Machine Tool Technology

Career Cluster	Manufacturing
Course Code	13203
Prerequisite(s)	Algebra 1 Recommended
Credit	0.5 or 1
Program of Study and Sequence	Manufacturing Cluster Course – **Machine Tool Technology** – Advanced Machine Tool Technology
Student Organization	Skills USA
Coordinating Work-Based Learning	Field trips
Industry Certifications	National Institute for Metalworking Skills (NIMS)
Teacher Certification	7-12 Technology Education; Machine Tool; Manufacturing Cluster Endorsement; Welding & Precision Machining Pathway Endorsement
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.

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Course Standards

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

Webb Level	*Sub-indicator*	*Integrated Content*
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	Suggested: • Introduction of Personal Protective Equipment (PPE) and uses. • Identify hazards present in the machine shop. • Test knowledge of safety practices used in the shop. • Identify and recall basic parts to machines • Introduction to Occupational Safety & Health Administration (OSHA)
Two Skill/Concept	MT 1.2 Introduce concepts of basic mathematics, blueprint reading, science, and communications used in machine tool processes.	Suggested: • Ability to read tape measures, steel rules fractions, and decimals. • Calculate basic machine tool formulas related to various machining projects. • Identify characteristics of various materials used. • Identify and differentiate line types, tolerances and views of blueprints

One Recall	MT 1.3 Understand basic CNC programming and processes.	Suggested: • Introduction thru use of u-tube or other video presentation. • Use of online resources such as simulation software. • Identify thru use of Industry tours and featured speakers

Notes

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

Webb Level	*Sub-indicator*	*Integrated Content*
Level 3 Strategic Thinking	MT 2.1 Demonstrate knowledge of terminology, tools, methods of measurement, and material layout.	Suggested: • Identify basic machine shop terminology. • Demonstrate use and care of tools and measuring equipment used in the shop. • Show ability to measure and document parts consistently. • Demonstrate proper layout methods using blueprints or working drawings
Two Skill/Concept	MT 2.2 Demonstrate problem solving skills in basic lathe and milling setups and operations.	Suggested: • Through completion of required parts. • Familiarity of equipment used. • Show ability to set up and run lathe and milling machines to do basic machining operations.

Notes

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MT 3 Apply proper ethical standards to machining skills and processes

Webb Level	*Sub-indicator*	*Integrated Content*
Two Skill/Concept	MT 3.1 Identify and demonstrate professional practices used in the machine shop	Suggested: • Student handbook. • Local instructor rules. • http://www.aprahome.org/p/cm/ld/fid=110

Notes

MT 4 Explore Careers in the Manufacturing cluster

Webb Level	*Sub-indicator*	*Integrated Content*
One Recall	MT 4.1 Identify machine tool related career pathways.	Suggested: • Through use of industry tours. • Using featured speakers • Through post-secondary involvement. • Introduction thru use of u-tube or other video presentation.

Notes