

TECHNOLOGY EDUCATION DEPARTMENT

TECHNOLOGY EDUCATION

District 86 Technology Education Courses

	2022-2023
Course offered at both schools	Pre-Engineering 1 Pre-Engineering 2 Engineering & Manufacturing Architecture & Design Engineering Capstone Woods 1 Woods 2 Woods Capstone Graphic Communication 1 Graphic Communication 2 Graphic Communication Capstone Digital Video Production



The mission of the District 86 CTE Department is to provide innovative and personalized learning experiences in a collaborative environment for students to achieve their goals in the real world.

Hinsdale Township District 86 Technology Education Program

	STEM Pathway	Architecture & Construction Pathway	Graphic Communications/Information Technology Pathway
Beginner Course Courses: 0.5 Credits	Pre-Engineering 1** & Pre-Engineering 2**	Woods 1	Graphic Communications 1 & Digital Video Production
Intermediate Course Courses: 1.0 Credits	Engineering and Manufacturing**	Woods 2	Graphic Communications 2
Advanced Level Course Courses: 1.0 Credits	Architecture & Design*	Architecture & Design*	
Capstone Course Courses: 1.0 Credits	Engineering Capstone*	Woods Capstone	Graphic Communications Capstone

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*Indicates Honors Option available to students

**Indicates Honors Option & Dual Credit available to students

<p>PRE-ENGINEERING 1 1st or 2nd semester Credit: 0.5 Level: 9-12 Supply fee: \$10.00</p>	<p>This introductory course to computer aided design covers practical drafting and problem-solving skills. Most work will be done on the computers using AutoCAD by Autodesk through the introduction of two and three-dimensional problems. Some manual sketching will be introduced during the drawing process. This course is also run as a Dual Credit class with Moraine Valley Community College with the possibility of 4 hours of college credit.</p>
<p>PRE-ENGINEERING 1 HONORS 1st or 2nd semester Credit: 0.5 Level 9:12</p>	<p>Pre-Engineering 1 w/honors option is recommended for the highly motivated student, especially those interested in pursuing a career in the field of Engineering. This course to computer aided design covers practical drafting and problem-solving skills. Students will be introduced to industry standard Autodesk products for two and three-dimensional problems. It is a hands-on course, which covers information on a basic level to understanding the concepts and commands necessary to create, edit, and plot drawings. This course is also run as a Dual Credit class with Moraine Valley Community College with the possibility of 4 hours of college credit.</p>
<p>PRE-ENGINEERING 2 1st or 2nd semester Credit: 0.5 Level: 9-12 Supply Fee: \$10.00</p>	<p>This follow-up course to Pre-Engineering 1 will enable students to develop more advanced techniques in computer aided design through three-dimensional modeling problems and more advanced two-dimensional drawing and dimensioning. The course will further explore Science, Technology, Engineering and Mathematics (S.T.E.M.) related content and provide the student with a strong background in STEM principles. AutoCAD will be used for most of this course. This course is also run as a Dual Credit class with Moraine Valley Community College with the possibility of 3 hours of college credit. Prerequisites: Pre-Engineering 1.</p>
<p>PRE-ENGINEERING 2 HONORS 1st or 2nd semester Credit: 0.5 Level: 9-12 Supply Fee: \$10.00</p>	<p>Pre-Engineering 2 w/honors option enables a student to develop more advanced techniques in computer aided design through an in-depth study of two- and three-dimensional modeling, drawing and dimensioning problems. Students will develop a presentation of an engineering field they are interested in. This course is also run as a Dual Credit class with Moraine Valley Community College with the possibility of 3 hours of college credit.</p>
<p>ENGINEERING & MANUFACTURING Full year Credit: 1.0 Level: 10-12</p>	<p>The goal of the Engineering & Manufacturing course is to expand the student's knowledge in the following areas: computer software usage, manufacturing processes, engineering and design, application of acquired knowledge in making production drawings, and career opportunities in a variety of engineering fields. This course continues exploration of Science, Technology, Engineering and Mathematics (S.T.E.M.)-related content. Engineering design projects will enable students to make the necessary connections between the STEM disciplines and the world around them. Students in this class will be expected to work at an accelerated pace on individual projects and some small group work. Students will be instructed on proper techniques using Autodesk Inventor to create 3D models. Using Inventor, students will create a model race car that demonstrates the power of this software package. A series of problems which require model construction is also part of the curriculum, including the use of 3D printing technology (rapid prototyping).</p>

