

## Course Syllabus

### Materials Engineering 1 and 2

Mr. Kocon

#### **Course Description:**

##### **Materials Engineering 1:**

Grades: 10-12

Prerequisite: None

This course is designed to provide the students with a basic understanding of the safe and appropriate use of hand and power tools as well as metal fabrication equipment. The students will be using STEM and the engineering design process to design and construct solutions to real world problems and situations. The students will complete these projects by using design software such as AutoCAD and Solidworks to design, test, and analyze their solutions prior to the actual construction of them in the lab. While completing these projects the students will gain knowledge and skills in the areas of metal fabrication, welding, foundry, forging, sheet metal, and machine processes. This class will also give students who are considering a career in engineering or manufacturing a basic understanding of metals and their properties, characteristics, and tendencies.

##### **Materials Engineering 2:**

Grades: 11-12

Prerequisite: Materials Engineering 1

This course focuses primarily on the advanced practices and techniques in the areas covered in the Materials Engineering 1 course. The students will use these advanced applications to complete larger scale projects while working alone or in a collaborative group setting. The students in this course will be required to oversee a project through the entire designing, engineering, and manufacturing process, from the initial sketches, to the prototype to the completely finished and functional final project. This course would give students who are considering careers in engineering, manufacturing, project management or technology an understanding of what they could be doing on a daily basis.

#### Classroom Rules and Procedures:

- Safety tests must be passed before using machine in the lab.
- Safety glasses must be worn at all times.
- Loose clothing and long hair must be restricted before using machines.
- Rings and loose hanging watches must be removed before using machines.
- Food and drink should be kept concealed and away from computers and machines.

- Computers are to be used for course work and assignments ONLY!
- ABSOLUTELY NO HORSEPLAY!!

All other school rules are followed and enforced plus the individual class required rules states above.

**Grading:**

These courses are designed around hands on real life experiences. Therefore, the bulk of the grade is established by hands on class experiences. Students are expected to work to their full potential and are judged on effort and work completed. Each student's ability and effort are taken into consideration when establishing a grade. Safety tests and additional exams will also be incorporated in the final grades.

**Grading Scales:**

91-100        A

91-90    B

70-80    C

60-69    D

0-59     F