Work Process Schedule

WORK PROCESS SCHEDULE[1]	O*NET-SOC Code: 49.9041.00
Industrial Maintenance Mechanic (Existing Title: Maintenance Mechanic) (Alternate Title: Industrial Machinery Mechanic)	RAPIDS Code: 0308CB

Job Title:		
Level:	**Specialization:**	
Stackable Program ___yes ___no **Base Occupation Name:**		
Company Contact:		
Address:	**Phone:**	**Email:**
Apprenticeship Type: **_____Competency-Based** **_____Time-Based _____Hybrid**	**Prerequisites:**	

JOB FUNCTION 1: Operates in the workplace in a safe and effective manner

Competencies	Core or Optional	RTI	OJT
A. Adheres to safety, health, and environmental rules and regulations	Core		
B. Performs machine operation, including start-up, emergency, and normal shutdown and manual functions to effectively and safely meet production and maintenance requirements (with operator present)	Core		
C. Monitors machine operation and verifies that performance meets production requirements	Core		

[1] See full framework for certifications and occupational pathways, cross-cutting competencies, and detailed job functions at https://www.dol.gov/cgi-bin/leave-dol.asp?exiturl=https://www.urban.org/policy-centers/center-labor-human-services-and-population/projects/competency-based-occupational-frameworks-registered-apprenticeships&exitTitle=www.urban.org.

D. Locates, interprets, and stores machine operation and maintenance documentation	Core		
E. Performs planned and unscheduled machine maintenance procedures in accordance with a company-approved maintenance plan	Core		
JOB FUNCTION 2: Monitors, troubleshoots, installs, and repairs basic mechanical systems			
Competencies	Core or Optional	RTI	OJT
A. Adheres to mechanical power transmission safety rules	Core		
B. Uses dimensional measurement tools properly to inspect dimensions of shafts and other components	Core		
C. Safely examines, troubleshoots and repairs power transmission	Core		
D. Aligns and adjusts gear drives	Core		
E. Installs, aligns and adjusts a pillow block bearing	Core		
F. Lubricates equipment using correct lubricants and as recommended by manufacturer's guidance	Core		
G. Performs a preventive maintenance procedure for a given machine to extend machine life and minimize downtime	Core		
H. Performs predictive maintenance on a given machine to extend machine life and minimize downtime	Core		
I. Reads and interprets technical drawings of parts and assemblies with tolerances and basic Geometric Dimensioning and Tolerancing (GD&T)	Core		
J. Uses hand tools to inspect, adjust/tighten and assemble/disassemble equipment and support preventive maintenance, inspection and troubleshooting activities	Core		
K. Uses hoists and other tools to safely handle and move parts and equipment	Core		
L. Selects and uses troubleshooting methodologies to find malfunctions in machine systems to return the system to reliable, productive use in the shortest time possible	Core		
JOB FUNCTION 3: Monitors, troubleshoots, installs, and repairs basic hydraulic systems			
Competencies	Core or Optional	RTI	OJT
A. Adheres to fluid power systems safety rules while understanding safety, health, and environmental rules and regulations	Core		
B. Interprets basic fluid power schematics and identifies schematic symbols, process flow and operation of the components and systems	Core		

