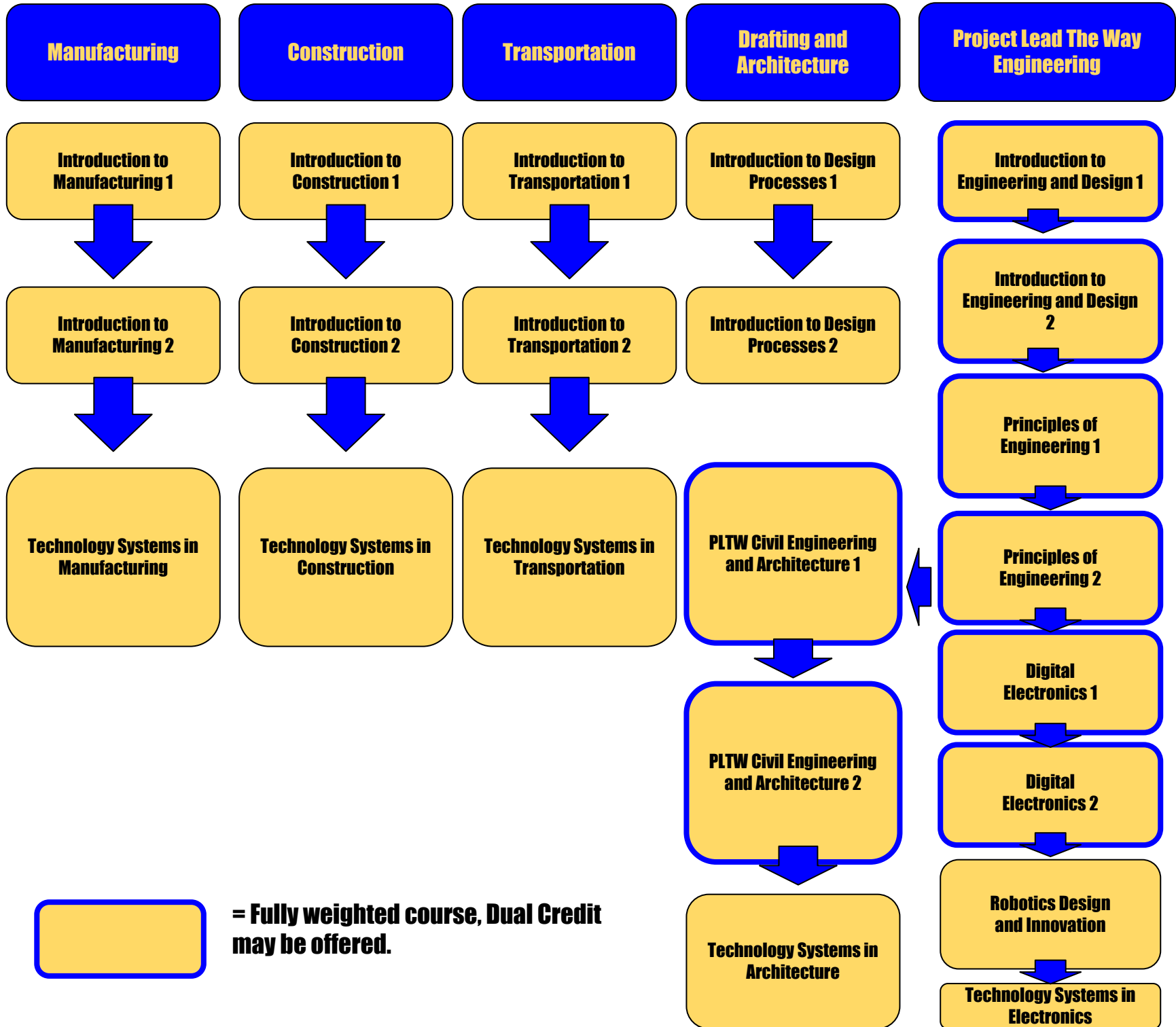
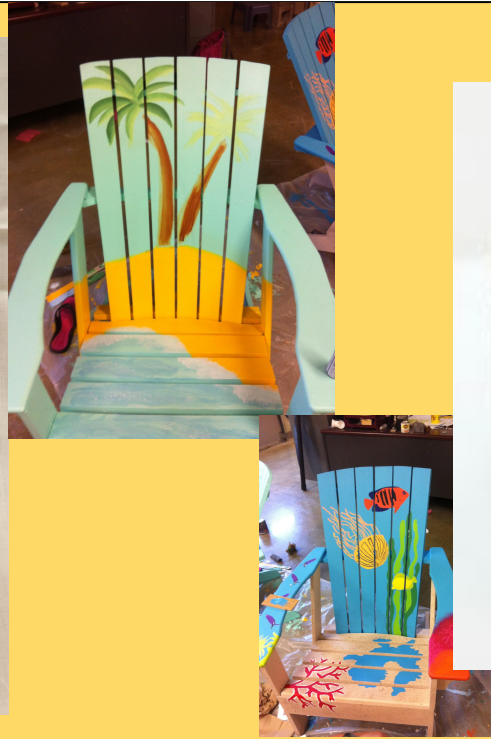


