



PROFESSIONAL DEVELOPMENT

LEARNING PLANS FOR MANUFACTURING JOB ROLES

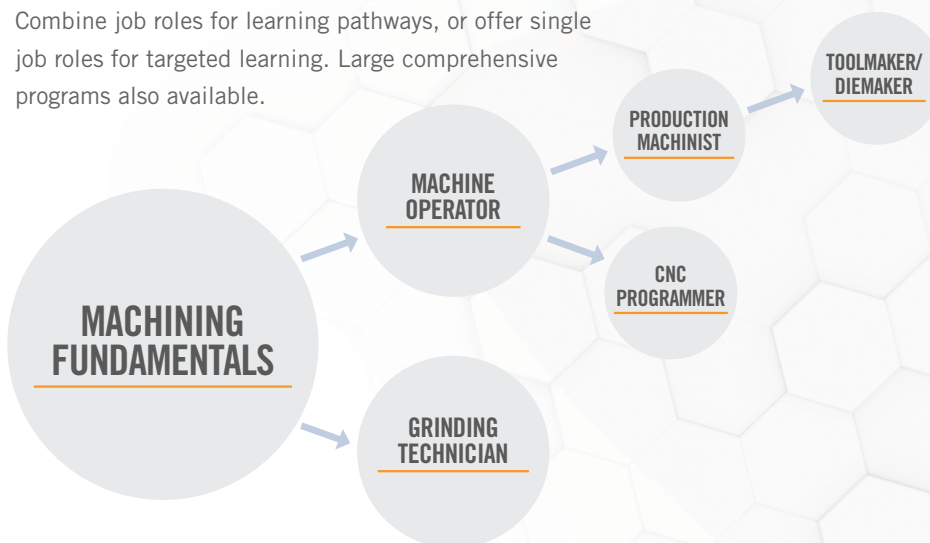
Online Training from Columbus State Community College and Tooling U-SME offers a quick-start, progressive road map that allows manufacturers to build career paths for employees. This online training is intended to enhance your existing on the job training, to create a job progression plan and requires minimal preparation. It is efficient, effective training that has been developed with input from manufacturing experts.

FLEXIBLE AND CONVENIENT

Online classes are self-paced, typically taking 60 minutes to complete. They are easily and conveniently accessible on desktops and laptops, and on tablets and phones with the Tooling U-SME app.

CAREER PATHWAYS FOR MACHINING JOB ROLES

Combine job roles for learning pathways, or offer single job roles for targeted learning. Large comprehensive programs also available.



Online Training offers:

- Content developed by industry experts
- Accessible anytime, anywhere
- Self-paced
- Predefined curriculum for each job role
- Engaging and interactive content
- Pre- and post-training knowledge assessments
- Access to Tooling U-SME's Learning Management System (LMS)
- Guidance from our Client Success team, including advice, insights, and ideas built on best practices and years of experience

MACHINING FUNDAMENTALS

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|--------------------------|---------------------------------------|---------------------------------------|--|-------------------------------------|
| 5S Overview | Cutting Processes | Hole Standards and Inspection | Math: Fractions and Decimals | SDS and Hazard Communication |
| Band Saw Operation | Essentials of Heat Treatment of Steel | Intro to OSHA | Metal Cutting Fluid Safety | Thread Standards and Inspection |
| Basic Cutting Theory | Ferrous Metals | Introduction to Mechanical Properties | Noise Reduction and Hearing Conservation | Trigonometry: Sine, Cosine, Tangent |
| Basic Measurement | Fire Safety and Prevention | Introduction to Metal Cutting Fluids | Overview of Machine Tools | Units of Measurement |
| Basics of Tolerance | Geometry: Circles and Polygons | ISO 9001: 2015 Review | Personal Protective Equipment | Walking and Working Surfaces |
| Bloodborne Pathogens | Geometry: Lines and Angles | Lean Manufacturing Overview | Powered Industrial Truck Safety | |
| Blueprint Reading | Geometry: Triangles | Lockout/Tagout Procedures | Safety for Lifting Devices | |
| Calibration Fundamentals | Hand and Power Tool Safety | Math Fundamentals | | |