C. Starts up and shuts down a hydraulic system and adjusts system pressure using a fixed displacement pump	Core		
D. Adjusts hydraulic actuator speed using a flow control valve	Core		
E. Services a hydraulic filter to maximize hydraulic fluid cleanliness	Core		
F. Adds, changes and properly disposes of waste hydraulic fluid	Core		
G. Installs hydraulic conductors	Core		
H. Installs and tests components in a basic hydraulic circuit	Core		
I. Troubleshoots a basic hydraulic circuit or rotary actuator circuit	Core		
JOB FUNCTION 4: Monitors, troubleshoots, installs, and repairs basic pneumatic systems			
Competencies	Core or Optional	RTI	OJT
A. Adheres to fluid power systems safety rules	Core		
B. Adjusts pneumatic system branch and actuator speed operating pressure using a regulator	Core		
C. Services a pneumatic filter through inspection, drainage, and changes	Core		
D. Services a pneumatic lubricator through inspection, fills, and adjustments	Core		
E. Installs, fills, and adjusts pneumatic conductors	Core		
F. Starts up and shuts down a reciprocating air compressor and adjusts operating pressure	Core		
G. Installs and tests the operation of components in a basic pneumatic linear or rotary circuit given a schematic	Core		
H. Installs and tests components in a pneumatic circuit that uses vacuum generators given a schematic	Core		
I. Troubleshoots a basic pneumatic circuit	Core		
JOB FUNCTION 5: Monitors, troubleshoots, and repairs electrical systems			
Competencies	Core or Optional	RTI	OJT
A. Adheres to electrical power and control systems safety rules for electrical power and control systems	Core		
B. Interprets electrical control and power schematics to ensure the operation of the components and system	Core		
C. Adjusts limit switches and electronic sensors	Core		
D. Measures voltage, current and resistance in an electrical circuit to verify system operation and power levels	Core		

E. Selects, installs, and tests fuses and circuit breakers	Core		
F. Installs and tests DC electric motors in a manual control circuit	Core		
G. Installs and tests AC electric motors in a manual control circuit	Core		
H. Installs and tests electrical relay control components and circuits	Core		
I. Installs and tests electro-fluid power components and circuits	Core		
J. Tests and repairs machine electrical ground	Core		
K. Troubleshoots an electrical motor relay control circuit	Core		
L. Troubleshoots a solenoid-operated fluid power relay control circuit	Core		
M. Replaces electrical control wiring using terminal attachment	Core		
N. Replaces electrical control wiring using solder attachment	Core		
O. Installs, examines, repairs, and replaces transformers	Core		
JOB FUNCTION 6: Monitors, troubleshoots, installs, and repairs electronic and process control systems			
Competencies	Core or Optional	RTI	OJT
A. Adheres to safety, health, and environmental rules and regulations for electronic power and control systems	Core		
B. Connects and tests a DC power supply to ensure proper operation	Core		
C. Installs and tests solid-state AC and DC discrete and analog relays	Core		
D. Installs and tests analog electronic sensors and signal conditioning equipment	Core		
E. Adjusts and repairs AC drive to control motor speed and torque	Core		
F. Transfers programs to programmable controller using a PC	Core		
G. Creates a basic Programmable Logic Controller (PLC) ladder-style program using internal and external contacts, timers, counters, non-retentive output coils, internal coils, subroutines, conditional commands and math commands	Core		
H. Installs and tests basic PLC components that uses a ladder logic program to interface to a hardware component	Core		
I. Performs basic troubleshooting of PLC and controlled components	Core		

JOB FUNCTION 7: Performs maintenance welding to manufacture or repair parts, equipment, and other materials			
Competencies	Core or Optional	RTI	OJT
A. Adheres to safety, health, and environmental rules and regulations for welding	Core		
B. Uses an acetylene torch properly while using appropriate safety equipment and precautions to cut steel parts	Core		
C. Performs basic welding and achieves necessary strength, resilience, shape and size requirements	Core		
D. Prepares parts to be welded including degreasing, cleaning, grinding and inspecting	Core		
E. Uses Shielded Metal Arc Welding (SMAW) Welder to make basic welds on flat stock	Core		
F. Uses Gas Metal Arc Welding (GMAW) Welder to make basic welds on flat stock	Core		
G. Inspects welds for integrity and functionality	Core		
H. Uses plasma cutter to cut flat stock	Core		
JOB FUNCTION 8: Installs, removes, repairs, and replaces piping systems			
Competencies	Core or Optional	RTI	OJT
A. Adheres to safety, health and environmental rules and regulations for piping systems	Core		
B. Interprets basic piping schematics including specifications and fittings	Core		
C. Identifies and selects correct piping materials	Core		
D. Accurately measures, cuts and prepares piping for installation	Core		
E. Installs and tests piping systems	Core		