ENGINEERING AND TECHNOLOGY COURSES



INTRO TO MANUFACTURING 1 & 2



This laboratory materials and processes course explores the technological processes used to obtain resources and change them into industrial materials and finished consumer products. Students will learn the processing of metals, polymers, acrylics, wood and laminates. Manufacturing processes will be learned and performed through the use of hand tools, industrial machines, robots and computer controlled equipment. Students will produce a variety of individual and group produced products and projects. Fee: \$50.00

TECH SYSTEMS IN MANUFACTURING



This independent study course allows the student to study the technologies used in industrial engineering, modern business and information systems. Each student will set up an individual contract to include creative problem solving activities that address real-world problems and opportunities. The student and instructor will determine his/her goals, objectives and method to accomplish the goals. An application stating the student's research specialty and intended goals must be mutually agreed upon by teacher and student before acceptance into the course.

INTRO TO CONSTRUCTION 1 & 2



This is a class where you get to build a house! We start with concrete, frame the walls, finish the outside, and whatever else time allows. We will cover lessons along the way like plan reading, plot layout, architectural styles, and material estimating. Learn real life skills while attending a high school class! The areas to be explored are carpentry, concrete and masonry, plumbing, electrical, insulation, and wall finishing.

TECH SYSTEMS IN CONSTRUCTION



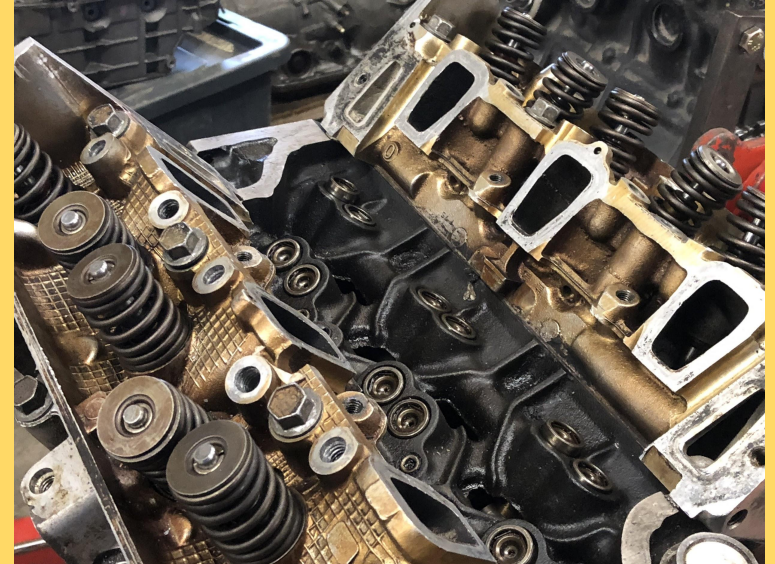
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INTRO TO TRANSPORTATION 1 & 2



