

# PRECISION METROLOGY - (QUICKSKILLS) CERTIFICATE - PMC6

The Precision Metrology certificate is designed to upgrade or refresh skills for people familiar with measuring systems required in Advanced Manufacturing industries. Working with tolerances on the order of millionths of an inch, Quality Control Inspectors require the knowledge to operate highly sophisticated inspection equipment such as optical comparators, profilometers and CMM (Coordinate Measuring Machine) systems. A good mathematical background and understanding of complex GDT (Geometric Dimensioning & Tolerancing) drawings is also required to determine the exact parameters to be inspected and how to process a part during the inspection sequence. The classes included in this certificate will benefit those with the responsibility to inspect manufactured products and also would be beneficial to any machine operator or shop manager interested in learning new techniques for inspection. The classes will require students to operate CNC equipment along with all the available inspections tools. A ZEISS Scanning CMM will be the major component of this program along with the available CMM 3D Simulation Software provided by ZEISS. Students will be encouraged to bring samples of personal work to be inspected or 3D CAD drawings used for the simulation software.

## Requirements

Courses	Course Title	Credit Hours
<b>Required Course Information</b>		
CPT 169	Industrial Computer Applications	3
MTT 120	Machine Tool Print Reading	3
MTT 130	Fundamentals of Geometric Dimensions and Tolerances	2
MTT 141	Metals and Heat Treatment	3
MTT 243	Advanced Dimensional Metrology Machinists	3
MTT 270	Operation and Programming of Coordinate Measuring Machines	3
Total Hours		17

## Graduation Plan

### Fall Start

Course	Title	Hours
<b>First Year</b>		
<b>Fall Semester</b>		
CPT 169	Industrial Computer Applications	3
MTT 120	Machine Tool Print Reading	3
MTT 243	Advanced Dimensional Metrology Machinists	3
Hours		9

### Spring Semester

MTT 130	Fundamentals of Geometric Dimensions and Tolerances	2
MTT 141	Metals and Heat Treatment	3
MTT 270	Operation and Programming of Coordinate Measuring Machines	3
Hours		8
Total Hours		17

## 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

This program is designed for people with some knowledge of inspection/quality/machining. This knowledge could be from experience from school or the workplace, including familiarity with reading blueprints and using basic measuring tools.

MTT courses are offered during days and evenings.

This certificate is primarily industry driven and can be completed in special terms. It is offered by demand at L-CAM.

## Program Purpose Statement

The Manufacturing Production Technician Certificate program provides education, training, and preparation for career opportunities in entry-level positions in advanced manufacturing facilities.

## Program Student Learning Outcomes

1. Demonstrate the ability to correctly use metrology equipment/instruments
2. Apply theoretical knowledge of mathematical, statistical, geometric and CNC skills gained in class to setup correct measuring processes
3. Setup and safely operate all machine tools required for project completion.
4. Apply the appropriate measuring tools for inspection requirements.
5. Use measurement technology in the lab related to on the job requirements.
6. Demonstrate proficiency in CMM (Coordinate Measuring Machine) technology including fixturing.