GRINDING TECH

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|-----------------------------------|-------------------------------|---------------------------------|-----------------------------------|------------------------------------|
| Basic Grinding Theory | Cylindrical Grinder Operation | Grinding Variables | Major Rules of GD&T | Supporting and Locating Principles |
| Basics of G Code Programming | Dressing and Truing | Grinding Wheel Geometry | Metrics for Lean | Surface Grinder Operation |
| Basics of the Centerless Grinder | Essentials of Communication | Grinding Wheel Materials | Process Flow Charting | Surface Texture and Inspection |
| Basics of the Cylindrical Grinder | Essentials of Leadership | Intro to Fastener Threads | Setup for the Centerless Grinder | Troubleshooting |
| Basics of the Surface Grinder | Grinding Ferrous Metals | Introduction to CNC Machines | Setup for the Cylindrical Grinder | |
| Centerless Grinder Operation | Grinding Nonferrous Metals | Introduction to GD&T | Setup for the Surface Grinder | |
| Chucks, Collets, and Vises | Grinding Processes | Introduction to Grinding Fluids | SPC Overview | |
| Clamping Basics | Grinding Safety | Locating Devices | Strategies for Setup Reduction | |

MACHINE OPERATOR

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|---------------------------------|---|-------------------------------|------------------------------|------------------------------------|
| Basics of G Code Programming | Classification of Steel | Engine Lathe Basics | Introduction to CNC Machines | Offsets on the CNC Lathe |
| Basics of the CNC Lathe | Control Panel Functions for the CNC Lathe | Engine Lathe Operation | Locating Devices | Offsets on the CNC Mill |
| Basics of the CNC Mill | Control Panel Functions for the CNC Mill | Engine Lathe Setup | Machine Guarding | Safety for Metal Cutting |
| Benchmark and Layout Operations | Control Panel Functions for the CNC Mill | Holemaking on the Manual Mill | Manual Mill Basics | SPC Overview |
| Chucks, Collets, and Vises | Coordinates for the CNC Lathe | Intro to EDM | Manual Mill Operation | Supporting and Locating Principles |
| Clamping Basics | Coordinates for the CNC Mill | Intro to Fastener Threads | Manual Mill Setup | Surface Texture and Inspection |

CNC PROGRAMMER

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| Automated Systems and Control | Canned Cycles for the Lathe | In-Line Inspection Applications | Introduction to GD&T | Quality and Customer Service |
| Calculations for Programming the Lathe | Canned Cycles for the Mill | Intro to Six Sigma | Introduction to Metals | Robot Axes |
| Calculations for Programming the Mill | Creating a CNC Milling Program | Introduction to CAD and CAM for Machining | Major Rules of GD&T | Speed and Feed for the Lathe |
| | Creating a CNC Turning Program | | Metrics for Lean | Speed and Feed for the Mill |

PRODUCTION MACHINIST

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|--|--------------------------------|-------------------------------|----------------------------------|-----------------------------------|
| ANSI Insert Selection | Canned Cycles for the Lathe | Drill Tool Geometry | Major Rules of GD&T | Speed and Feed for the Mill |
| Basic Cutting Theory | Canned Cycles for the Mill | Essentials of Communication | Metrics for Lean | Strategies for Setup Reduction |
| Calculations for Programming the Lathe | Carbide Grade Selection | Essentials of Leadership | Mill Tool Geometry | Taper Turning on the Engine Lathe |
| Calculations for Programming the Mill | Creating a CNC Milling Program | Impact of Workpiece Materials | Optimizing Tool Life and Process | Threading on the Engine Lathe |
| | Creating a CNC Turning Program | Introduction to GD&T | Process Flow Charting | Troubleshooting |
| | Cutting Tool Materials | Lathe Tool Geometry | Speed and Feed for the Lathe | |

TOOL AND DIE MAKER

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|-----------------------------------|-------------------------|----------------------------|---------------------------------|-----------------------------------|
| Basic Grinding Theory | Die Cutting Variables | Grinding Nonferrous Metals | Grinding Wheel Geometry | Setup for the Cylindrical Grinder |
| Basics of the Cylindrical Grinder | Dressing and Truing | Grinding Processes | Grinding Wheel Materials | Setup for the Surface Grinder |
| Basics of the Surface Grinder | Fixture Design Basics | Grinding Safety | Introduction to Grinding Fluids | Surface Grinder Operation |
| Cylindrical Grinder Operation | Grinding Ferrous Metals | Grinding Variables | Material Tests for Welding | |