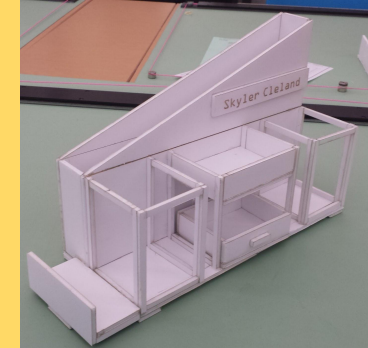
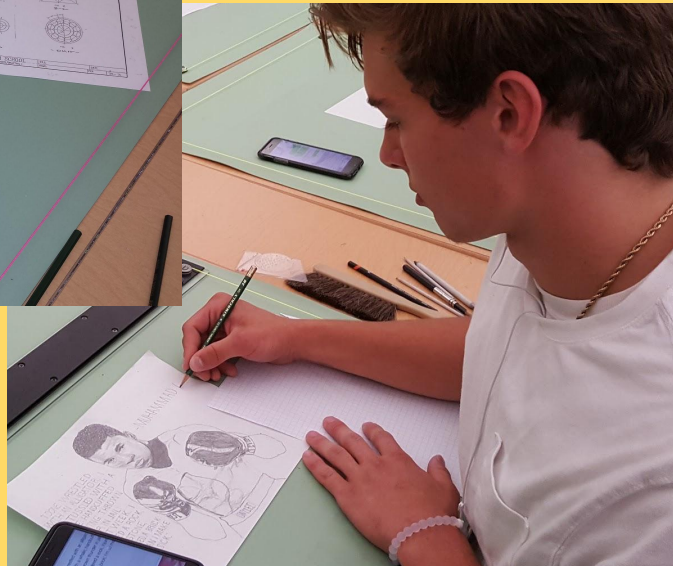
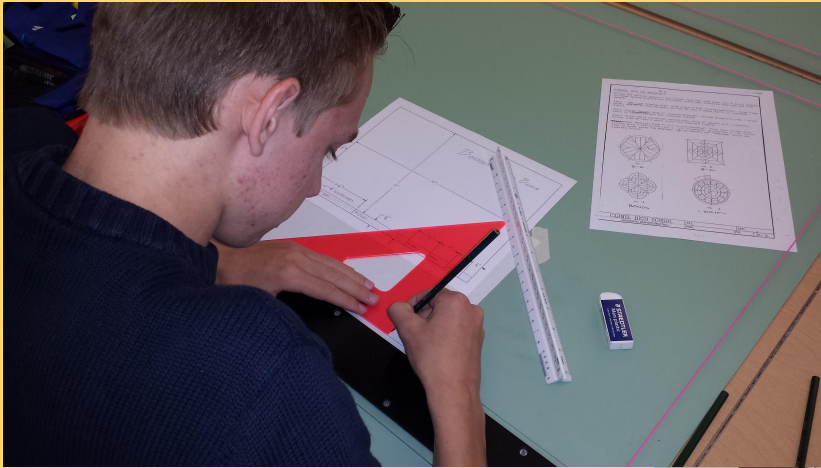
This introductory course exposes the student to the fundamental properties within society's transportation industry. Students will gain knowledge as well as experience in the service and preventative maintenance of today's land, air, and sea vehicles. Students will become familiar with EPA laws, ASE certification, vehicle warranty, and manufacturer's scheduled maintenance pertaining to the service and repair of today's vehicles. Students will also better understand how to compare and shop for service and repair, as well as purchasing new and used vehicles. Teams of students will learn to problem solve, demonstrate trouble shooting, and gain service knowledge while performing various tasks on school owned vehicles and test engines. Students with interest in careers in the automobile technology, mechanical engineering, and service industry will benefit greatly from this course.

TECH SYSTEMS IN TRANSPORTATION



This independent study course allows the student to study the technologies used in industrial engineering, modern business and information systems. Each student will set up an individual contract to include creative problem solving activities that address real-world problems and opportunities. The student and instructor will determine his/her goals, objectives and method to accomplish the goals. An application stating the student's research specialty and intended goals must be mutually agreed upon by teacher and student before acceptance into the course.