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<p>Supply Fee: \$18.00</p>	<p>Robotics topics will also be covered in this course. During the semester, each student will create an individual portfolio of work.</p> <p>This course is also run as a Dual Credit class with Moraine Valley Community College with the possibility of a minimum of 3 hours of college credit tuition free. Prerequisite: Pre-Engineering 2</p>
<p>ENGINEERING & MANUFACTURING HONORS Full year Credit: 1.0 Level: 10-12</p> <p>Supply Fee: \$18.00</p>	<p>The core material for this course is similar to Engineering & Design course; however, projects and assessments will involve more depth, complexity, and rigor. Expectations for this course are much higher and will require additional time outside of class. This course is highly recommended for motivated students planning to enter a college engineering program.</p> <p>This course is also run as a Dual Credit class with Moraine Valley Community College with the possibility of a minimum of 3 hours of college credit tuition free.</p> <p>Prerequisites: Pre-Engineering 1 and Pre-Engineering 2</p>
<p>ARCHITECTURE & DESIGN Full year Credit: 1.0 Level: 10-12</p> <p>Supply Fee: \$20.00</p>	<p>Students will learn how to design and draw a complete set of architectural drawings necessary to construct a residential home. The student will apply Science, Technology, Engineering and Mathematics (S.T.E.M.) concepts to design and print a professional set of blueprints. Room planning, flow patterns, design concepts, floor plans, construction details, elevations, and presentation drawings will be completed during the first semester. The second half of the course will be dedicated to modeling their first semester designs. Information related to home construction, home building, building cost, permits and home buying will be explored and discussed.</p> <p>Prerequisite: Pre-Engineering 2</p>
<p>ARCHITECTURE & DESIGN HONORS Full year Level: 10-12 Credit: 1.0</p> <p>Supply Fee: \$20.00</p>	<p>The core material for this course is similar to Architecture & Design course #6630; however, projects and assessments will involve more depth, complexity, and rigor. Expectations for this course are much higher and will require additional time outside of class. This course is highly recommended for motivated students planning to enter a college engineering program or architecture program.</p> <p>Prerequisite: Pre-Engineering 2</p>
<p>ENGINEERING CAPSTONE Full year Credit: 1.0 Level: 12</p>	<p>This is the Capstone Course in the Engineering & Architecture program that will help prepare students for college and career readiness. Students will have additional challenges as they are introduced to several 3D modeling software programs. Students will be required to use the skills learned in both their engineering and architectural graphics courses as they make the transition from 2D drawings to 3D. Science, Technology, Engineering and Mathematics (S.T.E.M.) concepts will be integrated through the use of various project-based activities. Students will explore industry specific software programs, while developing 3D models and animating them. Students will use 3D digitizer technology for reverse engineering applications to accurately reproduce parts. They will also use 3D print technology (rapid</p>

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<p>Supply Fee: \$20.00</p>	<p>prototyping) to generate models for visual inspection and functional testing. More in depth robotic principles will be applied to solve problems with a programmable robot. An electronic portfolio will record all work completed during the school year. Students will leave the class with various 3D models and projects they produced.</p> <p>Prerequisite: Engineering & Manufacturing <u>OR</u> Architecture & Design.</p>
<p>ENGINEERING CAPSTONE HONORS Full year Credit: 1.0 Level: 12</p> <p>Supply Fee: \$20.00</p>	<p>The core material for this course is similar to course, however, projects and assessments will involve more depth, complexity, and rigor. Expectations for this course are much higher and will require additional time outside of class. This course is highly recommended for motivated students planning to enter a college engineering program.</p> <p>Prerequisite: Engineering & Manufacturing <u>OR</u> Architecture & Design</p>

