



## PRE-ENGINEERING ACADEMY COURSE LISTING

**Courses:** Project Lead the Way (PLTW) - Gateway to Technology (GTT) - Pre-Engineering for Middle School

Gateway to Technology's cutting-edge program addresses the interest and energy of middle school students, while incorporating national standards in math, science and technology. GTT is "activity oriented" to show students how technology is used in engineering to solve everyday problems. The instructional units excite and motivate students to use their imaginations and teach them to be creative and innovative, while gaining the skills they need to develop, produce and use products and services. GTT courses are available for exploration over a three-year period. There are six units:

- Design and Modeling
- Magic of Electrons
- Science of Technology
- Automation and Robotics
- Energy and the Environment
- Flight and Space

### **INTRODUCTION TO TECHNOLOGY (8600010) – 6<sup>th</sup> Grade**

This course follows the outline of Gateway to Technology to introduce the field of engineering. The content of the course includes an introduction to the topics and activities related to the instructional units listed above. In addition, there is a focus on *Flight and Space* which studies the history of aerospace through hands-on activities, research, and various projects allowing students to apply what they have learned.

### **EXPLORING TECHNOLOGY (8600020) – 7<sup>th</sup> Grade**

This course focuses on *Design and Modeling*, introducing students to the design process. Using design briefs, students create models and documentation to solve problems. In the *Science of Technology* and *Automation and Robotics*, students learn about mechanics of motion, conversion of energy, energy transfer and the history and development of automation and robotics.

### **ENGINEERING SYSTEMS (86004608) – 8<sup>th</sup> Grade – High School Credit**

This course focuses on *Design and Modeling* where students are introduced to AutoDesk Inventor, a solid modeling program that uses sophisticated mathematical technique for representing solid objects. Utilizing this design approach, students understand how solid modeling has influenced their lives. Students understand the use of descriptive geometry as a component of design, measurement, and computer modeling. In *Energy and the Environment*, students investigate the importance of energy in our lives and the impact energy use has on the environment.