TECHNOLOGY

As the world evolves and changes, so to does the role of technology. In order to effectively use and understand technology, you must be familiar with what makes up technology. You can begin to educate yourself by taking one of these introductory classes.

- Energy Utilization (Energy and Power)
- Materials Applications and Processes or M.A.P. (Manufacturing)
- Technical Drafting (Graphic Communication)
- Technology Concepts (General Technology)

Once you have seen and experienced the exciting world of technology, there are many more opportunities that will allow you to learn about specific technologies. We are flexible to your schedule and will work with you to encourage maximum exposure to topics in technology. You can take any of the following classes for a semester, a year, or even a semester at a time a year apart.

- 3D Animation & Rendering
- Advanced Metalworking
- Advanced Woodworking
- Architectural Engineering & Design
- Cabinetmaking
- Information Systems (Multimedia & Video Production)
- PC Hardware Fundamentals
- Machining Operations
- Mechanical Engineering & Design

It is the goal of the technology department to make you a creative problem solver, an individual thinker, and technologically literate by the time you leave our school. Take the opportunity to view the goals, prerequisites, and course descriptions located on the following pages. See what opportunities are available to you and give us a try.

TECHNOLOGY

DEPARTMENT GOALS

- Develop lifelong skills that enable students to function as reliable, contributing members to a global and ever-changing technological society.
- Recognize, analyze, and solve technology-related problems through the application of the design process.
- Develop a student's oral and written communication skills by participating in technology-related activities that utilize presentation and written explanation.
- Allow students to discover their potential and reinforce their prior knowledge when studying technology content areas.
- Create an atmosphere of learning that strives for "technology literacy" in every objective, activity, and course within our department.

PREREQUISITES

- Students can take Architectural Engineering & Design, Mechanical Engineering & Design, or 3D Animation & Rendering after taking **Technical Drafting.**
- Students wanting to take Information Systems must take at least one semester of **Technology Concepts**.
- Students that want to build a computer in PC Hardware must take either **Energy Utilization or 1 full year of Technology Concepts or Instructor Approval.**
- Students who are interested in taking Advanced Woodworking or Advanced Metalworking must take at least one semester **of Materials Applications & Processes.**
- A Prerequisite for Cabinetmaking is **Advanced Woodworking.**

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TEC 081/082 TECHNOLOGY CONCEPTS
(Semester 1/2 Credit, Yearly 1 Credit) (9, 10, 11, 12)
This is an exploratory class in technology that can be taken for a semester or a full year. Students use self-directed learning at stations that deal with topics in technology. Areas of exploration include electronics, fluid power, computer fundamentals, alternative energies, web design, animation, graphic design, networking fundamentals, CNC milling, CNC Lathe operations, drafting, robotics, and video production. Students will be expected to read, comprehend, and complete the module literature provided. The insturctor does not lecture. Problem solving projects will also be incorporated into the class structure.

TEC 121/122 ENERGY UTILIZATION
(Semester 1/2 Credit) (9, 10, 11, 12)
This is a one semester course exploring the use of energy in our society. Students will study units on energy conversion and transmission, energy conservation, solar power, alternative energy systems and basic D.C. electrical theory. Student learning experiences will include a wide range of "hands-on" activities to reinforce energy utilization concepts. Students will build an AC to DC power supply, a wind generator, and a 4-wheel drive remote control vehicle to compete in a contest with his/her peers.

TEC 151/152 PC HARDWARE FUNDAMENTALS
(Semester 1/2 Credit) (10, 11, 12)
Prerequisite: Either Energy Utilization or One Full Year of Tech Concepts or Instructor Approval
This course will provide an introduction to the fundamental concepts and basic components of personal computers. Attention will be given to processors, mother boards, memory, hard drives, bios settings, operating system settings and operation of other peripherals. Students will work in groups to plan and assemble a computer, install an operating system and troubleshoot a variety of common problems. Students also will be responsible for designing and connecting small network systems. After successfully completing this class, students could take advanced courses at the Area Vocational Center or at a community college or university.

TEC 231/232 INFORMATION SYSTEMS
(Semester 1/2 Credit, Yearly 1 Credit) (10, 11, 12)
Prerequisite: Successful Completion of One Semester of Technology Concepts or Instructor Approval
An advanced class offered to students who have completed one semester of Technology Concepts. This class deals with topics in information and communication technology. Information systems include web design, computer animation, video editing, and graphic design. Students will use design and development techniques to create products such as mouse-pads, coffee cups, commercials, web pages, and computer animations. The class will also use the television studio for video creation and editing. Each student will build a digital porfolio of assignments created throughout the course. Students can take this class for consecutive semesters or a semester in the spring and a semester in the fall. More advance topics will be presented to second semester students.

