

PRECISION MACHINING 48.0500.30

Program Description, Industry Credentials, Coherent Sequence, and Teacher Certification

PROGRAM DESCRIPTION

The **Precision Machining** program is designed to introduce students to precision manufacturing, machining principles, technical skills, basic manufacturing systems, production planning, information systems, quality control, documentation, technical problem solving, management, predictive/preventive maintenance, and automated manufacturing. The **Precision Machining** program includes instruction in precision for metalworking, operating large equipment, such as lathes, mills and grinders, to fabricate metal parts, learning to work from written blueprints or electronic specifications, code with G-code or CAD CAM systems.

The **Precision Machining** program is delivered as a coherent sequence of courses that offer students an in-depth understanding of mechanical knowledge, analytical and computer skills, manual dexterity, physical strength and stamina, spatial orientation, and attention to detail. The **Precision Machining** is designed to offer students knowledge and skills that meet the needs of the workplace. The Professional Skills developed by business and industry leaders across Arizona are integrated throughout the program. Students learn how to get along with their team members, make critical decisions, solve problems, develop respect, and to be successful in their chosen occupation. **Precision Machining** students develop leadership, social, civic, and career skills through participation in the state-recognized Career and Technical Student Organization, SkillsUSA.

The **Precision Machining** instructional program prepares students for entry-level employment, further training, and/or post-secondary education for these and other occupations: CNC Programmer, Metalworking Machinist, Industrial Machinist, Aircraft and Parts Machinist, Plastic-working Machine Operator, Tool and Die Maker, and Instrument Maker

INDUSTRY CREDENTIALS

The following credentials have been approved for the A-F CCR and are CTED eligible for the **Precision Machining** instructional program:

- Autodesk Certified User (ACU) - 3Ds Max
- Autodesk Certified User (ACU) - Maya
- Certified SolidWorks Associate (CSWA)
- Certified SolidWorks Professional (CSWP)
- Machining Manufacturing Skill Standards Council (MSSC) - Certified Production Technician (CPT)
- Machining Manufacturing Skill Standards Council (MSSC) - Green Production Certification
- Mastercam Associate
- Mechatronics
- National Center for Construction Education and Research (NCCER) - Industrial Maintenance Mechanic

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- National Center for Construction Education and Research (NCCER) - Industrial Maintenance Mechanic - Level 1
- National Center for Construction Education and Research (NCCER) - Industrial Maintenance Mechanic - Level 2
- National Center for Construction Education and Research (NCCER) - Millwright
- National Coalition of Certification Centers (NC3) - Multimeter
- National Coalition of Certification Centers (NC3) - Precision Measuring
- National Institute for Metalworking Skills (NIMS) – CNC Lathe entry level
- National Institute for Metalworking Skills (NIMS) – CNC Lathe Programming and set up entry level
- National Institute for Metalworking Skills (NIMS) – CNC Mill Entry level
- National Institute for Metalworking Skills (NIMS) – CNC Mill Programming and set up entry level
- National Institute for Metalworking Skills (NIMS) – EDM Plunge
- National Institute for Metalworking Skills (NIMS) – EDM Wire
- National Institute for Metalworking Skills (NIMS) – Job Planning, Benchwork and Layout
- National Institute for Metalworking Skills (NIMS) – Machining Level II - Grinding Skills II
- National Institute for Metalworking Skills (NIMS) – Machining Level II - Manual Milling
- National Institute for Metalworking Skills (NIMS) – Measurement, Materials and Safety
- National Institute for Metalworking Skills (NIMS) – Turning I

The following industry credentials have been approved to meet CTED eligibility for the **Precision Machining** instructional program:

- Associate Certification: Mill Design and Toolpaths
- Certified Programmer Mill Level 1 (CPgM1)
- National Career Readiness Certificate (NCRC) Level 1
- Tool Setter Certificate

COHERENT SEQUENCE

48.0500.13 – Precision Machining I, **and**

48.0500.30 – Precision Machining II, **and**

48.0500.35 – Precision Machining III, **and program may elect to add:**

48.0500.40 – Precision Machining IV, **or**

48.0500.71 – Precision Machining – DCE (Diversified Cooperative Education) **or**

48.0500.76 – Precision Machining – Internship, **or**

48.0500.81 – Precision Machining – Cooperative Education

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TEACHER CERTIFICATION REQUIREMENTS

The instructor must be ADE/CTE certified in one of the following Certificates:

- SCTIET** Standard Career and Technical Education Industrial and Emerging Technologies
SSCTEJET Standard Specialized Career and Technical Education Industrial and Emerging Technologies

- Note:
- Precision Machining 48.0500.71 (DCE) requires a CTE Teacher to have the Cooperative Education Endorsement (CEN).
 - Precision Machining 48.0500.76 (Internship) does not require a CTE Teacher to have a Cooperative Education Endorsement (CEN).
 - Precision Machining 48.0500.81 (Cooperative Ed.) requires CTE Teacher to be appropriately certified for the program and to have a Cooperative Education Endorsement (CEN).