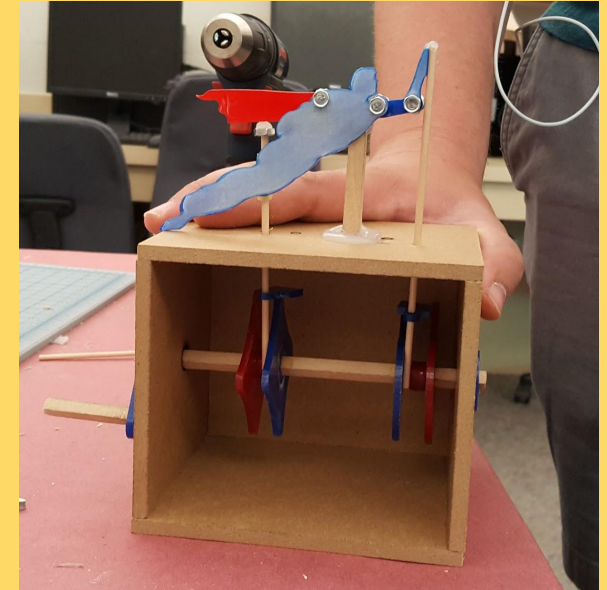
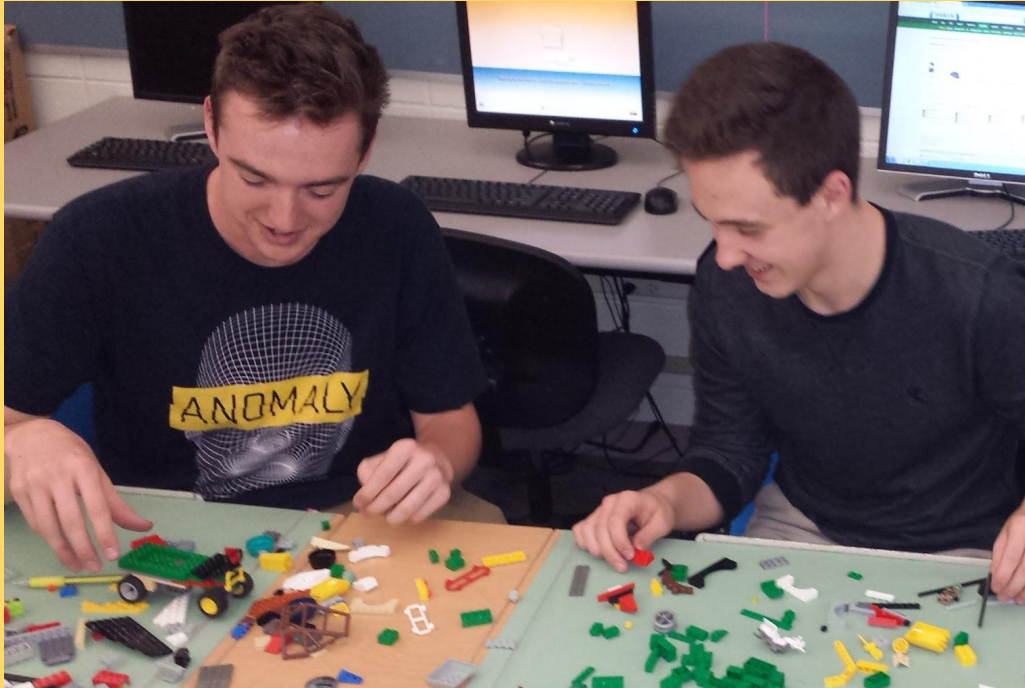
INTRO TO DESIGN PROCESSES 1 & 2



Students may take one or both semesters of this mechanical drafting and design based class. The first semester of Design Processes is dedicated the development of hand drafting skills. You do not have to be an artest to be a drafter. Using tools and simple geometry mechanical drawings are developed. The second semester focuses on modeling skills and the design process. Students learn to create models using a variety of materials. They also develop a product to present to a board of engineers.

