TECHNOLOGY AND ENGINEERING EDUCATION

Major Strands	Entry Level	Intermediate/Advanced Level
Pre-Engineering (Honors) College Credit Possible	Introduction to Engineering Design **(Honors)**	Digital Electronics **(Honors)**
&	Principles of Engineering **(Honors)**	Civil Engineering & Architecture **(Honors)**
		Computer Integrated Manufacturing **(Honors)**
Technical	Design & Technology →	Design & Technology 2
Communications Graphics/ Technical Drafting →	Introduction to Engineering Design **(Honors)** →	Civil Engineering & Architecture **(Honors)**
	Drafting →	Civil Engineering & Architecture **(Honors)**
Manufacturing →	Robotics Technology 1 →	Computer Integrated Manufacturing **(Honors)**
Power, Energy & Transportation →	Power, Energy & Transportation →	Power, Energy & Transportation 2
Construction Technology →	Construction Technology →	Advanced Construction Technology
Electronics →	Digital Electronics **(Honors)**	

INTRODUCTION TO ENGINEERING DESIGN (Honors)
Grades: 9-12 **108711/108712**
+INT ENG DSN
1 CTE Credit
Prerequisite: None

This honors course develops students' problem-solving skills, with emphasis on visualization and communication skills, using a computer and 3-D solid modeling software. The student will learn to combine models into assemblies and animate the new assembled model in order to assess operation in a practical representation. Students will also learn how to import or convert the model for visual presentation or fabrication/prototyping possibilities. Students can receive 3 semester hours of transcribed college credit. A weighted grade is given for this course.

CONSTRUCTION TECHNOLOGY **107500**
Grades: 9-12
CONSTR TECH
1/2 CTE Credit
Prerequisite: None

Students will study the construction industry and methods used in construction. The major areas of investigation in the course are planning, designing and constructing the project. Students will know how a building is constructed from the beginning planning to the completion of roof and interior. Installation of mechanical systems, electrical systems, plumbing systems, and other systems will be studied. Many activities will be incorporated to demonstrate and reinforce the lessons. Students interested in engineering, architecture, and building trades careers may find this course of great benefit. Students may be asked to purchase consumables.

ADVANCED CONSTRUCTION TECHNOLOGY
Grades: 9-12 **107510**
ADV CONS TCH
1/2 CTE Credit
Prerequisite: Construction Technology

In this semester course, students will apply the technical skills learned in Construction Technology. Students will experience project design and site preparation, substructures and superstructures, utilities installation, enclosure, finishing and landscaping. Students will develop a project from conception to completion.

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DRAFTING **107070**
Grades: 9-12
DRAFTING
1/2 CTE Credit
Prerequisite: None

Drafting is the universal language of industry, as it is used in technical fields such as architecture, electrical, machining, and mechanical technologies. In this course, students will become familiar with the fundamentals of drafting and the significance it has in our present way of life. Areas to be covered include sketching, mechanical drawing, pictorials, views of objects and dimensioning. Students will use conventional techniques and/or CAD to complete drawings.

ROBOTICS TECHNOLOGY 1 **107680**
Grades: 9-12
ROBOTCS TECH
1/2 CTE Credit
Prerequisite: None

The field of robotics requires a working knowledge of electronics, mechanics and software. It is usually accompanied by a large working knowledge of many subjects. Focusing on mobile robots and using a hands-on, collaborative approach, students will be introduced to the basic concepts/systems, terminology, and programming involved in robotics. This course will be of specific interest to students who are interested in applications of electronics, computer science, and physics.

DESIGN AND TECHNOLOGY 1 **107121**
Grades: 9-12
DESIGN TECH
1/2 CTE Credit
Prerequisite: None

This is the first course in a two semester sequence of courses that provides opportunities for students to explore technologies in communications, design engineering, power, energy and transportation. Students will explore the fundamentals of Computer Aided Design Software and its application in the design process. Students will develop the necessary skills in design and problem solving to enable them to undertake a variety of problem solving and design tasks.

DESIGN AND TECHNOLOGY 2 **107132**
Grades: 9-12
DESGN TECH 2
1/2 CTE Credit
Prerequisite: Design and Technology 1 or Consent of Instructor

This is the second course in a two semester sequence of courses that provides opportunities for students to explore technology. In Design and Technology II, students cover information on the following systems: structural, mechanical, fluid, and alternative energy. Students analyze applications of technology through a process of investigation and exploration in these fields which create and produce manufactured goods, products, structures, and services in our society.

POWER, ENERGY, AND TRANSPORTATION TECHNOLOGY 1 **107050**
Grades: 9-12
PWR/EGY TEC1
1/2 CTE Credit
Prerequisite: None

Engineering and technology students will explore the prime movers for technology. The students study control and transmission of electrical, fluid, thermal, and mechanical energies. After learning the components for each prime mover system through practical application, the student couples power sources to control devices to transmit power to output equipment. In addition, students explore careers that use power and energy technology. Students may be asked to purchase consumables.

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POWER, ENERGY, AND TRANSPORTATION TECHNOLOGY 2 107060
Grades: 9-12
PWR/EGY TEC2
1/2 CTE Credit
Prerequisite: Power, Energy and Transportation Technology 1

Engineering and technology students experience electrical, fluids, thermal and mechanical energy applications. The students use the knowledge and skills learned in Power, Energy and Transportation 1 to solve problems associated with power, energy and transportation systems. Students research transportation systems topics. Students learn about small engines by removing parts of the engine and assembling them to restore the engines to running condition. Once the engine is running, the student couples it to drive hydraulic, pneumatic, or electrical output devices to provide direct application of the scientific principles supporting the power and energy application. In addition, students explore careers in power and energy technology. Students may be asked to purchase consumables.