GRAPHIC COMMUNICATION PROGRAM

<p>GRAPHIC COMMUNICATIONS 1 1st or 2nd semester Credit: 0.5 Level: 9-12</p> <p>Supply Fee: \$10.00</p>	<p>Graphic Communications 1 will be devoted to an in-depth study of graphic design, photo editing, digital illustrations, and screen print technology. Projects include photo retouching, designing and developing animated graphic ads, and creating advertising brochures using Adobe software such as Photoshop, Illustrator and InDesign. This course is highly recommended for students interested in college majors related to Entrepreneurship, Business, Marketing, Graphic Design, and Graphic Communications.</p> <p>This course MAY also run as a Dual Credit class with Moraine Valley Community College with the possibility of a minimum of 3 hours of college credit tuition free.</p>
<p>GRAPHIC COMMUNICATIONS 2 HONORS (FORMERLY GAME DESIGN) Full year Credit: 1.0 Level: 10-12</p> <p>Supply Fee: \$10.00</p>	<p>This course is an in-depth study of Adobe Photoshop, Illustrator, and InDesign building upon skills learned in Graphic Communications 1. Students will create designs appropriate for digital printing applications. Students will also have an opportunity to learn Game Design skill and theory. Employment and career opportunities in the field of graphic design will be discussed.</p> <p>Prerequisite: Graphic Communications I.</p>
<p>GRAPHIC COMMUNICATIONS CAPSTONE Full Year Credit: 1.0</p> <p>Supply Fee: \$10.00</p>	<p>This student-centered Capstone Course is designed for those who wish to apply the skills learned in their study of Graphic Communications more deeply to real world projects. Students will focus on several areas of personal interest and develop real world products in a client-project manager arrangement. The outcome of this course is a comprehensive electronic portfolio for use in many college and university admission processes.</p> <p>Prerequisite: Graphic Communications 1 & 2.</p>

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<p>DIGITAL VIDEO PRODUCTION 1st or 2nd semester Level: 9-12 Credit: 0.5</p>	<p>Digital Video Production (DVP) will give students an introduction to the basic techniques used to create professional short films and other digital media using their own smartphones. Classwork will include viewing and discussion examples as well as practical instruction in video production from concept through shooting and editing. Class sessions will include training on smart phone camera and gimbal operation, and digital editing using industry standard software. Students will learn through practical projects and will direct and produce their own audiovisual products. Prerequisite: None.</p>
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WOODS PROGRAM

<p>WOODS 1 Credit: 0.5 Level: 9-12</p> <p>Supply Fee: \$45</p>	<p>This one semester, introductory course to modern woodworking will allow students to help plan, design, and create at least three assigned wood projects using various types of wood and incorporating student choice. In addition, students will develop and practice safety in a wood shop laboratory. Prerequisite: None.</p>
<p>WOODS 2 Credit: 1.0 Level: 10-12</p> <p>Supply Fee: \$75</p>	<p>This follow-up course to Woods 1 will allow students to further their knowledge of woodworking by planning and building more advanced projects. In addition, students will use more technical set-ups to build projects that are assigned while also allowing for student choice. Prerequisite: Woods 2</p>
<p>WOODS CAPSTONE Level: 11-12 Credit: 1.0</p> <p>Supply Fee: \$75</p>	<p>This is an advanced woodworking course utilizing all of the information from Woods I and II. Students will design, plan and build a project of their own, consistent with their abilities, interest, and time. In addition, students will have the opportunity to design and build projects for Hinsdale Central High School. A fee will be applied as needed depending on projects built. Prerequisite: Woods 2</p>