TEC 241/242 TECHNICAL DRAFTING
(Semester 1/2 Credit) (9, 10, 11, 12)
An introduction to the fundamentals, concepts, techniques and tools of drafting. Attention is given to lettering, hand sketching, dimensions, line technique, math, three-view drawings, identification and proper use of drawing equipment. Computer-aided drafting and other drafting areas will be introduced. Over 90% of the coursework will be actual drawing. Heartland Community College credit is available for this course.

TEC 251/252 MATERIALS APPLICATIONS & PROCESS (M.A.P.)
(Semester 1/2 Credit, Yearly 1 Credit) (9, 10, 11, 12)
Students will study material processes of wood, metal, plastic, and combinations of these materials. Students will develop an awareness of the importance of both natural and synthetic materials, choosing materials, converting raw materials into finished products, procurement, and storage of materials. Safety will be emphasized throughout the course. Students will also experience machining processes, toll selection and use, machine and tool care and maintenance, fasteners, and finish selection and application. Students will experience hands-on activities throughout the course.

TEC 361/362 ARCHITECTURAL ENGINEERING AND DESIGN
(Semester 1/2 Credit, Yearly 1 Credit) (10, 11, 12)
Prerequisite: Technical Drafting
A course in design and drawing of residential houses. Students will study basic house design and layout as well as other factors considered when designing residential structures. Each student will be required to complete a set of house plans that will include: a plot plan, floor plan, elevations, sectionals, foundations, and electrical plan. Students will also construct a balsa model of their house. Any students considering a career in architecture or construction is strongly advised to take this course. All drawings will be done on the CAD system using AutoCad software. Students will have the opportunity to duplicate plans and keep a copy of their work. This course is offered

for one semester or a full year. Heartland Community College credit is available for this course.

TEC 401/402 MECHANICAL ENGINEERING & DESIGN
(Semester 1/2 Credit, Yearly 1 Credit) (10, 11, 12)
Prerequisite: Technical Drafting
A continuation of the fundamentals, concepts, and techniques of computer-aided drafting and an introduction to 3D animation and rendering. Attention is given to AutoCad commands, hand sketching, dimensions, math, three-view, auxiliary, sectional, pictorial drawings as well as solid modeling and assembly drawings. Rendering and animation will also be covered using 3D Studio software. Animations will be converted to AVI file for video and web page development. Computer drawing file management and maintenance will also be covered. Over 90% of the coursework will be done with the CAD system. Heartland Community College credit is available for this course.

TEC 491/492 3D ANIMATION & RENDERING
(One Semester, 1/2 Credit) (11, 12)
Prerequisite: Technical Drafting
This course is a continuation of advanced drafting courses allowing the student to learn 3D animation and modeling techniques. Using 3D Studio Viz, the student will learn to create scenes, shapes and primitive objects. Attention will also be given to rendering and animating simple machines and architectural walk throughs. Ninety percent of this course is actual rendering and animating with the software.

TEC 521/522 ADVANCED METALWORKING
(Semester 1/2 Credit, Yearly 1 Credit) (10, 11, 12)
Prerequisite: Passed Metalworking or Materials Applications & Processes (M.A.P.)
An advanced study of metalworking with an introduction to the engine lathe, MIG welder, band saw, grinders, file machine and tool bit sharpening. Eighty-five percent of the grade is earned in machine activities and projects.

TEC 561/562 MACHINING OPERATIONS
(Semester 1/2 Credit, Yearly 1 Credit) (10, 11, 12)
Prerequisite: Passed Advanced Metalworking
An advanced machine shop course for students with a higher degree of knowledge, self motivation, and skill in metalworking. Emphasis is on safety, machine operations, project design, welding, and sheetmetal. An introduction to the shaper, surface grinder and milling machine. Ninety percent of the grade is earned by hands on activities and skills.

TEC 721/722 ADVANCED WOODWORKING
(Semester 1/2 Credit, Yearly 1 Credit) (10, 11, 12)
Prerequisite: Passed one semester of Materials, Applications & Processes (M.A.P.) or Woodworking
An advanced study of woodworking with an introduction to manufacturing, facility layout, flow process, and project management. Emphasis on safety and safety awareness. 85% of the grade will be project based.

TEC 741/742 CABINETMAKING
(Semester 1/2 Credit, Yearly 1 Credit) (10, 11, 12)
Prerequisite: Passed one semester of Advanced Woodworking
An advanced woodworking course for students with a higher degree of knowledge, self motivation, and skill in woodworking. An emphasis on safety and safety awareness. 90% of the grade is earned by applied knowledge and skill activities.