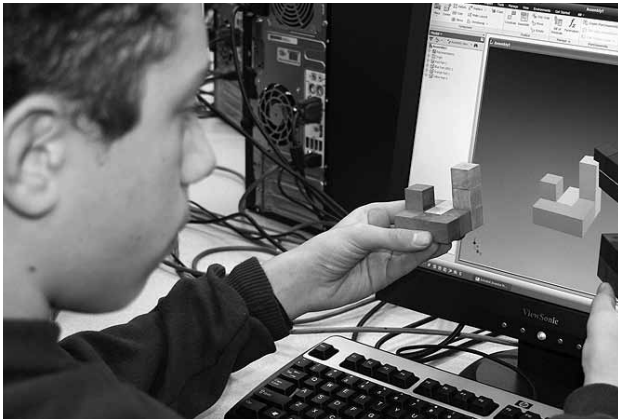


# APPLIED TECHNOLOGY



## Philosophy Statement

Our program is designed to help all students whether they plan on attending college or plan on full time employment after high school graduation. It helps students facing a highly technological society achieve a basic understanding of related topics and practice the skills that can be applied to many aspects of daily life including leisure time activities.

Our courses allow students to explore many subject areas so that they can gain the knowledge and experience necessary to make intelligent career decisions. They include a maximum number of laboratory activities that apply the theory learned from various subjects. The activities allow students to use instruments and equipment to produce tangible results that provide personal success and build self-confidence. Students actually see their ideas become reality!

## Applied Technology

### Course Descriptions

- Courses in this department may be used to fulfill the one-year required credit for graduation in Applied Arts, Fine and Performing Arts or International Languages.
- The Extended Study Option allows students to re-enroll in a course for grade and credit.

## Advanced Technical Drawing

Course No.: 1002

Prerequisite: Architectural Design CAD or

Engineering Design CAD

Credit: 1.0 / Full Year

Fees: \$20.00

Grades: 10, 11, 12

Other: Extended Study Option

In **Advanced Technical Drawing**, students complete architectural or engineering drawings of professional quality. The drawings not only reinforce the concepts and skills first explored on the introductory level, but also require the students to learn many new concepts and skills. The architectural option includes design presentations, plot, floor, foundation, and electrical plans, interior and exterior elevations, and construction detail drawings. The engineering option includes product design and presentation, pictorial illustration, engineering geometry, precision dimensioning and mechanical assemblies. Students may elect to take this course for honors credit. In addition to regular course expectations, students receiving honors credit will be required to complete a major project outside of class each semester. The topic, scope and depth of the project will be determined through an agreement between the student and teacher and detailed in a written proposal completed during the first week of class.

## Architectural Design CAD

Course No.: 1003F, 1004S

Prerequisite: None

Credit: 0.5 / Semesters 1 and 2

Fees: \$10.00

Grades: 9, 10, 11, 12

Other:

**Architectural Design CAD** provides students with an introduction to the architectural design and drafting process using fundamental concepts and principles. Students will have the opportunity to design and create their own homes by completing many of the drawings required to construct a single family home. Students will be creating both 2D and 3D home plans and views. This course is excellent for any student who has an interest in computers, architecture, interior design, construction or any other related area. No computer experience is required.

## Automotive Technology I

Course No.: 1007F, 1008S

Prerequisite: None

Credit: 0.5 / Semesters 1 and 2

Fees:

Grades: 9, 10, 11, 12

Other:

**Automotive Technology I** provides students with an introduction to the automobile and its systems. Students will develop an understanding of the operating principles of an engine by disassembling and reassembling a small gas engine. Students will learn about suspension, steering, brake, power train, and electrical systems, as well. Students will also be introduced to routine maintenance and minor service operations of the automobile. With the knowledge obtained from this class, students will examine the procedure necessary for purchasing a used vehicle.

