

Foundation of Engineering

Curriculum Objectives:

This course is intended for High School students who might have an interest in engineering. It will give scholars a foundational knowledge of design using sketchup, structure mechanics and motion, energy, electricity and magnetism. The units will be studied during the year, each focusing on a specific aspect of Engineering to provide scholars a comprehensive understanding of the field.

Course Outline: The evolution and history of design, the steps in a design process, the **importance** of proper sketching techniques, measurement and tools used in design, and the use of those tools and techniques to innovate or invent solutions to problems. Students will be introduced to a variety of skill building opportunities that will enhance their design skills and prepare them for industry. Students will be able to identify simple and complex machines; calculate ratios related to mechanisms; explain fundamental concepts related to energy; understand Ohm's Law; follow the steps in the engineering design process to complete a team project; and effectively communicate design solutions to others.

Marking Period Major Topics / Units

1: Design using sketchup

2: Structure and energy

3: Mechanics and motion

4: Electricity

Grading: Full year grade is a cumulative of all marking periods and exams:

Full	1 st Markin	2 nd Markin	Mid-Term	3 rd Markin	4 th Markin	Final
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Year Grade	g Period	g Period	Exam	g Period	g Period	Exam
100%	20%	20%	10%	20%	20%	10%

Each marking period grade is calculated as given below:

Percent Weightage	Category
50%	Projects
30%	Class work and quiz
15%	Exams
5%	Class Participation

Required Materials:

- Notebook,
- Pencils and eraser
- Calculator

Expectations: The key to successfully completing this course requires a student to maintain an engineering logbook that is neat and orderly. Come to class on time and be responsible for learning the material I present during my class lessons. Complete all assignments, design projects and do not be afraid to make mistakes.

Rules: Respect yourself and others. Be prepare in Class!

Extra Help Days:

Wednesday, Room 126

Parent-Teacher Communication:

Tak Cheung , tcheung@yonkerspublicschools.org