
INDUSTRIAL TECHNOLOGY

PRE-ENGINEERING

The courses listed below are open to all students. Industrial Technology and Pre-Engineering offers students an insight into the industrial-technological environment in which we live. Through the study of industrial technology, the students will be exposed to the principles and concepts of industry, products, processes, and their related problems. In all aspects of the program, students will encounter experiences that will aid in developing the basic skills and knowledge common to many careers.

#501 - PRE-ENGINEERING AND TECHNOLOGY **UNLEVELED**
Offered to grades 9–12 **SEMESTER COURSE** **2.5 credits**

This course, open to all grades, is designed to address the state frameworks engineering and technology standards. It is a continuation of the Middle School modular interactive “hands-on” program integrating a number of current technologies such as construction, basic electricity, biomedical technology, aerodynamics, electronic communications, robotics, digital sound, pneumatics, industrial control, hydraulics, automotive, space technology, etc. Students alternate through computer-driven stations, which allow for different ability levels with individual remedial possibilities for all learners.

#709 - TECHNICAL DRAWING **UNLEVELED**
Offered to grades 9-12 **SEMESTER COURSE** **2.5 credits**

This course is designed to introduce students to the universal graphic language known as drafting. Students will learn to express their ideas visually using methods accepted around the globe. Topics to be covered include sketching, orthographic (2D) and pictorial (3D) representations, drawing techniques, and blueprint duplication. Computer Aided Drafting will be introduced in this course. This course is a prerequisite to Architectural Drawing and Computer Aided Drafting (CAD).

#710 - ARCHITECTURAL DRAWING **UNLEVELED**
Offered to grades 10-12 **SEMESTER COURSE** **5 credits**

This course is a continuation of Technical Drawing with emphasis placed on architectural drawing. Each student will develop a set of blueprint drawings from design principles learned in class. Computer Aided Drafting (CAD) will be utilized in this course.

PREREQUISITE: *Technical Drawing*

#713 - COMPUTER AIDED DESIGN/DRAFTING I **UNLEVELED**
Offered to grades 11 & 12 **SEMESTER COURSE** **2.5 credits**

The purpose of this course is to provide students with an understanding of the features, limitations, and considerations associated with the operation of a computer aided design/drafting (CAD) system. Students will gain valuable hands-on experience using the Auto Cad software, computers, input-pointing devices such as digitizers and mice, and output devices such as plotters and printers. Emphasis is placed on the operation of CAD software since this is most challenging for new learners.

PREREQUISITE: *Technical Drawing & Geometry or recommendation of teacher (Can be taking Geometry concurrently)*

#714 - COMPUTER AIDED DESIGN/DRAFTING II **UNLEVELED**
Offered to grades 11 & 12 **SEMESTER COURSE** **2.5 credits**

This course is a continuation of skills covered in CAD I.

PREREQUISITE: *CAD I*

#701 – WOOD I **UNLEVELED**
Offered to grades 9-12 **SEMESTER COURSE** **2.5 credits**

Functions of Industry is a semester course, beginning exploratory program designed to give ninth grade students a hands-on introduction to woodworking. Safe machine operation and safe techniques will be stressed. Individual projects will be required. Upon approval of instructor, students may choose their own project.

#703 – WOOD II **UNLEVELED**
Offered to grades 9-12 **SEMESTER COURSE** **2.5 credits**

Elements of Industry is a semester course designed to give students a more in-depth study of woodworking and engineering technology fields. As part of the practical application of processes and techniques, emphasis is placed on developing a working knowledge of the properties of available materials. The decision-making process plays a large part in developing the skills needed for job entry level readiness. Orienting the student towards developing a sense of excellence in craftsmanship is a major goal of the course.

#704 – WOOD III **UNLEVELED**
Offered to grades 10-12 **SEMESTER COURSE** **5 credits**

This construction course will enable experienced students further opportunity to develop their woodworking skills in more complex joinery and woodworking techniques with the construction of individual projects. Students with less experience in the woodworking area will use their time developing projects that will provide exploratory experience in this field.

The engineering technology aspect of the course will introduce many areas in engineering and is designed to give the high school student “hands-on” experience in a project-oriented environment. Projects and topics may include:

- PITSCO Racers: Topics and Terms covered – Displacement, kinetic and potential energy, friction, slope, velocity and acceleration. (Purchase of a dragster kit is required for participation. Participation is optional)
- Woodworking: Topics and Terms covered – Fundamental machinery operation and techniques. Individual projects optional.