

# Machine Tool Technology

## Course Number: 13203

**Rationale Statement:**

There is a high demand for motivated and creative individuals in the machining field. The desire for the students to succeed at the basic level and step up to the higher level of competency in this field is the ultimate goal of this course.

**Suggested Grade Level:** 9-12

**Topics Covered:**

- Create Various Projects using machining theory
- Blueprints
- Measuring instruments
- Applied mathematical concepts
- CAD/CAM software
- Explore Career Possibilities
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**Core Technical Standards & Examples**

<b>Indicator #1:</b> Observe rules and regulations to comply with personal and shop safety.	
Bloom's Taxonomy Level	Standard and Examples
Application	<p><b>MT1.1. Show knowledge of shop operations and tool safety procedures that meets OSHA standards.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Examine and test on basic safety equipment present in the shop</li> <li>• Examine and label all parts of power equipment used in machining</li> <li>• Show hazards that are present in the shop and use of lockout/tag out system</li> <li>• Demonstrate personal protective measures used in the shop</li> <li>• Demonstrate and use basic layout tools and equipment on various projects</li> </ul>

<b>Indicator # 2. Apply various machining applications used in manufacturing</b>	
<b>Bloom's Taxonomy Level</b>	<b>Standard and Examples</b>
Application	<p><b>MT2.1 Apply concepts of mathematics, science, and communications in machine tool technology.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Demonstrate ability to use decimal and fractional measurements.</li> <li>• Calculate basic machine tool formulas</li> <li>• Calculate advanced math functions on various projects</li> <li>• Classify the basic characteristics of the different materials</li> </ul>
Application	<p><b>MT2.2 Demonstrate and test knowledge of blueprint reading, and material layout and fabrications.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Illustrate basic parts of the mechanical blueprint</li> <li>• classify the various line types of a blueprint</li> <li>• show top, front, and right side views of an object</li> <li>• apply measuring instruments to complete layout work.</li> </ul>
Application	<p><b>MT2.3 Demonstrate lathe and milling processes to meet industry standards.</b></p> <p>Examples</p> <ul style="list-style-type: none"> <li>• Calculate angles for the compound rest.</li> <li>• Show the ability to drill and tap a hole</li> <li>• Demonstrate ability to square a block on a mill</li> <li>• Complete a single point threading operation using the lathe</li> <li>• Examine and label basic parts of all machines</li> </ul>
Analysis	<p><b>Mt2.5 Identify Proper Terminology and Career Possibilities</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Prepare a report about the area of study</li> <li>• Design a questionnaire for an interview</li> <li>• Write a biography about a historic person in the field</li> </ul>

**Indicator 3.** Analyze computer aided software in machine tool applications used in industry.

<b>Bloom's Taxonomy Level</b>	<b>Standard and Examples</b>
Analysis	<p><b>MT3.1 Identify computer aided software used in machine tool.</b></p> <p>Examples:</p> <ul style="list-style-type: none"><li>• Analyze various types of CAD software</li><li>• Explain benefits of design using CAD</li><li>• Select software to best fit the needs of machine tool technology.</li></ul>