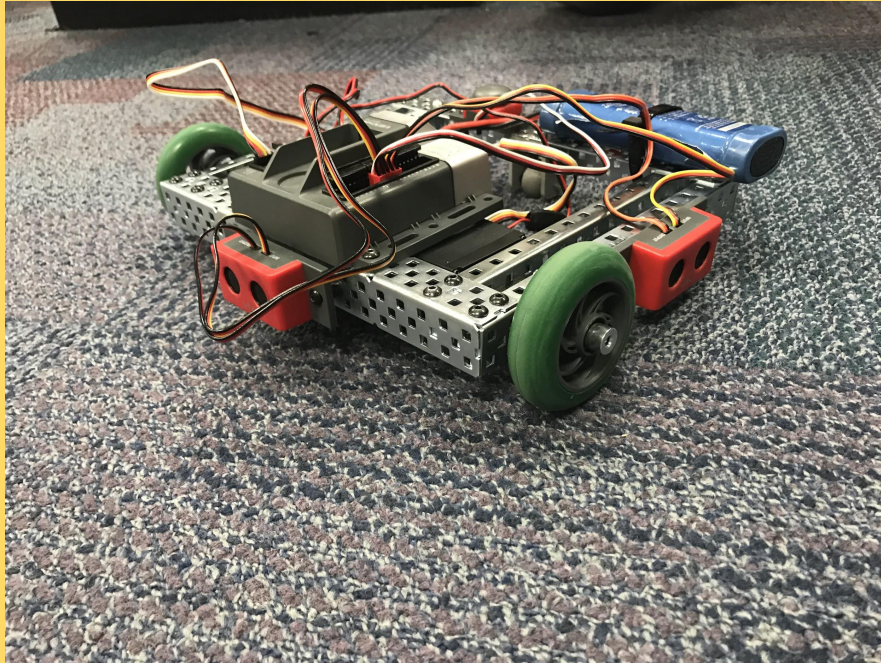
Individual and group design problems reinforce the engineering and design process.

INTRO TO ENGINEERING AND DESIGN 1 & 2



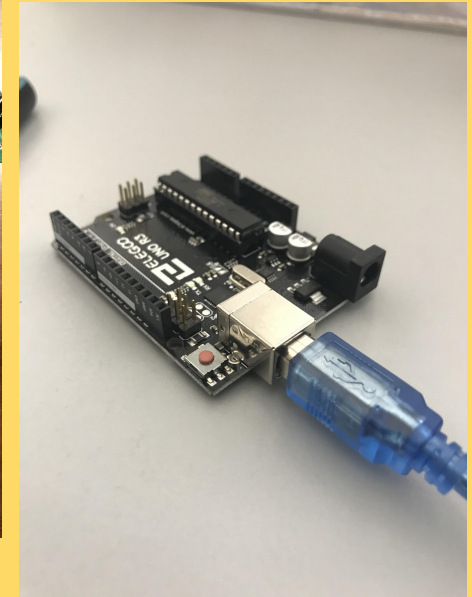
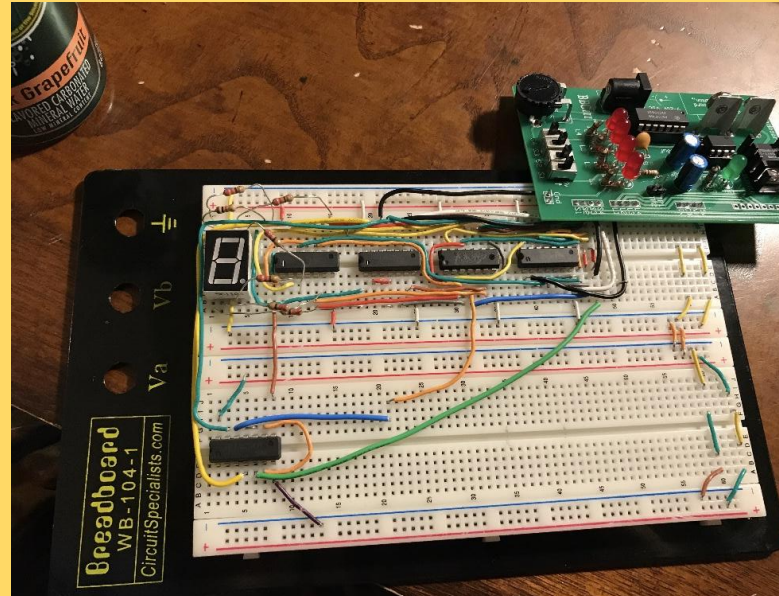
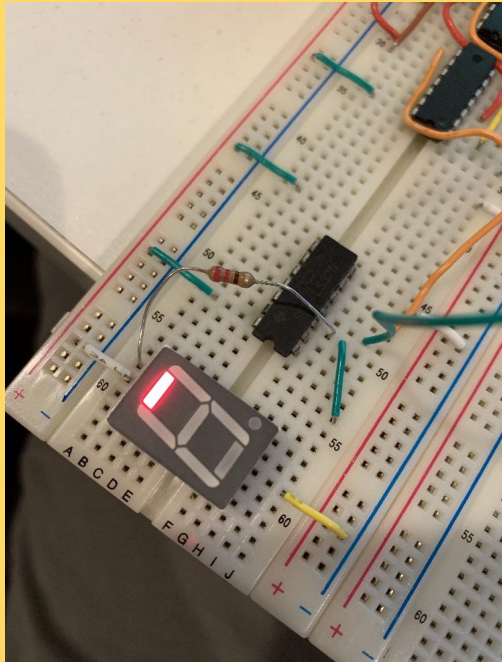
Introduction to Engineering Design is an introductory course which develops a student's problem solving skills with an emphasis placed on the development of three-dimensional solid models. Student work will progress from sketching simple geometric shapes to advanced solid modeling using state of the art computer software. They will learn the engineering design process and how it is used in industry to design products. The Computer Aided Design System (CAD) will also be used to analyze and evaluate the product design. Both techniques and equipment are state of the art technology being used by engineers throughout the United States. Rapid prototyping, CNC and other designing and manufacturing aids will be discussed and demonstrated. This course is recommended for conjunction with mathematical and scientific knowledge. Students will design, simulate, and evaluate the construction of buildings and communities by hand and by computer software. Activities also include the preparation of cost estimates as well as a review of regulatory procedures that would affect the project design.

