TECHNOLOGY EDUCATION

TECHNOLOGY AND ENGINEERING *(formerly Introduction to Technology Education)*
Length of Course: Full Year
Grade(s): 9, 10, 11, 12
Credits: 0.5 credit per semester
Prerequisite: None
Other Requirements: $20 material fee is required

Technology and Engineering is a survey course of engineering. This course gives students the opportunity to develop skills and understanding of course concepts through hands on projects and problem solving.

HOME AND AUTO MAINTENANCE
Length of Course: One semester
Grade(s): 9, 10, 11, 12
Credits: 0.5 credit
Prerequisite: None

The biggest purchases of our lives are our vehicles and our homes. This class will take the basics of ownership and maintenance of both and teach you how to take care of them. This class will look at construction, reading floor plans, plumbing, electrical and maintenance of a house. The class will also look at the maintenance and purchase of small gasoline engines and automobiles. This class is for all students. A small lab fee may be required for consumable supplies. This class is NOT intended for students that are in or have completed the Construction Trades class.

INTRODUCTION TO WOODS
Length of Course: Full Year
Grade(s): 10, 11, 12
Credits: 0.5 credit per semester
Prerequisite: Technology and Engineering (formerly Introduction to Technology Education)
Other Requirements: Students will have to pay for the materials used in the construction of their projects

This woodworking course introduces the safe and precise use of woodworking equipment setup and operation. Construction techniques in cabinetry are taught providing an opportunity for students to learn different methods of joinery and finishing. Students will be assigned a project, which will enhance their skills before advancing to individual project work. This class will allow students to experience applied core curriculum through the application of problem solving.

INTRODUCTION TO BUILDING CONSTRUCTION
Length of Course: Full Year
Grade(s): 10, 11, 12
Credits: 0.5 credit per semester
Prerequisite: Technology and Engineering (formerly Introduction to Technology Education)

This course takes a hands-on approach while introducing students to basic skills and knowledge related to residential carpentry. Topics covered include OSHA safety, CAD design, figuring a materials list, engineering snow load, hand and power tool evaluation, floor framing, construction, framing, installing windows/doors, roofing materials and install, building trusses, fabrication based on construction plans. Throughout this course students will be preparing their knowledge base for future application on an actual site.

ENGINEERING DESIGN *(formerly Computer Aided Design for Engineers)*
Length of Course: Full Year
Grade(s): 10, 11, 12
Credits: 0.5 credit per semester
Prerequisite: Technology and Engineering (formerly Introduction to Technology Education)

This course is designed for students interested in computer aided design and engineering. Students will get a chance to be involved in numerous design activities ranging from designing a city of the future to 3D printing objects.

PRODUCTION ENGINEERING *(formerly Engine and Auto Design)*
Length of Course: Full Year
Grade(s): 11, 12
Credits: 0.5 credit per semester
Prerequisite: Engines & Power Systems I and Engineering Design

This course will take topics covered in Engineering Design and turn them into a 3D design project. Students will be involved with the complete design, layout, and construction of a high mileage vehicle chassis and components as a capstone project.

ENGINES AND POWER SYSTEMS I
Length of Course: Full Year
Grade(s): 11, 12
Credits: 0.5 credit per semester
Prerequisite: Technology and Engineering (formerly Introduction to Technology Education)

ENGINES AND POWER SYSTEMS II
Length of Course: Full Year
Grade(s): 11, 12
Credits: 0.5 credit per semester
Prerequisite: Engines and Power Systems I

CABINET AND FURNITURE MAKING
Length of Course: Full Year
Grade(s): 11, 12
Credits: 0.5 credit per semester
Prerequisite: Introduction to Woods *or* instructor consent
Other Requirements: Students will have to pay for the materials used in the construction of their project

CONSTRUCTION TRADES I
Length of Course: Two hour course, Full Year
Grade(s): 11, 12
Credits: 1.0 credit per semester
Prerequisite: Introduction to Building Construction *or* instructor consent
SPECIAL CONDITIONS: Students must have valid driver's license and auto insurance. Tools required: 16 oz. claw hammer, 16'-25'x1" tape measure, utility knife, speed square, and hammer holder with nail pouch. Leather closed toed shoes and weather appropriate clothing.

