MACHINING

MassMEP
Manufacturing Extension Partnership
YOUR RESOURCE FOR MANUFACTURING GREATNESS

PROFESSIONAL DEVELOPMENT

LEARNING PLANS FOR MANUFACTURING JOB ROLES

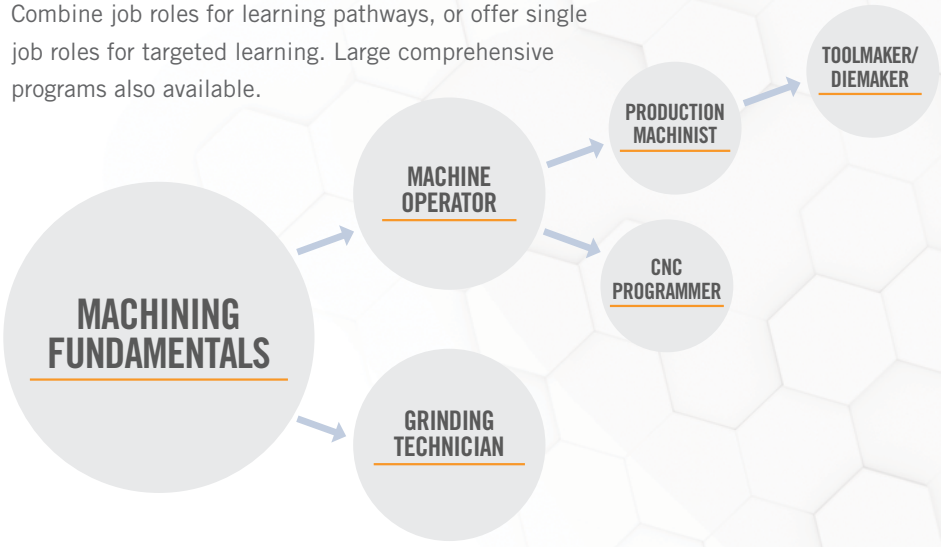
Online Training from MassMEP and Tooling U-SME offers a quick-start, progressive road map that allows manufacturers to build career paths for employees. This online training is intended to enhance your existing on the job training, to create a job progression plan and requires minimal preparation. It 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

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To begin your training program or for more information, contact Leslie Parady, Workforce Development Manager **(585) 292-3761** or **lesliep@massmep.org**

Choose a starting point based on employee's experience or company goals for a quick-start training solution.

MACHINING

MACHINING FUNDAMENTALS

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

GRINDING TECHNICIAN

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

MACHINE OPERATOR

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

CNC PROGRAMMER

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

PRODUCTION MACHINIST

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

TOOLMAKER AND DIEMAKER

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

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