

# Precision Machining Technology



## Recommendations for Success:

- Physical Stamina/Ability to lift 40 pounds
- Discrimination by size/shape
- Discrimination by touch
- Structural mechanical visualization/reasoning
- Retention of mechanical and structural detail
- Follow safety precautions
- Good computer skills
- Excellent eye-hand coordination
- Stand for long periods of time
- Tolerate noise and enclosed conditions
- Algebra and Trigonometry fundamentals
- Mechanical aptitude
- Manual dexterity

<b>Lenape Technical School</b>	<b>Precision Machining Technology</b>
<b>Objective of field</b>	Precision Machining Technology is designed to provide each student with the latest technological skills needed for entry in the metalworking occupations. Students have the opportunity to operate state-of-the-art equipment, such as Computer Numeric Controlled (CNC), EDM, and waterjet machines.
<b>Job Duties</b>	<p>Students have the opportunity to operate state-of-the-art equipment, such as the Computer Numeric Controlled (CNC) machine, EDM, and Waterjet machine. They also gain experience with the hands-on operation of standard machine tools used in the industry such as:</p> <ul style="list-style-type: none"> <li>• Drill presses</li> <li>• Metal saws</li> <li>• Lathes</li> <li>• Milling machines</li> <li>• Surface grinders</li> </ul> <p>Related theory acquaints students with metal cutting applications, material properties, layout work, and construction and assembly of machinery.</p>
<b>Classroom Tests</b>	<p>All tests (with the exception of NIMS) will be completed online using Lenape Tech's Moodle site:</p> <ul style="list-style-type: none"> <li>-Safety tests on all machines and equipment</li> <li>-Decimal Equivalents</li> <li>-RPM and Feed Calculations</li> <li>-National Institute for Metalworking Skills (NIMS) on-line testing</li> </ul> <p>Year 1: 15-18*  Year 2: 8-10*  Year 3: 4-6*</p> <p><i>*The number of tests is approximate and is subject to change based on how quickly the student progresses throughout the year.</i></p>
<b>Certification Tests</b>	<p>NIMS Level 1 &amp; Level 2  OSHA 10 Hour  Fork Lift  First Aid  CPR</p>
<b>Books</b>	<p>Students will use 1 textbook and 3-4 references  <u>Precision Machining Technology</u>  <u>MasterCAM Training Guide</u>  Tooling U courses</p>
<b>Lecture Time</b>	<p>Year 1: 2-3 hours per week of formal/informal lecture*  Year 2: 1-2 hours per week of formal/informal lecture*  Year 3: 1-2 hours per week of formal/informal lecture*</p> <p><i>*This number is approximate and subject to change. Lecture time depends on the class size and how fast the students can master the content.</i></p>
<b>Co-op/Clinical</b>	<ul style="list-style-type: none"> <li>• Student must have completed 4 of 8 NIMS certifications towards the PA skills test</li> <li>• Student must have completed 80% of shop competencies</li> <li>• Student must obtain parental permission</li> <li>• Student must receive approval from all members of the professional staff</li> <li>• Student must have a "B" grade or higher in all subjects</li> <li>• Student must have a satisfactory discipline record</li> <li>• Student must maintain passing grades while they are in the co-op program</li> <li>• Student must maintain strong attendance record and demonstrate punctuality</li> </ul>



<b>Lenape Technical School</b>	<b>Precision Machining Technology</b>
<b>Soft Skills</b>	<ul style="list-style-type: none"> <li>• Listening</li> <li>• Reasoning (inductive/deductive)</li> <li>• Critical thinking</li> <li>• Patience</li> <li>• Ability to pace work</li> <li>• Verbal communication</li> <li>• Peer tutoring</li> </ul>
<b>Computer Skills</b>	<ul style="list-style-type: none"> <li>• Microsoft Word, Excel, and Powerpoint</li> <li>• DWG and DXF CADD file manage</li> <li>• Plasma CAM</li> <li>• MasterCAM</li> <li>• Solidworks</li> </ul>
<b>Physical Requirements</b>	<ul style="list-style-type: none"> <li>• Lift 40 pounds</li> <li>• Stand for extended periods of time</li> </ul>
<b>Vocational Testing Essential Aptitudes for lab recommended levels</b>	<ul style="list-style-type: none"> <li>• Structural mechanical visualization/reasoning</li> <li>• Discrimination by size/shape</li> <li>• Gross/fine motor skills</li> <li>• Manual dexterity</li> <li>• Retention of mechanical and structural detail</li> </ul>
<b>Training</b>	<p>Lenape Tech's Precision Machining Technology program is a NIMS (National Institute for Metalworking Skills) training and certification site. Students will have the opportunity to achieve NIMS Level 1 and Level 2 machining credentials as part of the program course of study.</p>
<b>Uniform Requirements</b>	<p><b>Student's Expense:</b></p> <ul style="list-style-type: none"> <li>• Shop shirt</li> <li>• Lenape Tech Polo Shirt</li> <li>• Hard sole shoes or boots</li> <li>• Safety glasses</li> </ul>
<b>Articulation/Agreements</b>	<p>This is a program of study (POS) with a state-wide articulation agreement with post-secondary institutions. To find these, please see: <a href="http://www.collegetransfer.net">www.collegetransfer.net</a> for this CIP Code: 48.0501</p>
<b>Employment/Job Outlook</b>	<p>Overall employment of machinists and tool and die makers is expected to grow 7 percent from 2010 to 2020, slower than the average for all occupations. Employment growth will vary by specialty.</p> <p>Employment of machinists is projected to grow 8 percent from 2010 to 2020, slower than the average for all occupations.</p> <p>Despite improvements in technologies such as CNC machine tools, autoloaders, high-speed machining, and lights-out manufacturing, machinists will still be required to set up, monitor, and maintain these automated systems.</p> <p>In addition, employers are expected to continue needing machinists who have a wide range of skills and are capable of performing modern production techniques and almost any task in a machine shop. As manufacturers will continue to rely heavily on skilled machinists as they invest in new equipment, modify production techniques, and implement product design changes more rapidly.</p> <p>Employment of tool and die makers is projected to experience little or no change from 2010 to 2020. Foreign competition in manufacturing and advances in automation, including CNC machine tools and computer-aided design, should improve worker</p>

<b>Lenape Technical School</b>	<b>Precision Machining Technology</b>		
<b>Employment/Job Outlook Continued</b>	productivity, requiring fewer workers.		
	<b>Entry Level</b>	<b>2-Year Associates Degree</b>	<b>4-Year Bachelor's Degree</b>
	Machine Operator Machinist Tool and Die Maker Precision Surface Grinder EDM Operator CAD/CAM Programmer CNC Operator	Manufacturing Technology Metrology CAD/CAM/CNC Avionics Technician	Electrical Engineer Optical Engineer Industrial Engineer Robotics Engineer Plastics Engineer
<b>How to find out more?</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.bls.gov/ooH/production/machinists-and-tool-and-die-makers.htm#tab-">http://www.bls.gov/ooH/production/machinists-and-tool-and-die-makers.htm#tab-</a></li> <li>• <a href="http://www.onet.org">http://www.onet.org</a></li> <li>• <a href="Http://www.nims-skills.org">Http://www.nims-skills.org</a></li> </ul>		