MECHATRONICS

WMEP MANUFACTURING SOLUTIONS

PROFESSIONAL DEVELOPMENT

LEARNING PLANS FOR MANUFACTURING JOB ROLES

Training Packages from Tooling U-SME offer quick-start, progressive road maps in various functional areas that allow manufacturers to build career paths for employees. They are intended to enhance your existing OJT and help you create a job progression plan. Unlike many other training programs, these packages require minimal preparation. They are efficient, effective training, 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 MECHATRONICS JOB ROLES

Combine job roles for learning pathways, or offer single job roles for targeted learning. Large comprehensive programs are 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 us at **608-240-1740** or **info@wmep.org**

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

MECHATRONICS

MECHATRONICS FUNDAMENTALS

Math Fundamentals
Math: Fractions and Decimals
Units of Measurement
Basics of Tolerance
Blueprint Reading
Basic Measurement
Calibration Fundamentals
Hole Standards and Inspection
Thread Standards and Inspection
Intro to OSHA
Personal Protective Equipment
Noise Reduction and Hearing Conservation
Prespiratory Safety
Lockout/Tagout Procedures
SDS and Hazard Communication
Bloodborne Pathogens
Walking and Working Surfaces
Fire Safety and Prevention
Flammable/Combustible Liquids
Hand and Power Tool Safety
Safety for Lifting Devices
Powered Industrial Truck Safety
Confined Spaces
Introduction to Physical Properties
Introduction to Mechanical Properties
Introduction to Metals
Ferrous Metals
Lean Maufacturing Overview
ISO 9001:2015 Review
Approaches to Maintenance
Total Productive Maintenance
5S Overview
Electrical Units
Safety for Electrical Work
Introduction to Mechanical Systems
Safety for Mechanical Work
Forces of Machines

ELECTRICAL PRODUCTION

Algebra Fundamentals
Geometry: Lines and Angles
Geometry: Triangles
Geometry: Circles and Polygons
Trigonometry: The Pythagorean Theorem
Trigonometry: Sine, Cosine, Tangent
Essentials of Heat Treatment of Steel
Troubleshooting
Introduction to CNC Machines
Control Panel Functions for the CNC Lathe
Control Panel Functions for the CNC Mill
Shift Registers
Introduction to Circuits
Introduction to Magnetism
DC Circuit Components
NEC Overview
AC Fundamentals
Electrical Instruments
Electrical Print Reading
Conductor Selection
Series Circuit Calculations
Parallel Circuit Calculations
Limit Switches and Proximity Sensors
Lubricant Fundamentals
Overview of Soldering
Relays, Contractors, and Motor Starters
Control Devices
Distribution Systems
Introduction to Electric Motors
Logic and Line Diagrams
Essentials of Leadership
Essentials of Communication

MECHATRONICS PRODUCTION

Algebra Fundamentals
Geometry: Lines and Angles
Geometry: Triangles
Geometry: Circles and Polygons
Trigonometry: The Pythagorean Theorem
Trigonometry: Sine, Cosine, Tangent
Essentials of Heat Treatment of Steel
Nonferrous Metals
Troubleshooting
Series Circuit Calculations
Parallel Circuit Calculations
Battery Selection
Bearing Applications
Spring Applications
Belt Drive Applications
Gear Applications
Reversing Motor Circuits
Specs for Servomotors
Reduced Voltage Starting
The Forces of Fluid Power
Safety for Hydraulics and Pneumatics
Introduction to Hyudraulic Components
Introduction to Pneumatic Components
Introduction to Fluid Conductors
Fittings for Fluid Systems
Preventative Maintenance for Fluid Systems
Lubricant Fundamentals
Mechanical Power Variables
Clutch and Brake Applications
Intro to Machine Rigging
Rigging Equipment
Rigging Inspection and Safety
Rigging Mechanics
Intro to Fastener Threads
Overview of Threaded Fasteners
Tools for Threaded Fasteners
Overview of Non-Threaded Fasteners
Understanding Torque
Threaded Fastener Selection
Distribution Systems
Introduction to Electric Motors
Symbols and Diagrams for Motors
Logic and Line Diagrams
DC Motor Applications
Solenoids
AC Motor Applications
Essentials of Leadership
Essentials of Communication

