MACHINE SHOP (420)

420-520 - Mold Making
Introduces Tool and Die Making apprentices to mold making. Explores construction principles, processes and basic molding applications. Emphasizes plastic injection molding. Must be a state-contracted apprentice to enroll in this course.
1 Credit hours
18 Lecture hours
18 Lab hours

420-561 - Jigs and Fixtures
Introduces basic theory and skills of jig and fixture making. Must be a state-contracted apprentice to enroll in this course.
0.5 Credit hours
18 Lecture hours

420-563 - Machine Technology
Includes principles and nomenclature of the tool and die industry. Emphasizes terminology, function and operation of basic machine tools. Covers measuring tools and layout tools used in tool making. Must be a state-contracted apprentice to enroll in this course.
1 Credit hours
36 Lecture hours

420-565 - Computer Numerical Control
Introduces manual Fanuc-Haas programming controlling a three-axis machining center. Students receive a solid background in numerical control theory such as axis designation, measuring and location systems, formats, advantages and disadvantages of NC and CNC. Students work with tape format reading, tape preparation and disk storage, and they write several programs using computers, the CNC machines and tape to produce the part. Must be a state-contracted apprentice to enroll in this course.
1.5 Credit hours
36 Lecture hours
18 Lab hours

420-571 - Sinker/Wire EDM
Introduces students to operation of EDM wire metal cutting machines. Students learn basic machine components as well as layout, maintenance, calibration and programming. Must be a state-contracted apprentice to enroll in this course.
1.5 Credit hours
36 Lecture hours
18 Lab hours

420-572 - 3D CAD
Introduces basic SolidWorks parametric-based solid modeling techniques. Exercises will include creating and editing solid parts, assemblies and drawings. Top-down and bottom-up designing techniques will be applied to product design, sheet metal and mold tooling exercises. Exploded views, bill of materials, animations, finite element analysis and configurations will be created. Explores file conversions to and from various software. Must be a state-contracted apprentice to enroll in this course.
1.5 Credit hours
36 Lecture hours
18 Lab hours

420-579 - Introduction to Computer-Aided Manufacturing
Incorporates computer-aided manufacturing skills in the construction of geometry, developing a tool path, post processing, and basic dimensioning. Previous blueprint reading and computer numerical control programming is very helpful. Must be a state-contracted apprentice to enroll in this course.
1 Credit hours
18 Lecture hours
18 Lab hours

420-580 - 2D CAD
Introduces students to computer-aided drafting (CAD) using the current CAD software. Students develop skills in drawing setup and organization, as well as drawing and editing objects. Students create complex shapes, add dimensions and text, utilize display and layer controls, implement symbols, and plot drawings. No computer experience required, but a background in fundamental blueprint reading and/or drafting skills is recommended. Must be a state-contracted apprentice to enroll in this course.
1 Credit hours
18 Lecture hours
18 Lab hours

420-586 - Die Making
Studies stamping die technology including piercing, blanking, bending and compound dies. Must be a state-contracted apprentice to enroll in this course.
1 Credit hours
18 Lecture hours
18 Lab hours