PRINCIPLES OF ENGINEERING 1 & 2



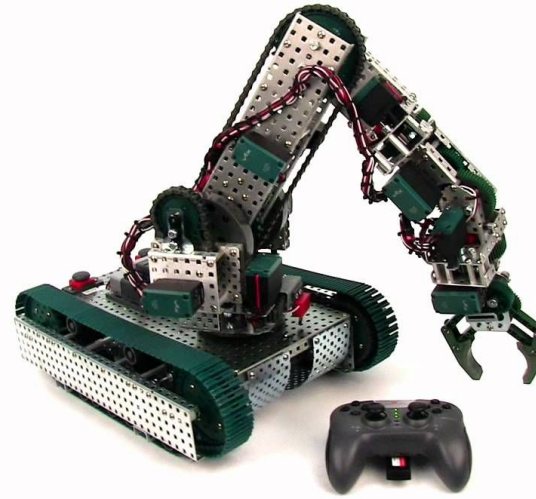
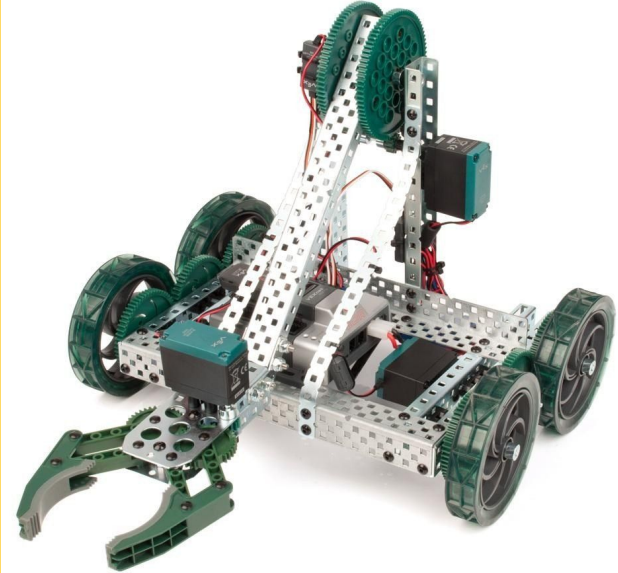
Students will explore several areas of engineering throughout the course including: thermodynamics, mechanisms, fluid power, electrical control systems, strength of materials, statics, characteristics and properties of materials, quality control, review of the design process, material testing, and kinematics. By exploring various technology systems and manufacturing processes, students will learn how engineers and technicians use math, science, and technology in an engineering problem solving process to benefit mankind. Autodesk Inventor and other material testing simulation software are used frequently through the course. Hands-on, problem-based activities supplement the lessons provided within the curriculum. As part of the PLTW curriculum, many colleges and Universities across the country offer college credit or advanced placement for this course.

