PIEDMONT Technical College
Your goals. Our mission.

QuickSkills: Advanced Manufacturing Curriculum

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Program Overview

In today's Advanced Manufacturing operations, qualified employees are essential to a successful production operation. The Quickskills training programs listed below allow people to learn in a relatively short time frame the necessary entry level skills to help them start work with more than a basic understanding. These programs will introduce LEAN techniques for continuous improvement, SPC (Statistical Process Control) of quality operations to produce high quality parts, and precision measurements using instruments for close tolerance work. Additionally, career focus courses will be covered based on specific areas such as CNC (Computerized Numerical Control), TQM (Total Quality Management) technicians, Mechatronics and other career related choices. All participants will be required to undergo WorkKeys testing which is rapidly becoming the required testing tool for pre-employment hiring. Additionally, these courses are curriculum based and eligible for credit towards an Associate in Applied Science degree in a number of disciplines.

Courses with a prefix of IMT or MET must be less than 8 years old in order to count toward a certificate, diploma or degree program.

PROGRAM REQUIREMENTS

Precision Metrology Certificate

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.

REQUIRED COURSE INFORMATION

COURSES		CREDIT HOURS
CPT 169	Industrial Computer Applications	3.0
MAT 101	Beginning Algebra	3.0
	or MAT 152 Elementary Algebra	
MTT 130	Fundamentals of Geometric Dimensions and Tolerances	2.0
MTT 243	Advanced Dimensional Metrology for Machinists	3.0
MTT 250	Principles of CNC[2]	3.0
MTT 270	Operation and Programming of Coordinate Measuring Machines	3.0

SUBTOTAL: 17.0
TOTAL CREDIT HOURS: 17.0

Manufacturing Production Technician

This certificate will offer training and preparation for career opportunities in entry-level positions in today's advanced manufacturing facilities.

These skills will align with the core needs of today's manufacturing operations. The curriculum includes mathematical and statistical techniques and applications, industrial safety and operational principles, production process cycle including resource availability, product specifications and state-of-the-art manufacturing practices, including Lean Manufacturing tools and techniques.

REQUIRED COURSE INFORMATION

COURSES		CREDIT HOURS
IMT 101	Introduction to Industrial Maintenance	2.0
IMT 210	Basic Industrial Skills I	3.0
IMT 170	Statistical Process Control	3.0
MET 235	Manufacturing Engineering Principles	2.0

SUBTOTAL: 10.0
TOTAL CREDIT HOURS: 10.0

Machine Tool CNC Precision Operator

The certificate teaches the core principles and practices for employment as an entry-level CNC operator.

Students in this program will be introduced to modern practices which include Precision Measurement techniques and the foundational principles of CNC Operations. Students will learn and perfect introductory skills in the programming and daily maintenance of CNC machines. Various types of automated equipment, such as Coordinate Measuring Machines are utilized so that students gain practical experience that will help them obtain gainful employment in industry.

Note: *The CNC6 Certificate is primarily focused on providing training for the industrial and manufacturing sectors. Students are required to contact their primary advisor before enrolling into the CNC6 Certificate.*

REQUIRED COURSE INFORMATION

COURSES		CREDIT HOURS
MTT 105	Machine Tool Math Applications	3.0
MTT 120	Machine Tool Print Reading	3.0
MTT 121	Machine Tool Theory I	3.0
MTT 130	Fundamentals of Geometric Dimensions and Tolerancing	2.0
MTT 143	Precision Measurements/CMM	2.0
MTT 251	CNC Operations	3.0
MTT 253	CNC Programming and Operation	3.0

SUBTOTAL: 19.0
TOTAL CREDIT HOURS: 19.0

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