



**SOUTHERN LEHIGH SCHOOL DISTRICT**  
5775 Main Street  
Center Valley, PA 18034

## **Planned Course for Technology Education/STEM**

**Course:** Honors Introduction to Engineering Design

### **Standards:**

This course is aligned to standards within the following categories of the Pennsylvania Academic Standards for Science and Technology and Engineering Education:

- 3.4.A Scope of Technology
- 3.4.B Technology and Society
- 3.4.C Technology and Engineering Design
- 3.4.D Abilities for a Technological World
- 3.4.E The Designed World

### **Course Description:**

The 4-12 Technology Education/STEM program within Southern Lehigh School District will provide an authentic and hands-on learning experience for all students. Courses are designed to empower students to develop, refine, and apply technological solutions focused on improving the world around them. Students will work collaboratively to make sense of and solve problems. Learning experiences will be inquiry-based, challenging students to reflect upon and revise their thinking. Teachers will provide opportunities for students to apply technology, as well as concepts from science and mathematics, to the engineering and design processes.

HONORS INTRODUCTION TO ENGINEERING DESIGN will introduce students to the engineering profession and an engineering design process. They work both individually and in teams to design solutions to a variety of problems using 3D modeling software. Students dig deep into the engineering design process, applying math, science, and engineering to hands-on projects.

### **Prerequisite(s):**

- Successful completion of an Algebra I course

### **Measurable objectives to be attained by students:**

Specific objectives for this course are aligned to the National Standards for Technology Literacy, the Pennsylvania Academic Standards for Science and Technology and Engineering Education, and the Pennsylvania Core Standards for Reading and Writing in Science and the Technical Subjects as outlined in the Scope and Sequence for Honors Introduction to Engineering Design.

**Instructional Strategies:**

A well-rounded Technology Education/STEM program requires a wide range of instructional strategies that empower students to develop, refine, and apply technological solutions. Below is a list of suggested strategies for high-quality instruction:

- Instructional components outlined in the *Framework for Teaching* by Charlotte Danielson
- Provide hands-on learning experiences
- Following the engineering design process
- Inquiry and project-based learning focused on problem-solving
- Use of design notebooks

**Estimated Instructional Time:**

77 minutes per day on an alternating A/B block schedule for one school year

**Forms of Assessment to Measure Attainment of Course Objectives:**

- Curriculum-Based Measures
- Summative Assessments
- Formative Assessments
- Performance-Based Assessment

**Resources:****Text Resources:****Technology:**

“Homepage.” *Project Lead the Way*, [www.pltw.org/](http://www.pltw.org/).

Computer Aided Design software

District approved supplemental technology

**Other Resources:**

Teacher created resources

District approved supplemental resources