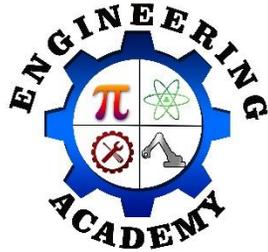


ENGINEERING ACADEMY TECHNOLOGY EDUCATION (EA)



WEST SENECA CENTRAL SCHOOLS

The Engineering Academy concentration is a series of five courses taken over a four year time period. When combined with Regents Mathematics and Science courses, the Engineering Academy introduces the student to the rigor and discipline of engineering, engineering technology and just about every technically dependent occupation. This program meets or exceeds the NYS standards for mathematics, science, and technology education.

Courses:

- 9th grade Design and Drawing for Production (DDP) Pre-Requisite to EA program
- 10th grade Materials Processing I and Materials Processing II
- 11th grade Civil Engineering/Architecture and Engineering Robotics
- 12th grade Engineering Design and Development EDD

Technology Education

The bridge between problems and solutions through the application of knowledge

Design and Drawing for Production (DDP) - Pre-Requisite 9th Grade

Material Processing 1 (1/2 credit)*

Materials Processing 1 is a 1/2-unit entry-level course for individuals who are interested in working with wood and other materials. Through hands-on activities, demonstrations and assessments the students will gain knowledge, skills and abilities that will enable them to construct small projects. Students build projects that they are able to take home. Students will be given instruction in the safe operation of woodworking machine tool such as the table saw, surface planer, jointer, scroll saw, band saw, power sander, lathe and drill press. Students will also learn machine setup with an emphasis on safety.

Material Processing 2 (1/2 credit)*

This hands-on intermediate woodworking course is a continuation of Material Processing I with a strong emphasis on safety, accuracy and craftsmanship in the finished product. Students will build upon the knowledge previously acquired to develop processes for design and fabrication of more complex projects. This class emphasizes teamwork, creativity and craftsmanship. Students may have to provide their own materials for their final project.

Civil Engineering and Architecture (1 Credit)

The overview of the fields of civil engineering and architecture emphasizes the inter-relationship and mutual dependence of both fields. Students use state-of-the-art software to solve real world problems and apply knowledge to hands-on projects and activities. By developing and implementing plans for a habitat for humanity house, playground and commercial project, students experience first-hand on the job responsibilities of architects and civil engineers.

Engineering and Robotics (1 credit)

Engineering and Robotics is a high school-level survey course of engineering. The course exposes students to some of the major concepts that they will encounter in a postsecondary engineering course of study. Students have an opportunity to investigate engineering and high tech careers. Engineering and Robotics gives students the opportunity to develop skills and understanding of course concepts through activity-, project-, and problem-based (APPB) learning. Used in combination with a teaming approach, APPB learning challenges students to continually hone their interpersonal skills, creative abilities, and problem solving skills based upon engineering concepts. It also allows students to develop strategies to enable and direct their own learning, which is the ultimate goal of education.

To be successful in Engineering and Robotics, students should be concurrently enrolled in college preparatory mathematics and science. Students will employ engineering and scientific concepts in the solution of engineering design problems. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges.

Engineering Design and Development (1 credit)

In this course you will work as part of a team to design a solution to an engineering problem. The problems will involve a wide range of engineering applications (e.g., school robot-mascot, automated solar water heater, remote control hovercraft, to name a few ideas). You will apply the principles you developed in the previous courses. Each team will be responsible for delivering progress reports and making final presentations to an outside review panel. The completed portfolio will be invaluable when you begin applying to colleges.