



Advanced Machine Tool Technology

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| Career Cluster | Manufacturing |
| Course Code | 13204 |
| Prerequisite(s) | Algebra 1/Machine Tool Technology |
| Credit | 0.5 or 1.0 credit |
| Program of Study and Sequence | Cluster course – Machine Tool Technology – Advanced Machine Tool Technology – Capstone Experience |
| Student Organization | Skills USA |
| Coordinating Work-Based Learning | Guest speakers, project-based learning, community outreach, internships, field trips, and industry partnerships |
| Industry Certifications | National Career Readiness Certificate (NCRC) |
| Dual Credit or Dual Enrollment | https://sdmylife.com/images/Approved-CTE-Dual-Credit.pdf |
| Teacher Certification | 7-12 Technology Education; Machine Tool; Manufacturing Cluster Endorsement; Welding & Precision Machining Pathway Endorsement |
| Resources | OSHA/NIMS |

Course Description

Advanced Machine Tool Technology students will perform advanced machining processes in the areas of safety, applied math skills and machining operations. The goal is for the student to use learned techniques from machine tool technology to obtain higher levels of competency through creation of projects to emulate industry needs.

Program of Study Application

Advanced Machine Tool Technology is the second pathway course in the Manufacturing cluster, Machining pathway. Machine tool technology is a prerequisite to the Advanced Machining course.

Course Standards

AMT 1: Demonstrate knowledge of safety and essential academic concepts in machine tool.

| <i>Webb Level</i> | <i>Sub-indicator</i> |
|-------------------|---|
| Two Skill/Concept | AMT 1.1 Prove knowledge of shop operations and tool safety procedures consistent with Occupational Safety and Health Administration (OSHA) standards. |
| Two Skill/Concept | AMT 1.2 Apply advanced concepts, including machine tool mathematics, mechanical drawing, science, and communications to machine tool processes. |
| Two Skill/Concept | AMT 1.3 Demonstrate and apply computer numerical control (CNC) programming concepts. |

AMT 2: Demonstrate machine use and functions, utilizing problem solving skills to resolve machining issues.

| <i>Webb Level</i> | <i>Sub-indicator</i> |
|--------------------------|---|
| Three Strategic Thinking | AMT 2.1 Utilize prior knowledge of tools, methods of measurement, materials, and material layout. |
| Three Strategic Thinking | AMT 2.2 Set up and run lathe and milling machines to do advanced machining operations. |
| Four Extended Thinking | AMT 2.3 Evaluate and solve issues related to lathe and milling setups and operations. |

AMT 3: Apply career readiness skills in the workplace as they relate to today's society.

| <i>Webb Level</i> | <i>Sub-indicator</i> |
|-------------------|---|
| One Recall | AMT 3.1 Identify and demonstrate career readiness (soft skills) in the workplace. |

AMT 4: Machine tool technology career exploration and development.

| <i>Webb Level</i> | <i>Sub-indicator</i> |
|------------------------|---|
| Two Skill/Concept | AMT 4.1 Define and compare career pathways in machine tool technology. |
| Four Extended Thinking | AMT 4.2 Design a personal learning plan for career interest in machine tool technology. |
| Two Skill/Concept | AMT 4.3 Explain trends and issues in machine tool technology careers. |