

Name of School:

Name of Course: **Principles of Engineering**

Instructor Information

Name:
E-mail address:
School phone number:
Web page address:
Best times to be reached:

Course Description

This course centers on developing better problem-solving skills by immersing students in real-world engineering problems. It uses project based, hands-on experiences to teach students the key elements of and skills of engineering and technology-based careers. Students explore technology systems and engineering processes to learn how engineers and technicians use math, science, and technology to solve problems and benefit people.

District Standards and Power Benchmarks

Power Standards

Students will be able to:

1. Students will develop an understanding of and be able to select and use information and communications.
2. Students will develop abilities to use and maintain technological products and systems.
3. Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

Power Benchmarks:

1. Apply major concepts of engineering/engineering technology.
2. Demonstrate competency in the sketching, technical writing, and formal presentations.
3. Use mechanisms in the designing and developing of a SMET project.
4. Use control systems in the creation of a marble sorter.
5. Demonstrate knowledge of static's by designing and building a bridge.
6. Demonstrate knowledge and terminology of material categories and properties.
7. Compute center of gravity, moment of inertia, stress, strain, deflection, mean, median, mode, and standard deviation.
8. Perform nondestructive and descriptive testing on materials.
9. Create a device that applies the principles of linear motion, displacement, velocity and acceleration.
10. Create an organized portfolio of engineering concepts.

Course Information

Course length: 1 semester
Elective course
1.0 credits
Prerequisite: Algebra Required, Introduction to Engineering Design (Strongly recommended)

Course Outline/Calendar

Unit 1: Definition and Types of Engineering
Unit 2: Communication and Documentation
Unit 3: Design Process
Unit 4: Engineering Systems
Unit 5: Static's and Strength of Materials
Unit 6: Materials and Materials Testing in Engineering
Unit 7: Engineering for Reliability
Unit 8: Introduction to Dynamics/Kinematics

Text/Other Required Materials/Resources

Text: Engineering Your Future – An Introduction to Engineering Author Oakes, Leone, Gunn
3 inch - 3 ring binder with tabs
Students are strongly to purchase a graphing calculator TI-83+, a minimal of a scientific calculator TI-30, or equal is required.

Instructional Procedures & Support

The class consists of discussion, worksheets, hands-on activities, co-operative activities, test, and Lab reports.

Classroom Management Procedures

1. Treat all classmates and instructor with respect at all times.
2. Attendance and punctuality procedures as indicated in the student handbook. Be on time!
3. Students are responsible for making up all missing assignments.
4. No food or drink in the classroom.
5. No electronic devices eg. cell phones, I-pods, and cameras
6. Have notebook and pencil every day.

Assessment Plan

Grades will be given for: daily performance, written work, quizzes, test, activities, projects, and portfolio.

Grading System

A 100%-90%
B 89%-80%
C 79%-70%
D 69%-60%
F 59%-0%