Southington High School's Project Lead the Way Program

Project Lead the Way is a pre-engineering program consisting of five sequenced courses designed to help students explore technology and engineering related careers. The PLTW Program prepares students who intend on entering a four year college after high school. Each class uses current technologies, equipment, and software while providing students an activity-, project-, and problem-based learning environment. Students attaining a minimum 85 course average and stanine score of 6 or higher on the national college exam in Introduction to Engineering Design, Digital Electronics, Principles of Engineering, and Computer Integrated Manufacturing are eligible to receive college credit. Students must apply to the Program during 8th grade by completing and returning an application packet. The Southington PLTW Program Selection Committee will review all applications and notify individuals of selection outcome. Southington's pre-engineering program has been recognized as a leader in the State of Connecticut!

SHS's Pre-Engineering Program ranked #1 on the Career and Technical Education standardized assessment! ***2009, 2011, 2012, 2013, 2014, 2015, 2016, 2017***

Student applications are due January 19th 2018 for the 2018-2019 school year!

SHS PLTW Student Application

PLTW Program Course Descriptions

INTRODUCTION TO ENGINEERING DESIGN

Grade 9 Honors

Prerequisite: Required – Application acceptance to PLTW Program by committee

IED is the introductory course for the national **Project Lead The Way** program. This course concentrates on developing student problem solving skills, with emphasis placed on the development of three-dimensional solid models. Students will apply basic technical drawing skills and techniques to demonstrate their understanding of how engineers design products that solve our daily problems and increase the quality of life. Students will work from sketching simple geometric shapes to applying a solid modeling computer software package. They will examine the problem solving design process and how it is used in industry to design a functional product. *Autodesk Inventor* 3D modeling software will be used to create, analyze and evaluate the product design. The techniques learned and equipment used are state of the art and are currently being used by engineers throughout the United States.

DIGITAL ELECTRONICS

Grade 10 Honors

Prerequisite: Required - Introduction to Engineering Design

DE is a course in applied logic that encompasses the application of electronic circuits and devices. Students will be introduced to digital circuits found in video games, watches, calculators, digital cameras, and thousands of other devices. Students will study the application of digital logic and how digital devices are used to control automated equipment. The use of digital circuitry is present in virtually all aspects of our lives and its use is increasing rapidly. Computer simulation software is used to design and test digital circuitry prior to the actual construction of circuits and devices. This course is similar to a first semester college course and

is an important course of study for a student exploring a career in engineering or engineering technology.

PRINCIPLES OF ENGINEERING
Grade 11 Honors
Prerequisite: Required - Digital Electronics
POE is a high school-level survey course of engineering. This course exposes students to some of the major concepts they will encounter in a college engineering course of study. Students have an opportunity to investigate engineering topics which include: mechanisms, energy sources and applications, machine control, fluid power, statics, material properties, material testing, statistics, and kinematics. POE provides students the opportunity to develop skills and understanding of course concepts through activity, project, and problem-based learning. POE further challenges students to continually hone their interpersonal skills, creative abilities, and problem solving skills while investigating engineering concepts. Students will develop strategies to enable and direct their own learning by the conclusion of the course.

COMPUTER INTEGRATED MANUFACTURING
Grade 11 Honors
Prerequisite: Required - Digital Electronics
CIM is a specialization course in the Project Lead the Way program. Students will study manufacturing history, manufacturing planning, manufacturing processes, systems integration, and implementation of automation within the manufacturing industry. Students are required to use knowledge acquired in IED, DE, and POE to solve problems relating to product design, computer numerical control, robotics, and programming. Solving these problems requires students to implement their designs, while continually honing their interpersonal skills, creative abilities, and understanding of the design process. Students apply knowledge gained throughout the course in a final open-ended problem to build a simulated factory system.

ENGINEERING DESIGN AND DEVELOPMENT
Grade 12 Honors
Prerequisite: Required - Principles of Engineering and Computer Integrated Manufacturing
EDD is a capstone engineering research course in which students work in teams of two to design, construct, and test, and analyze the solution to an open-ended engineering problem (original, taken from a database of problems, or a national challenge) while applying the principles and skills developed in the four preceding courses. Students will maintain an engineering notebook as part of a portfolio of their work. Each team will be responsible for delivering progress reports and making final presentations of their project solution to an outside review panel and community members. The completed portfolio will be invaluable as students apply to college.