using Teams Chat. Attendance is posted / saved to Infinite Campus: Present (P), Tardy (T), Absent (A) **Web camera must be "on" to receive attendance credit.**

Absences

You will need to make up any work that is missed due to an absence. **Check our class Canvas page.** You may email teacher with specific questions. Please do not ask at start of class what you missed.

Grade Point Deductions

Work that is **late**, **sloppy** or **does not follow directions** will have points deducted accordingly. Any work submitted that is **inauthentic** or deemed to be **plagiarized** (i.e. not your own work) **will not be accepted**, resulting in a score of a **zero** for the assignment in question.

Conduct

Students are not to use obscene, profane, threatening, or disrespectful language or images in any communications with CBSD students or staff. These actions are prohibited as indicated in Policy 815 and may result in temporary removal from the virtual learning environment.