DIGITAL ELECTRONICS 1 & 2



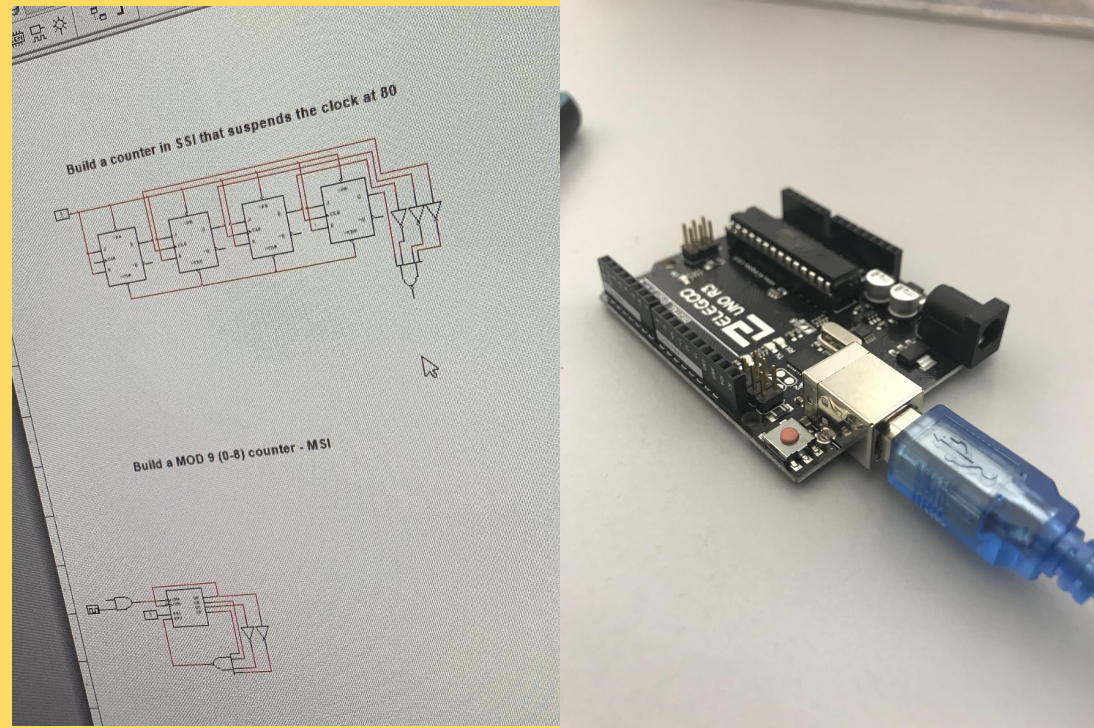
Digital Electronics allows a student to receive a broad-based, technically oriented education that emphasizes the application of today's technology to solve problems, design solutions, and improve processes. The course introduces basic gate and flip-flop logic devices and their application in digital circuits. Digital Electronics will explore logic application of electronic circuits and devices. Students will use computer simulation software to design and test digital circuitry prior to the actual construction of circuits and devices. This course is recommended for students interested in an engineering career path. As part of the "Project Lead the Way" curriculum, many colleges and Universities across the country offer college credit or advanced placement for this course.