## **Automotive Technology II**

*Course No.: 1010*

*Prerequisite: Automotive Technology I*

*Credit: 1.0 / Full Year*

*Fees:*

*Grades: 10, 11, 12*

*Other: Extended Study Option*

**Automotive Technology II** provides students with a working knowledge of automobile parts and systems. It also enables them to develop personal maintenance and repair skills. Students will also learn how to analyze, troubleshoot and diagnose problems using various diagnostic equipment and test procedures. In addition, students will have the opportunity to learn how to use various welding equipment such as mig, arc, and oxyacetylene. The use of a plasma cutter will be used on various projects. Knowledge and experience gained from this class will prove beneficial to all students regardless of their future ambitions.

## **Electronics I**

*Course No.: 1015F, 1016S*

*Prerequisite: None*

*Credit: 0.5 / Semesters 1 and 2*

*Fees:*

*Grades: 9, 10, 11, 12*

*Other: Students may receive 2 hours of college credit through the College of Lake County (DC Circuit Fundamentals-ELT 170) with successful completion of this course with a grade of "B" or better.*

**Electronics I** students will be introduced to electricity and electronic components and devices. Through various units, students will explore AC and DC circuits to learn how they relate to the electronics world. They will have the opportunity to solder and de-solder exciting projects including strobe lights, burglar alarms, sirens, laser pointer targets, and battery zappers. Doorbells, three-way lights, and outlets are some of the typical house wiring circuits students will wire and test. Digital multi meters, function generators, oscilloscopes, and power supplies are equipment with which students will become familiar. This course exposes students to numerous experiments and hands-on projects.

## **Graphic Communications I**

*Course No.: 1025F, 1026S*

*Prerequisite: None*

*Credit: 0.5 / Semesters 1 and 2*

*Fees: \$20.00*

*Grades: 9, 10, 11, 12*

*Other:*

**Graphic Communications I** provides students with an introduction to graphic design using fundamental concepts. Students will learn the basics of visual design using computer software applications (Adobe Creative Suite). Students will create memo pads, t-shirts, DVD covers, greeting cards, posters, and many other items in this

project oriented course. These projects will allow students to continue to apply their skills as they screen print and set up and operate a press. This course is geared toward students who want to design and create their own unique work. No computer experience is required.

## **Graphic Communications II**

*Course No.: 1027F, 1028S*

*Prerequisite: Graphic Communications I*

*Credit: 0.5 / Semesters 1 and 2*

*Fees: \$20.00*

*Grades: 9, 10, 11, 12*

*Other: Extended Study Option*

**Graphic Communications II** is a hands-on course enabling students to expand their knowledge, skills, and career awareness in desktop publishing, photo-offset lithography, and screen printing. Students will learn how to create computer-generated camera-ready copy for both continuous tone and multi-color images. Students will also learn to apply advanced darkroom, masking, plate making, and litho press and silk screening techniques in the printing of their continuous tone and multi-color images.

## **Introduction to Computer Repair**

*Course No.: 1041F, 1042S*

*Prerequisite: None (Recommend: completion of Electronics I, a computer science course or strong working knowledge of DOS and Windows operating systems.)*

*Credit: 0.5 / Semesters 1 and 2*

*Fees: \$20.00 (additional fees may be assessed for materials)*

*Grades: 9, 10, 11, 12*

*Other:*

**Introduction to Computer Repair** will allow a student to develop an introductory knowledge of PC computer systems, an understanding of computer technology and concepts, and the ability to assemble and test computer hardware. It will also help students develop an understanding of the operating system, troubleshoot that software, repairing computer problems, and install software on the computer. This course is designed for students who have built their own computer and those who have never seen the inside of a computer. It is for those students who are interested in learning about how a computer functions and how to repair a computer when it isn't functioning correctly.

