

ENGINEERING TECHNOLOGY - PROJECT LEAD THE WAY

FOR LAKEWOOD STUDENTS ON A 4-YEAR PATHWAY, Engineering Technology is a 5-course program for students who want to explore careers in the many fields of engineering. Students can begin the pathway their 9th grade year and spread out the classes across all four years of high school. A 3-year pathway is also an option for Lakewood High students.

Engineering Technology 4-Year Pathway:

9th Grade - Introduction to Engineering

10th Grade - Principles of Engineering

11th Grade - Digital Electronics

11th or 12th Grade - Robotics (10th grade with teacher recommendation)

12th Grade - Engineering Capstone

FOR BAY, LAKEWOOD, RIVER OR WESTLAKE STUDENTS ON A 2-YEAR PATHWAY, students must take all five courses during 11th and 12th grade.

Engineering Technology 2-Year Pathway:

11th Grade - Introduction to Engineering

11th Grade - Principles of Engineering

12th Grade - Digital Electronics

12th Grade - Robotics

12th Grade - Engineering Capstone

Learn more about this national program by going to www.pltw.org.

Introduction to Engineering

8810 Full Year – 1 Credit

Open to Grades 9 & 10 1 Period Per Day

Recommended: Algebra 1

Introduction to Engineering provides students with opportunities to be creative and to apply their decision-making and problem-solving skills to design problems. Students use state of the art computer hardware and software (Inventor) to develop 3D models or solid renderings of objects. Using a Computer Aided Design (CAD) system, students learn the product design process through creating, analyzing, rendering and producing a model.

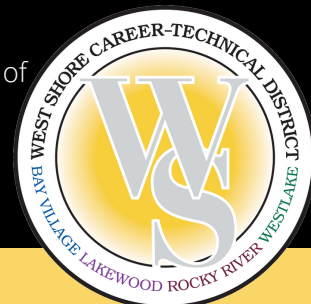
Principles of Engineering

8820 Full Year – 1 Credit

Open to Grades 10 & 11 1 Period Per Day

Prerequisite: Introduction to Engineering (completed or currently passing)

Principles of Engineering is designed to help students understand the field and career possibilities of engineering and engineering technology. Students work on problem-solving skills and the associated mathematics applications that are used at the college level and in the workplace. They also explore engineering systems and manufacturing processes.



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Industrial Robotics for Engineering

8815 Full Year – 1 Credit
Open to Grades 11 & 12 1 Period Per Day

Prerequisite: Introduction to Engineering, Principles of Engineering
Recommended: Algebra 2 with Trig

Students will apply the knowledge and skills necessary to program and operate robots. Robots will be built (using VEX equipment) and programmed to meet specified challenges. Students will learn robotic operations and system configurations as determined by industry standards. Students will code, compile, and debug programs using the robotic programming language.

Digital Electronics

8830 Full Year – 1 Credit
Open to Grade 10, 11 & 12 1 Period Per Day

Prerequisite: Introduction to Engineering, Principles of Engineering
Recommended: Algebra 2 with Trig

Digital Electronics is a course in applied digital logic. Students are introduced to the digital circuits found in video games, watches, calculators, digital cameras and thousands of other devices. They use industry standard, electronic design software to build circuits and to export designs to a printed circuit auto routing program. This course is similar to a first semester college course.

Engineering Capstone

8840 Full Year – 1 Credit
Open to Grade 12 1 Period Per Day

Prerequisite: Introduction to Engineering, Principles of Engineering
Recommended: Algebra 2 with Trig

This is an engineering research course in which students work in teams to research, design and construct a solution to an open-ended engineering problem. Students apply principles developed in the three preceding courses and are guided by a community mentor. They must present progress reports, submit a final written report and defend their solutions to a panel of outside reviewers at the end of the school year.

College Credit Possible: Student must fulfill requirements of the college.

Career Technical Student Organization: SkillsUSA

Possible Career Opportunities:

- Industrial and Manufacturing Engineer
- Mechanical Engineer
- Civil Engineer
- Electrical and Computer Engineer
- Welding Engineer
- Landscape Designer
- Urban Planner/Designer
- Aerospace Engineer