AUTOMATION TECHNICIAN

Bearing Applications
Spring Applications
Belt Drive Applications
Gear Applications
Introduction to PLCs
Hardware for PLCs
Basics of Ladder Logic
Numbering Systems and Codes
PLC Inputs and Outputs
Basic Programming
PLC Timers and Counters
Networking for PLCs
Hand-Held Programmers for PLCs
Overview of PLC Registers
PLC Program Control Instructions
Sequencer Instructions for PLCs
PLC Installation Practices
PID for PLCs
Data Manipulation
Robot Components
End Effectors
Robot Axes
Robot Sensors
Robot Maintenance
Robot Installations
Vision Systems
Industrial Network Integration
The Forces of Fluid Power
Safety for Hydraulics and Pneumatics
Introduction to Hydraulic Components
Introduction to Pneumatic Components
Introduction to Fluid Conductors
Fittings for Fluid Systems
Mechanical Power Variables
Clutch and Brake Applications
Intro to Machine Rigging
Rigging Equipment
Rigging Inspection and Safety
Rigging Mechanics
Robot Safety
Robot Troubleshooting
Concepts of Robot
Programming
Intro to Fastener Threads
Overview of Threaded Fasteners
Tools for Threaded Fasteners
Overview of Non-Threaded Fasteners
Understanding Torque
Threaded Fastener Selection

ELECTRICAL TECHNICIAN

Nonferrous Metals
Battery Selection
Bearing Applications
Spring Applications
Belt Drive Applications
Gear Applications
Reversing Motor Circuits
Specs for Servomotors
Reduced Voltage Starting
The Forces of Fluid Power
Safety for Hydraulics and Pneumatics
Introduction to Hydraulic Components
Introduction to Pneumatic Components
Introduction to Fluid Conductors
Fittings for Fluid Systems
Mechanical Power Variables
Clutch and Brake Applications
Intro to Machine Rigging
Rigging Equipment
Rigging Inspection and Safety
Rigging Mechanics
Intro to Fastener Threads
Overview of Threaded Fasteners
Tools for Threaded Fasteners
Overview of Non-Threaded Fasteners
Understanding Torque
Threaded Fastener Selection
Distribution Systems
Symbols and Diagrams for Motors
DC Motor Applications
Solenoids
AC Motor Applications

FLUID SYSTEMS TECHNICIAN

Benchwork and Layout Operations
Introduction to CNC Machines
Control Panel Functions for the CNC Lathe
Control Panel Functions for the CNC Mill
Introduction to Circuits
Introduction to Magnetism
DC Circuit Components
NEC Overview
AC Fundamentals
Electrical Instruments
Electrical Print Reading
DC Power Sources
AC Power Sources
Conductor Selection
Limit Switches and Proximity Sensors
Hydraulic Power Variables
Hydraulic Power Sources
Pneumatic Power Variables
Pneumatic Power Sources
Hydraulic Control Valves
Hydraulic Schematics and Basic Circuit Design
Pneumatic Control Valves
Pneumatic Schematics and Circuit Design
Actuator Applications
Hydraulic Fulid Selection
Contamination and Filter Selection
Hydraulic Principles and System Design
Welding Safety Essentials
PPE for Welding
Welding Fumes and Gases
Safety
Electrical Safety for Welding
Introduction to Welding
Introduction to Welding Processes
Overview of Soldering
Plasma Cutting
SMAW Applications
GMAW Applications
What Is Oxyfuel Welding?
Oxyfuel Welding Applications
Relays, Contactors, and Motor Starters
Control Devices
Distribution Systems

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