ROBOTICS DESIGN AND INNOVATION



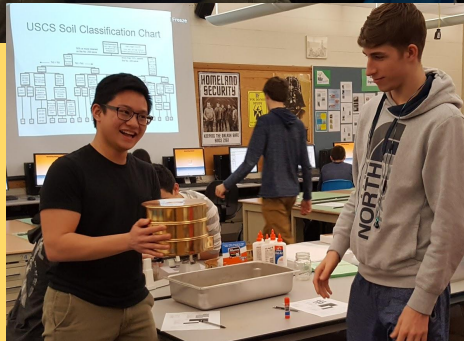
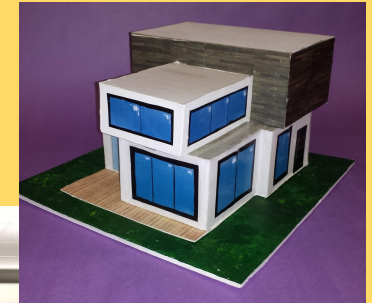
Robotics Design and Innovation allows students to design, program, and test innovative technological designs related to robotic systems. Topics involve mechanics, pneumatics, control technologies, computer fundamentals, and programmable control technologies. Students design, build, and optimize robots to perform a variety of predesignated tasks. Individuals or small teams may choose to participate in organized robotic competitions or develop their own events during the course. Students will investigate all aspects of the industries related to robotics design and innovation and explore collegiate programs of study.

TECH SYSTEMS IN ELECTRONICS



This independent study course allows the student to study the technologies used in industrial engineering, modern business and information systems. Each student will set up an individual contract to include creative problem solving activities that address real-world problems and opportunities. The student and instructor will determine his/her goals, objectives and method to accomplish the goals. An application stating the student's research specialty and intended goals must be mutually agreed upon by teacher and student before acceptance into the course.

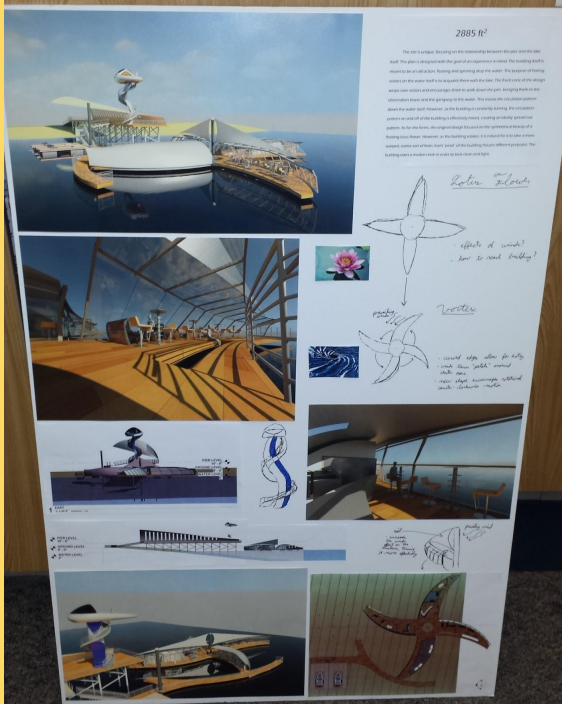
CIVIL ENGINEERING AND ARCHITECTURE 1 & 2



Civil Engineering and Architecture (PLTW) introduces students to the design and development aspects of civil engineering and architectural planning activities. Students will use the Autodesk Revit Architecture software to develop their projects in addition to creating physical models and performing experiments. During CEA students will look at both commercial and residential design and learn about the structural requirements for each.

Students must have taken Introduction to Engineering Design in order to take this course. It is recommended they take Principles of Engineering before hand as well.

TECH SYSTEMS IN ARCHITECTURE



This independent study course allows the student to study the fields of architecture, civil engineering, and design in more depth. Each student will set up an individual contract to include creative problem solving activities that address real-world problems and opportunities. Students are encouraged to participate in state design competitions. Students must have taken Introduction to Engineering Design AND Civil Engineering & Architecture to apply for this class.

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