

# MACHINE TOOL TECHNOLOGY, A.A.S. - MTT3

Because of the rapid advances made in industrial technology over the past decade, few career fields have grown as much as metalworking. Students in this program get a full introduction to the field and practical experience in machining operations used in practically every manufacturing industry.

The graduate, highly skilled in the use of precision machines and instruments, is capable of making intricate parts meeting precise specifications. With practical experience in bench work, floor work, assembly layout, selected milling machine operations, lathe, shaper, drill press, numerical control programming and machining, machine tool maintenance and inspection, the graduate is prepared to handle a wide range of responsibilities in the metalworking industry. This curriculum offers a certificate in Machine Tool Operator. Upon completion of 65 credit hours, a student will be awarded an Associate in Applied Science degree with a major in Machine Tool Technology. A student may elect to receive a Diploma in Applied Science with a major in Machine Tool after completion of 40 credit hours.

## Requirements

Courses	Course Title	Credit Hours
<b>General Education Courses</b>		
ENG 165	Professional Communications (or approved ENG course)	3
Select one of the following:		3
MAT 170	Algebra, Geometry and Trigonometry I	
MAT 110	College Algebra	
MAT 120	Probability and Statistics	
MAT 171	Algebra, Geometry and Trigonometry II	3
or MAT 111	College Trigonometry	
Elective Social/Behavioral Sciences ( <a href="https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/">https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/</a> )		3
Elective Humanities/Fine Arts ( <a href="https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/">https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/</a> )		3
Subtotal		15
<b>Required Core Subject Areas</b>		
MTT 120	Machine Tool Print Reading	3
MTT 121	Machine Tool Theory I	3
MTT 123	Machine Tool Theory II	3
MTT 130	Fundamentals of Geometric Dimensions and Tolerances	2
MTT 141	Metals and Heat Treatment	3
MTT 250	Principles of CNC	3
Subtotal		17
<b>Other Courses Required for Graduation</b>		
CPT 169	Industrial Computer Applications	3
MTT 122	Machine Tool Practice I	4

MTT 124	Machine Tool Practice II	4
MTT 126	Machine Tool Practice III	4
MTT 143	Precision Measurements	2
MTT 161	Machine Tool Maintenance Theory	2
MTT 222	Tool and Diemaking Practice I	4
MTT 224	Tool and Diemaking Practice II	4
MTT 251	CNC Operations	3
MTT 253	CNC Programming and Operations	3
Subtotal		33
Total Hours		65

## Graduation Plan

### Fall Start

Course	Title	Hours
<b>Fall Semester</b>		
MAT 170	Algebra, Geometry and Trigonometry I	3
MTT 120	Machine Tool Print Reading	3
MTT 121	Machine Tool Theory I	3
MTT 122	Machine Tool Practice I	4
MTT 143	Precision Measurements	2
Hours		15

### Spring Semester

ENG 165	Professional Communications	3
MTT 123	Machine Tool Theory II	3
MTT 124	Machine Tool Practice II	4
MTT 250	Principles of CNC	3
Hours		13

### Summer Semester

MTT 126	Machine Tool Practice III	4
MTT 141	Metals and Heat Treatment	3
MTT 161	Machine Tool Maintenance Theory	2
Elective Social/Behavioral Sciences ( <a href="https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/">https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/</a> )		3
Hours		12

### Second Year

#### Fall Semester

MAT 171	Algebra, Geometry and Trigonometry II	3
MTT 130	Fundamentals of Geometric Dimensions and Tolerances	2
MTT 222	Tool and Diemaking Practice I	4
MTT 251	CNC Operations	3
Hours		12

#### Spring Semester

CPT 169	Industrial Computer Applications	3
MTT 224	Tool and Diemaking Practice II	4
MTT 253	CNC Programming and Operations	3

Elective Humanities/Fine Arts ( <a href="https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/">https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/</a> )	3
Hours	13
Total Hours	65

## Spring Start

Course	Title	Hours
<b>First Year</b>		
<b>Spring Semester</b>		
ENG 165	Professional Communications	3
MTT 123	Machine Tool Theory II	3
MTT 124	Machine Tool Practice II	4
MTT 250	Principles of CNC	3
Hours		13