Imagine the pride of looking at a finished building and knowing that you helped build it. The construction trades can be a rewarding experience. This course provides students with actual on site work experience in the Construction Trades, as students travel to an off campus project(s) site to learn by doing. Students will experience stages of the building process and learn to utilize the tools of carpentry and related trades in a safe manner. Participation and work ethic are major components of this course.

MATERIALS AND PROCESSES I
Length of Course: Full Year
Grade(s): 10, 11, 12
Credits: 0.5 credit per semester
Prerequisite: Technology and Engineering (formerly Introduction to Technology Education)

Other Requirements: Fees may be required to purchase materials for projects

In this course students will learn the basic fundamentals of metal working. Students will learn the correct usage of hand tools, SMAW (Shielded Metal Arc Welding), GMAW (Gas Metal Arc Welding), Oxy/Acetylene Cutting and Welding, Machine Tool, and Sheet Metal equipment. Students will study how these scientific principles are related to the metalworking fundamentals and understand that the knowledge of this relationship will enhance their abilities as a fabricator.

MATERIALS AND PROCESSES II
Length of Course: Full Year
Grade(s): 11, 12
Credits: 0.5 credit per semester
Prerequisite: C or higher in Metals Manufacturing **or** Materials and Processes I and/or instructor consent
Other Requirements: Fees may be required to purchase materials for projects

In this course students will focus on improving their metalworking skills in order to be prepared to enter a technical college or an entry level position. Students will focus on SMAW (Shielded Metal Arc Welding), GMAW (Gas Metal Arc Welding), and Oxy/Acetylene Welding in multiple positions. In addition, students will gain knowledge in cutting with Oxy/Acetylene, Shears, Manual Plasma Cutter, and the Automated Plasma Cam. Students will also have the opportunity to hone their skills using Machine Tool Equipment and the study of foundry practices.

ENGINES AND POWER SYSTEMS II
Length of Course: Full Year
Grade(s): 11, 12
Credits: 0.5 credit per semester
Prerequisite: Engines and Power Systems I

BLUEPRINT READING (WELDING) (TC)
Length of Course: One hour course, Full Year
Grade(s): 12
Credits: 0.5 credit per semester
Prerequisite: Materials and Procesesses I and II
Other Information: Transcripted credit awarded at BTC

Blueprint Reading teaches students how to interpret and comprehend multiple types of prints found in the welding industry. Concepts taught in this course will be as follows: print reading basics, math and measurement, overview of welding processes, types of welds and joints, and welding symbol use.

GAS METAL ARC WELDING (TC)
Length of Course: Two hour course, Full Year
Grade(s): 12
Credits: 1.0 credit per semester
Prerequisite: C or higher in Metals Manufacturing **or** Materials and Processes II and/or instructor consent
Other Information: Transcripted credit awarded at BTC
Co-requisite: Must take Blueprint Reading and Shop Math I

CONSTRUCTIONS TRADES II
Length of Course: Two hour course, Full Year
Grade(s): 12
Credits: 1.0 credit per semester
Prerequisite: Construction Trades I *or* instructor consent
SPECIAL CONDITIONS: Students must have valid driver's license and auto insurance. Tools required: 16 oz. claw hammer, 16'-25'x1" tape measure, utility knife, speed square, and hammer holder with nail pouch. Leather closed toed shoes and weather appropriate clothing.

This course is a continuation of Construction Trades I. Students will also be learning through work site experiences in the Construction Trades as they travel to an off campus project(s) site. Students will experience stages of the building process and learn to utilize the tools of carpentry and related trades in a safe manner. Participation and work ethic are major components of this course.