## **PLTW – Digital Electronics**

*Course No.: 1030*

*Prerequisite: Application and Interview; Algebra I (can be concurrent enrollment)*

*Credit: 1.0 / Full Year*

*Fees: \$25.00*

*Grades: 10, 11, 12*

*Other:*

**Digital Electronics** is the study of electronic circuits that are used to process and control digital signals. Digital

electronics is the foundation of all modern electronic devices such as cellular phones, MP3 players, laptop computers, digital cameras and high-definition televisions. The major focus of Digital electronics is to expose students to the design process of combinational and sequential logic design, teamwork, communication methods, engineering standards, and technical documentation. College credit is available at select colleges upon successful completion of this course and PLTW final exam.

### **PLTW – Introduction to Engineering Design**

*Course No.: 1034*

*Prerequisite: Application and Interview; Algebra I (can be concurrent enrollment)*

*Credit: 1.0 / Full Year*

*Fees: \$25.00*

*Grades: 9, 10, 11, 12*

*Other:*

Project Lead the Way is a nationally recognized pre-engineering curriculum. The first course for PLTW, **Introduction to Engineering Design** uses computer modeling software so students learn the process of product design. They solve design problems as they develop, create, and analyze product models. The emphasis includes strong math and science skills. College credit is available at select colleges upon successful completion of this course and PLTW final exam. Enrollment is limited—an application and interview process will be utilized along with recommendations.

### **PLTW – Principles of Engineering (POE)**

*Course No.: 1036*

*Prerequisite: PLTW – Introduction to Engineering or PLTW – Digital Electronics*

*Credit: 1.0 / Full Year*

*Fees: \$25.00*

*Grades: 10, 11, 12*

*Other:*

**Principles of Engineering (POE)** course is designed to help students understand the field of engineering and engineering technology. By exploring various technology systems and manufacturing processes, students learn how engineers and technicians use math, science and technology in an engineering problem solving process to benefit people. In addition, students will learn how engineers address concerns about the social and political consequences created by technological change. College credit is available at select colleges upon successful completion of this course and scoring high enough on the PLTW final exams.

### **Pre Engineering Honors**

*Course No.: 1037F*

*Prerequisite: Physics*

*Credit: 0.5 / Semester 1 only*

*Fees: \$10.00*

*Grades: 11, 12*

*Other: Team taught; credit may be earned in Mathematics, Science or Applied Technology.*

**Pre Engineering Honors**, an interdisciplinary course, is designed for the student who is interested in Engineering as a career. It covers the various fields of that profession and simulates the processes and procedures that are used in the corporate world. Students work in teams to solve real-world problems by employing a variety of information sources and technologies to collect and utilize data. They incorporate technical writing, computer software programs, multi-media presentation tools, and professional consultants to design and produce a product. They also create a portfolio of their accomplishments.

### **Woodworking I**

*Course No.: 1071F, 1072S*

*Prerequisite: None*

*Credit: 0.5 / Semesters 1 and 2*

*Fees: \$25.00*

*Grades: 9, 10, 11, 12*

*Other:*

**Woodworking I** is a project oriented course that teaches students woodworking techniques, processes, and procedures with an emphasis on tool and equipment safety. Units of instruction include shop and tool safety, equipment set-up, joint construction, cutting, routing, project assembly, and surface preparation and finishing. Typical class projects include the building of a shelf, a night stand, a lamp, a CD cabinet, a clock and a stepstool.

### **Woodworking II**

*Course No.: 1073F, 1074S*

*Prerequisite: Woodworking I*

*Credit: 0.5 / Semesters 1 and 2*

*Fees: \$25.00*

*Grades: 9, 10, 11, 12*

*Other: Extended Study Option*

**Woodworking II** furthers the student's knowledge and experiences in woodworking technology through the selection, planning, and construction of advanced cabinet and furniture projects typically ranging from intricate jewelry boxes and clocks to night tables, coffee tables, and desktop organizers. Instruction will focus on project planning, procedures and cost estimating, advanced cutting, shaping and routing, joint construction and assembly, and finishing techniques. Students will also learn about special machine set-ups and operations as well as equipment maintenance.

# Applied Technology Department

## Course Sequences

