CareerWise Colorado
Tomorrow's Talent Today

Advanced Manufacturing - Maintenance Technician

Sector: Advanced Manufacturing	Occupation: Maintenance	Credential(s): MSSC

CareerWise Colorado (CWC) will introduce and support development of these **Career Ready competencies** throughout the apprenticeship (through boot camp, periodic CWC convening's, and training modules delivered by supervisors/coaches over time).

Career Ready Competencies		
Entrepreneurial	**Critical thinking and problem solving**	☐
	Creativity and innovation	☐
	Inquiry	☐
	Risk taking	☐
Personal	**Self-direction**	☐
	Adaptability and flexibility	☐
	Self-management	☐
Civic/Interpersonal	**Collaboration and teamwork**	☐
	Communication	☐
	Global and cultural awareness	☐
	Ethics and integrity	☐
Professional	**Core Academic Foundation**	☐
	Time management	☐
	Grit and resilience	☐
	Work ethic	☐
	Self-advocacy	☐

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Technical Competencies

For each competency, use the letter X to indicate whether each competency can be taught and evaluated on the job.

Number	Technical Competencies of the Occupation Pathway
☐ 1	Read work orders or descriptions of problems to determine repairs or modifications needed. • Read work orders and specifications to determine machines and equipment requiring repair or maintenance.
☐ 2	Observe equipment in operation to detect potential problems. • Start machines and observe mechanical operation to determine efficiency and to detect problems.
☐ 3	Test fluids to identify contamination or other problems. • Measure, mix, prepare, and test chemical solutions used to clean or repair machinery and equipment. (Supplemental)
☐ 4	Inspect mechanical equipment to locate damage, defects, or wear. • Inspect or test damaged machine parts, and mark defective areas or advise supervisors of repair needs.
☐ 5	Observe and demonstrate systems of safety used by high-performance manufacturers.
☐ 6	Test mechanical equipment to ensure proper functioning. • Inspect or test damaged machine parts, and mark defective areas or advise supervisors of repair needs.
☐ 7	Identify, report, and monitor potential safety hazards at work and take corrective action to eliminate potential hazards.
☐ 8	Observe and demonstrate proper functioning of belt drive and roller chain drive systems, including when to inform maintenance personnel.

☐ **9**	Observe and demonstrate proper functioning of mechanical power transmission equipment, bearings and shafts, and couplings, including when to inform maintenance personnel.
☐ **10**	Prepare compounds or solutions to be used for repairs. ● Measure, mix, prepare, and test chemical solutions used to clean or repair machinery and equipment. (Sup)
☐ **11**	Clean work areas. ● Collect and discard worn machine parts and other refuse to maintain machinery and work areas.
☐ **12**	Clean equipment, parts, or tools to repair or maintain them in good working order ● Collect and discard worn machine parts and other refuse to maintain machinery and work areas.
☐ **13**	Clean equipment, parts, or tools to repair or maintain them in good working order. ● Clean machines and machine parts, using cleaning solvents, cloths, air guns, hoses, vacuums, or other equipment. ● Remove hardened material from machines or machine parts, using abrasives, power and hand tools, jackhammers, sledgehammers, or other equipment.
☐ **14**	Reassemble equipment after repair.
☐ **15**	Install machine or equipment replacement parts.
☐ **16**	Adjust equipment to ensure optimal performance. ● Set up and operate machines, and adjust controls to regulate operations.
☐ **17**	Disassemble equipment for maintenance or repair. ● Dismantle machines and remove parts for repair, using hand tools, chain falls, jacks, cranes, or hoists.

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☐ **18**	Operate cranes, hoists, or other moving or lifting equipment. • Transport machine parts, tools, equipment, and other material between work areas and storage, using cranes, hoists, or dollies.
☐ **19**	Lubricate equipment to allow proper functioning.
☐ **20**	Replace worn, damaged, or defective mechanical parts.
☐ **21**	Maintain repair or maintenance records
☐ **22**	Communicate with coworkers to coordinate installations or repairs. • Inspect or test damaged machine parts, and mark defective areas or advise supervisors of repair needs.
☐ **23**	Confer with coworkers to resolve equipment problems.
☐ **24**	Maintain inventories of materials, equipment, or products. • Inventory and requisition machine parts, equipment, and other supplies so that stock can be maintained and replenished.
☐ **25**	Order materials, supplies, or equipment.
☐ **26**	Explain fundamentals of electronics, including: • common components of electronic equipment (e.g., diodes, resistors, relays) • low voltage circuits • reading and interpreting electronic symbols, diagrams, and schematics • 115 VAC to 480 VAC circuits • Electrical motors
☐ **27**	Explain fundamentals of mechanics, including: • combustion engine components and function • types of bearings and their function • shaft to shaft alignment • the main types of measuring devices, including digital volt meter, amp meter, bore gauges, etc.

☐ **28**	Explain fundamentals of pneumatics, including: ● compressed air basics ● reading and interpreting pneumatic drawings and symbols
☐ **29**	Explain fundamentals of hydraulics, including: ● basic hydraulic principles ● reading and interpreting hydraulic drawings and symbols
☐ **30**	Explain fundamentals of injection molding, including: ● molding machines ● temperature controllers ● Sprue pickers ● servo robots ● plastic processing
☐ **31**	Explain fundamentals of PLC, including: ● symbols ● ladder logic interpretation ● basic programming
☐ **32**	Explain fundamentals of HVAC systems, including: ● basic knowledge of refrigeration, chiller, and boiler, air handler and VAV
☐ **33**	Explain fundamentals building management software
☐ **34**	Follow safety procedures per company policy and relevant laws.
☐ **35**	Understand the overall quality process and quality systems such as Six Sigma, Total Quality Management, Lean Management, and relevant standards, such as ISO 9001.
☐ **36**	Read work orders or descriptions of problems to determine repairs or modifications needed. Read work orders and specifications to determine machines and equipment requiring repair or maintenance.
☐ **37**	Observe equipment in operation to detect potential problems. Start machines and observe mechanical operation to determine efficiency and to detect problems.

☐ **38**	Test fluids to identify contamination or other problems. Measure, mix, prepare, and test chemical solutions used to clean or repair machinery and equipment. (Supplemental)
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☐ **43**	Observe and demonstrate proper functioning of belt drive and roller chain drive systems, including when to inform maintenance personnel.
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☐ **49**	Reassemble equipment after repair.
☐ **50**	Install machine or equipment replacement parts.
☐ **51**	Adjust equipment to ensure optimal performance. ● Set up and operate machines, and adjust controls to regulate operations.
☐ **52**	Disassemble equipment for maintenance or repair. Dismantle machines and remove parts for repair, using hand tools, chain falls, jacks, cranes, or hoists.
☐ **53**	Operate cranes, hoists, or other moving or lifting equipment. Transport machine parts, tools, equipment, and other material between work areas and storage, using cranes, hoists, or dollies.
☐ **54**	Lubricate equipment to allow proper functioning.
☐ **55**	Replace worn, damaged, or defective mechanical parts.
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☐ **60**	Order materials, supplies, or equipment.
☐ **61**	Explain fundamentals of electronics, including: ● common components of electronic equipment (e.g., diodes, resistors, relays) ● low voltage circuits ● reading and interpreting electronic symbols, diagrams, and schematics ● 115 VAC to 480 VAC circuits ● Electrical motors
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