Intro to Engineering
Syllabus

Teacher: Mr. Moy **Phone #: 914-777-4802** **Email: dmoy@ryeneck.org**

0.5 Credit

Office Hours: By appointment during prep hours and after school.

Materials Required: A 3 Ring Notebook and a scientific calculator

Course Description:

Welcome to Intro to Engineering. This course is designed to give you an introduction to basic engineering mechanics, the design process, and the engineering professions through project-based work. While most of the course will be hands-on, participating in mini-lessons/lectures, analysis of case studies, problem solving, reading, and research will be necessary for successful completion of this course. Projects, short quizzes, homework, class participation, and research assignments will be used to assess your understanding of concepts. Technical communication skills will be developed and emphasized throughout this course since engineers need to work with a variety of professionals as well as the public.

Major Skills

- Thinking Like an Engineer
- Self-Guided Research into Concepts as the need arises
- Measurement, Data Analysis, and Graphing
- Working Effectively with Partners and in a Group Setting
- Effective Technical Communication

Concepts learned will depend on selection of projects, but could include the following:

- Center of Mass and Stability
- Forces and Motion
- Simple Machines
- Work and Energy Concepts
- DC Motors
- Simple Circuits
- Strength and Elasticity
- Programming
- Robotics

Grading Policy and Expectations (See contract for details, but in the nutshell):

- Classwork and Homework ***10%***
- Case Study Analysis, Research Assignments, Quizzes, and Tests- ***30%***
- Projects- ***60%*** (Assessed through design itself, work log, report, and presentation)

Quarter I and Quarter II

- Energy, Momentum, Newton's Laws, via Crash Science- Gravity Propelled Vehicle
- You will incorporate Vernier Probes for data collection and analysis –LOGGER PRO & LABVIEW
- Rube Goldberg Machine

Quarter III and Quarter IV

· Programming
· Robotics
· Rocketry
· Investigate a question that you have or working on an engineering project that will serve someone or something in the Rye Neck Community (Physics Lab needs a lot of equipment built)

Intro to Engineering Class Contract

Detailed Description of Assessments, Expectations, and Policies

Classwork and Homework (10%) : You are expected to be on time for class and prepared to work. You are responsible for storing your work properly. **Work areas need to be cleaned each period. All supplies and tools must be returned clean and in working condition and properly stored by the end of each class period.** You will need to maintain a weekly log that describes your work and process for all projects. All safety protocols must be followed at all times. Your progress on projects will be assessed through daily discussion and questioning as well as spot checks of your work log.

Your classroom participation will be tracked daily using the following criteria:

Type of Participation	# of Points Awarded per Day
On time, prepared, organized, etc. but not using work time well	1
On time, prepared, clean work station, uses work time well,	5

Note: Any piece of classroom work may be collected as a progress check of your understanding. For topics that have been covered and learned, do nows or exit tickets may be occasionally graded as a quiz and worth 10 points.

Not following safety guidelines after one warning will result in a suspension of lab and building privileges as well as a parental/ guardian contact. Multiple safety violations within the first quarter can or may result in your removal from the course.

Homework will consist of reading, researching, reviewing notes, and responding to assigned questions or problems.

Projects (60%)

Project Reports and Presentations: Presentations and/or report of work done will be required for each project. Assigned guidelines and formats will be given at the start of each project. The report and its presentation are the final assessments of your process and results.

Project Performance and Work logs: Projects should meet design specifications- they should do what they are designed to do. In addition, your work log will be used to assist in the weekly assessment of your work as well as support your preparation for reports and presentations.

Case Study Analysis, Research Assignments, Quizzes, and Tests (30%)
While this is a project-based elective, assessment of your knowledge and understanding on a particular topic will be assessed traditionally through case studies, papers, quizzes, and tests.

Your experience here should increase your ability to apply physical principles to design and to communicate your ideas and work to others. Individual time and effort spent learning the content and doing the work of this course will vary. I will do my best to help you understand the material and support you as you learn by making myself / the lab available to you. However, you need to take responsibility for your work and learning. All of our work requires a consistent effort. If you try your best, ask questions, seek help when needed, and do your work conscientiously, you will do just fine.

After you read this contract, sign below and take this form home to your parents for them to sign. **Please also send me an email with the subject line "Intro Engineering Period __ [student first and last name]."** Feel free to contact me if you have any concerns or questions.

Thank You.

Mr. Moy

I understand and agree with the above expectations and grading policies.

Student Name (Printed): _____

Student Signature: _____ Date:_____

Parent Signature: _____
Date:_____