Dakota Ridge High School Course Syllabus

Course: PLTW Introduction to Engineering Design
Prerequisite: Algebra I
Location: ST128 (CAD Lab)
National Standards: STL by ITEEA

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State Standards: STEM

Websites: https://sites.google.com/a/jeffcoschools.us/cagray/p2 (teacher's website)
https://www.pltw.org/our-programs/pltw-engineering (Project Lead the Way - Engineering)
https://www.firstinspires.org/ (FIRST Robotics website)

Course Description: This course is designed for students considering a career in construction, mechanics, manufacturing or engineering. It will help them to develop their I-CAP as they explore the many fields of engineering. In this course students will learn the engineering design process and will develop collaboration and communication skills used in many technical professions. Students will practice using CADD to create 3D models of objects, make drawings and create prototypes of design solutions to technical problems. Students will maintain an engineering journal where they will practice sketching their design ideas, recording their design process, and take notes from class presentations, discussions, activities and/or textbook.

Outcomes:
- Students will explore requirements and opportunities in many engineering fields.
- Students will create, dimension and clearly notate technical drawings.
- Students will work independently and collaborate to create design proposals.
- Students will use the engineering design process to develop an original solution to a problem.
- Students will identify and evaluate credible resources and learning tools.
- Students will maintain an engineering journal where they will record their design process.
- Students will create, save and organize their work digitally on computers.

Evaluation & Grading Procedures: 90% - 100% A 80% - 89% B 70% - 79% C 60% - 69% D Below 60% F

Requirements, due dates and instructions on electronic submission will be posted in the Google Classroom created by the teacher. Students will be evaluated based on the STEM Proficiency Standard using a 4 point grading scale. Each assignment will identify the standard being graded. The grade book will be organized by those standards so that students can see how well they are demonstrating mastery in each one. Summative assessments will be worth 80% of your final grade in the class.

Daily Assignments, Warm-Ups, etc. will be graded as formative assessments related to one specific proficiency standard. Assignments are typically to be completed the same period they are assigned or as homework for the next class.

Projects, Tests and Quizzes: Projects and tests will be graded as summative assessments and collectively they will contribute to at least 80% of the final grade. Projects will take several class periods and may require students to work cooperatively with classmates. Projects can have several graded parts which may cover more than one standard. Some grades will be individual while others will be shared by the group. Each unit will have an announced test and one or more unannounced quizzes. Tests can be made up or retaken during Access or Talon Time. Unannounced quizzes can be excused for an excused absence and will be marked as a zero if a tardy or absence is unexcused. Quizzes will be graded as formative assessments.

Additional Learning Opportunities

Engineering Student Association (ESA): All students enrolled in this course are automatic members of ESA which will promote, organize and run co-curricular activities. It is expected that each student will take advantage of the opportunities provided by ESA by attending several events each semester. ESA is one of many Career & Technology Student Organizations (CTSO) which are integral, co-curricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth. ESA provides many opportunities for you to demonstrate and develop your leadership skills. The leadership board will be elected in August and will serve the entire school year. Leadership board members are expected to provide an average 2 hours of service per week planning, organizing, and running events for students. Events may include: Field Trips, Activity Fairs, Guest Lectures/Demonstrations, Competitions, Projects, and Fundraisers. Email your teacher if you wish to run for an elected position.

Work Based Learning Options: On the Job Employment (OJE) experience provides the opportunity for the student(s) to obtain credit for work experience. Credits are awarded based on completion of required paperwork, specific documented work hours and supervisor(s) evaluation(s). See Mrs. Watts-Gebhard for registration and paperwork (christi.watts-gebhard@jeffco.k12.co.us). Students can receive concurrent enrollment credit through some CTE courses. Credit through Arapahoe Community College.

Attendance: There is a high correlation between good attendance with quality work on the assignments and success in my classes. Poor attendance and/or poor work habits in class will likely have a significant negative impact on your grade. If you maintain good attendance and practice gracious professionalism in class, it will pay off and you will surely succeed.

Late Work and Absences: If you have an excused absence, then your assignments may be made up according to the guidelines in the student handbook. Roughly speaking, you have 2 class sessions grace period for each day of excused absence. Otherwise, missed work will receive a zero in the gradebook.

Tardiness & Warm-ups: Students are expected to be in their assigned seats and starting the warm-up before the late bell rings. If you are not in the room before the bell you will be marked absent. If you arrive after the bell, you need to come and speak to the teacher, in order to make sure they change the absence to a tardy.

Each class will begin with a warm-up question or activity. Students are expected to find the warm-up in the Google Classroom and begin it as soon as they arrive and complete it within the first 5 minutes of class. This will be a formative grade. If you have an excused absence, you will be excused from the grade. Unexcused tardy or absences will result in a zero for the warm-up.

Access: All students are encouraged to use the Access time provided each morning to study, seek help, practice skills, or to work on assignments. Students must seek the assistance they need to master concepts, complete assignments, and raise their grades. Academic Enhancement begins at 7:25 am each school day (except Thursdays). All teachers will be available to help students during Access, unless there is a scheduled meeting they need to attend.

Classroom Expectations: Students are expected to demonstrate Gracious Professionalism all semester. Complete your assigned work on time and to the highest quality you can achieve. Communicate with others politely and contribute positively to an atmosphere of a productive work environment for all students. In the classroom and during the class period, computers & personal electronic devices may be used only for legitimate educational purposes. This means that electronic devices may not be used for personal communication, entertainment or gaming. This also applies when you are attending class remotely. Do not cheat, attempting to cheat, or helping others to cheat. Submit only your own academic work and give credit to sources and others helping you. Avoid disrupting the class or distracting students from participating in the lesson. Cell Phones are to be placed in the assigned spot when entering class and not used or removed until the end of the period or with permission of the teacher. Clean-up before you leave. Throw away your own trash and leave the room as clean or cleaner than when you entered.