



# Machine Tool Technology

Career Cluster	Manufacturing
Course Code	13203
Prerequisite(s)	Algebra 1 Recommended
Credit	TBD
Graduation Requirement	No
Program of Study and Sequence	Manufacturing Cluster Course – <b>Machine Tool Technology</b> – Advanced Machine Tool Technology
Student Organization	Skills USA
Coordinating Work-Based Learning	Field trips
Industry Certifications	National Institute for Metalworking Skills (NIMS)
Dual Credit or Dual Enrollment	Articulated credit available
Teacher Certification	
Resources	

## Course Description:

Machine Tool Technology students will be exposed to basic machining processes, safety, math skills, and machining operations. The desire is for the student to succeed at a basic level through fabrication of various required projects.

## Program of Study Application

Machine Tool Technology is a pathway course in the Manufacturing cluster Machining pathway. This course follows a cluster course and is a prerequisite for Advanced Machine Tool Technology.

**Course Standards**

**MT 1 Demonstrate knowledge of safety and essential academic concepts in Machine Tool**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One Recall	MT 1.1 Explain and show knowledge of machine shop operations and tool safety procedures consistent with Occupational Safety and Health Administration (OSHA) standards	<p>Suggested:</p> <ul style="list-style-type: none"> <li>• Introduction of Personal Protective Equipment (PPE) and uses.</li> <li>• Identify hazards present in the machine shop.</li> <li>• Test knowledge of safety practices used in the shop.</li> <li>• Identify and recall basic parts to machines</li> <li>• Introduction to Occupational Safety &amp; Health Administration (OSHA)</li> </ul>
Two Skill/Concept	MT 1.2 Introduce concepts of basic mathematics, blueprint reading, science, and communications used in machine tool processes.	<p>Suggested:</p> <ul style="list-style-type: none"> <li>• Ability to read tape measures, steel rules fractions, and decimals.</li> <li>• Calculate basic machine tool formulas related to various machining projects.</li> <li>• Identify characteristics of various materials used.</li> <li>• Identify and differentiate line types, tolerances and views of blueprints</li> </ul>

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One Recall	MT 1.3 Understand basic CNC programming and processes.	Suggested: <ul style="list-style-type: none"><li>• Introduction thru use of u-tube or other video presentation.</li><li>• Use of online resources such as simulation software.</li><li>• Identify thru use of Industry tours and featured speakers</li></ul>
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**Notes**

**MT 2 Show proper machine use and functions, utilizing problem solving skills to resolve machining issues**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Level 3  Strategic Thinking	MT 2.1 Demonstrate knowledge of terminology, tools, methods of measurement, and material layout.	Suggested: <ul style="list-style-type: none"> <li>• Identify basic machine shop terminology.</li> <li>• Demonstrate use and care of tools and measuring equipment used in the shop.</li> <li>• Show ability to measure and document parts consistently.</li> <li>• Demonstrate proper layout methods using blueprints or working drawings</li> </ul>
Two Skill/Concept	MT 2.2 Demonstrate problem solving skills in basic lathe and milling setups and operations.	Suggested: <ul style="list-style-type: none"> <li>• Through completion of required parts.</li> <li>• Familiarity of equipment used.</li> <li>• Show ability to set up and run lathe and milling machines to do basic machining operations.</li> </ul>

**Notes**

**MT 3 Apply proper ethical standards to machining skills and processes**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Two Skill/Concept	MT 3.1 Identify and demonstrate professional practices used in the machine shop	Suggested: <ul style="list-style-type: none"> <li>• Student handbook.</li> <li>• Local instructor rules.</li> <li>• <a href="http://www.aprahome.org/p/cm/ld/fid=110">http://www.aprahome.org/p/cm/ld/fid=110</a></li> </ul>

**Notes**

**MT 4 Explore Careers in the Manufacturing cluster**

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One Recall	MT 4.1 Identify machine tool related career pathways.	Suggested: <ul style="list-style-type: none"> <li>• Through use of industry tours.</li> <li>• Using featured speakers</li> <li>• Through post-secondary involvement.</li> <li>• Introduction thru use of u-tube or other video presentation.</li> </ul>

**Notes**