

**MATT - 1004 Basic Industrial Machining, 4.00 Credits**

Level: Lower  
Course Fee \$106.00

This introductory course is designed to instill safe shop methods and procedures along with the proper and safe use of all equipment associated with Machine Tool Technology. Also incorporated in this introductory course is the proper use of basic measuring tools and hand tools. Students will be instructed in the proper operation of the power saw, drill press and pedestal grinder.

**MATT - 1014 Industrial Machining I, 4.00 Credits**

Level: Lower  
Applied Learning-Practicum

Students will be instructed in the proper operation of power Basic lathe operations will be presented. The student will demonstrate their proficiencies on this equipment by producing specifically assigned projects.

**MATT - 1024 Industrial Machining II, 4.00 Credits**

Level: Lower  
Applied Learning-Practicum

This course is designed to develop basic skills on the vertical milling machine. Projects will be assigned to allow the student to demonstrate the various skill levels required.

**MATT - 1234 Industrial Machining III, 4.00 Credits**

Level: Lower  
Applied Learning-Practicum, Course Fee \$106.00

The student will be instructed in advanced lathe operations and procedures. These will include precision turning, maintaining closer tolerances, and gage threading with the use of carbide tool cutters. The student will demonstrate the various skills required by producing assigned advanced level projects.

**MATT - 1244 Industrial Machining IV, 4.00 Credits**

Level: Lower

The student will be instructed in advanced vertical milling operations and procedures. These will include advanced vertical milling machine set-up (i.e. sine plates and indexing heads) and operations (i.e. dove tail and t-slot cutting). The student will demonstrate the various skills required by producing assigned advanced level projects.

**MATT - 1254 Industrial Machining V, 4.00 Credits**

Level: Lower  
Applied Learning-Practicum

The student will be instructed in the safe operation of the horizontal milling machine and the surface grinder. The student will demonstrate the various skills required by producing assigned projects.

**MATT - 1713 Reading Engineering Drawings, 3.00 Credits**

Level: Lower

The transfer of ideas from the Engineering Department to the manufacturing area is accomplished through the use of Engineering drawings. This course will explain how information is conveyed through the use of ANSI standard drafting procedures and the correct interpretation of that information by the machinist.

**MATT - 1723 Reading Engineering Drawings II, 3.00 Credits**

Level: Lower

The transfer of ideas from the Engineering Department to the manufacturing area is accomplished through the use of engineering drawings. This course will be a continuation of MATT 1713 and will explain how advanced information is conveyed through the use of ANSI standard drafting procedures. The correct interpretation of this advanced information will be used by the machinist to produce mechanical parts on the various machine tools in the shop. These major topics will be included: auxiliary views, assembly drawings, weldment drawings, and threads and fasteners.

**MATT - 1913 Machinist Calculations I, 3.00 Credits**

Level: Lower

Basic mathematical functions used by the machinist in the performance of their duties will be the subject of this course. Mathematical operations such as manipulation of fractions, decimals and unilaterally converting between the two and into the metric measurement system along with calculating speeds and feeds, tapers and depths of cut will be taught in this course. Successful completion of this course requires a grade of "C" or better.

**MATT - 1923 Machinist Calculations II, 3.00 Credits**

Level: Lower

This course is a combination of both basic geometry (both plane and solid) and trigonometry. Both of these branches of mathematics will be trade related and will focus on the math needed by the machinist, CAD drafter, and welder to perform their required tasks. Successful completion of this course requires a grade of "C" or better.

**MATT - 3003 Geometric Dimensioning & Toler, 3.00 Credits**

Level: Lower

Geometric Dimensioning and Tolerancing is dimensioning associated with the tolerancing of individual characteristics of a part where permissible variations relate to form, profile, radial relationship to an axis, orientation of one feature to another, and location of features. Applications of all symbols and proper interpretation will be stressed. Application of various principles referenced in the current specification will be presented.

**MATT - 3005 Intro to CNC Machine Program, 5.00 Credits**

Level: Lower  
Course Fee \$106.00

As the most fundamental part of the CNC lathe and its operation, the coordinate grid is covered in detail in this module. Three levels of program preparation are discussed: EIA, APT, and Conversational. Since APT and Conversational languages are normally translated into EIA codes before execution on the machine, a more detailed look at the elements of the EIA coding system is then provided.

**MATT - 3015 CNC Industrial Machining I, 5.00 Credits**

Level: Lower  
Applied Learning-Practicum

The student will use the horizontal and vertical mill in a safe manner, and will perform various external and internal operations including drilling, power tapping, milling of slots, keyways, boring, laying out bolt circles using x and y coordinates. Students will write step-by-step procedures and will use math formulas to calculate machine time and will draw basic prints for machining purposes.

**MATT - 3025 CNC Industrial Machining II, 5.00 Credits**

Level: Lower  
Applied Learning-Practicum

The mechanical components of the lathe are explained in this module. The terminology established here is used throughout the balance of the instruction. Because of the variety of turret styles and automatic tool handling mechanisms found on CNC lathes, several configurations are shown along with an explanation of how each operates.

**MATT - 4003 Senior Project, 3.00 Credits**

Level: Lower  
Applied Learning-Creative Work

This course is designed as a capstone project to verify a student's ability in all aspects of machining. The student will be required to identify a need for a new product or improvement on an existing product. After identification, the completion of the project will occur with minimal instructor guidance, which will allow the student to demonstrate their ability to perform independently. Upon completion, the student will demonstrate the functionality of their project in the form of a formal presentation.

**MATT - 4005 CNC Industrial Machining III, 5.00 Credits**

Level: Lower  
Applied Learning-Practicum, Course Fee \$106.00

An industrially accepted CAD/CAM system to generate CNC programs will be used throughout this module. The students will be able to produce full programs and download these in the CNC lathe and mill producing a part. Trouble shooting and correction of program errors will be stressed. Proper fixturing and setup of rough material will be presented.

**MATT - 4015 CNC Industrial Machining IV, 5.00 Credits**

Level: Lower  
Applied Learning-Practicum

CNC programs may be refined regardless of mode of generation. Through this module the students will learn to correct flaws and will produce a finished part within the tolerance of the print and be geometrically correct. The concepts of fixturing and manufacturing will be related using geometric dimensioning and tolerancing.

**MATT - 4025 CNC Industrial Machining V, 5.00 Credits**

Level: Lower

Applied Learning-Practicum

The student will be required to set up many various complex parts. Students will use all of their recently acquired knowledge for previous courses to complete set-ups in conjunction with programming using canned cycles on the turning and machining centers. The student will be expected to develop the programming for the desired part, download to the proper machine, and produce the desired part. All of these tasks will be performed with minimum supervision.