



**Ephrata High School  
Course Syllabus**



**Engineering Prototypes**

*I. Course Description*

Engineers solve problems by creating prototypes. In this course students will focus on the process engineers use to solve real world problems of their own. This process, called the Technological Method (Universal Systems Model) includes: research, design, develop, build, test, and evaluate. Students will utilize the design process to create working prototype solutions to problems in the following areas: electronics, robotics, fluid power, mechanical, and structural systems. This course is a hands-on course and is highly recommended for any student pursuing an engineering or technical degree.

*II. Materials & Equipment*

Hand tools, Small and large power tools, Measurement/ layout tools, Wood, Plastic, Metal

*III. Course Goals & Objectives*

At the conclusion of this course, students will be able to: Identify the parts in the Technological Method; Use the T.M. to design, build and test solutions to various problems; Build basic electrical circuits; Use fluid power to transfer energy; Construct a robot to aid a human; Create sketches and drawings to illustrate their solution.

*IV. Course Topics (Summary Outline)*

Electronics, Robotics, Fluid power, Structures, Mechanical advantage, Ergonomics, Sketching/ drawing, Materials.

*V. Assignments & Grading*

Each of the major areas of study will be accompanied by a project. These projects will be graded on: How well the solution solved the problem, Is the solution able to be easily replicated, and How can the solution be marketed to consumers.