## Summer Semester

MTT 126	Machine Tool Practice III	4
MTT 141	Metals and Heat Treatment	3
MTT 161	Machine Tool Maintenance Theory	2
Elective Social/Behavioral Sciences ( <a href="https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/">https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/</a> )		3
Hours		12

## Fall Semester

MAT 170	Algebra, Geometry and Trigonometry I	3
MTT 120	Machine Tool Print Reading	3
MTT 121	Machine Tool Theory I	3
MTT 122	Machine Tool Practice I	4
MTT 143	Precision Measurements	2
Hours		15

## Second Year

<b>Spring Semester</b>		
CPT 169	Industrial Computer Applications	3
MTT 224	Tool and Diemaking Practice II	4
MTT 253	CNC Programming and Operations	3
Elective Humanities/Fine Arts ( <a href="https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/">https://catalog.ptc.edu/student-handbook/advising-registration/general-education-courses/</a> )		3
Hours		13

## Fall Semester

MAT 171	Algebra, Geometry and Trigonometry II	3
MTT 130	Fundamentals of Geometric Dimensions and Tolerances	2
MTT 222	Tool and Diemaking Practice I	4
MTT 251	CNC Operations	3
Hours		12
Total Hours		65

## Application and Advising

If you are ready to start your education, there are a few simple steps involved in enrolling at Piedmont Technical College.

Get Started Today (<https://www.ptc.edu/admissions/new-students/>)

## Advising Information

The following information provides a guide for advisors who are helping students enroll in this program.

## Program Notes

To help students maximize financial aid opportunities as well as help ensure that students take their courses in the appropriate sequence, it is recommended that students entering Machine Tool Technology be admitted to the associate degree program, rather than certificate or diploma programs. The certificates and diplomas can be earned and awarded as they are completed within the associate degree program. Be aware that not all MTT courses are offered each semester, so the best practice is to advise students to take the courses as outlined in the semester-by-semester graduation plan (see below).

Ensure that first-term students take all MTT courses, even if developmental courses are needed. Ask the department head or full-time instructor for the best match. First-semester students in the FALL who are enrolled in developmental study courses should sign up for the following MTT courses: MTT 143, MTT 120, MTT 121, MTT 122.

Developmental students enrolling in the Spring or Summer should be advised by the MTT faculty members.

MTT courses are offered during days and evenings.

This degree is offered in Greenwood, and some classes toward the degree can be completed at the L-CAM (Laurens). At this time, the associate degree can not be entirely completed in Laurens.

The Machine Tool student should be prepared to purchase \$350 worth of hand-tools necessary for project work. A good calculator with sine, cosine and tangent functions, along with fractional/decimal equivalent is recommended (TI-36X Solar by Texas Instruments). Safety glasses are required.

## Notes About Individual Classes

The English required for this program is ENG 165. Students will follow this progression, with their starting point being determined by their placement test scores: ENG 032/012 and/or RDG 032/012 (or RWR 032/012) > ENG 100 and/or RDG 100 (or RWR 100) > ENG 165. To schedule developmental English, substitute in place of ENG 165 during the Spring semester.

The math required for this program is MAT 170. Students will follow this progression, with their starting point being determined by their placement test scores: MAT 032/012 > MAT 170. To schedule developmental math, substitute in place of MAT 170 during the Fall semester.

Students may earn a Machine Tool Operator certificate by completing the following courses successfully (25 cr. hrs.): MTT 121, 122, 143, 250, 120, 123, 124 and CPT 169.



## **Program Student Learning Outcomes**

### **Purpose Statement**

The purpose of the Machine Tool Technology program is to provide the technical instruction and practical experience for skill development to enable the student to become gainfully employed in the Machine Tool Technology field.

### **Program Student Learning Outcomes**

1. Apply theoretical knowledge gained in class to complete metal working projects to blueprint requirements.
2. Setup and safely operate all machine tools required for project completion.
3. Apply the proper use of measuring tools for the completion of projects within stated limits.
4. Maintain the personal discipline to complete projects on time.
5. Use technology in machine shop related to on the job requirements.
6. Use applicable tooling correctly during various machining operations.