
Appendix A

WORK PROCESS SCHEDULE

AND

RELATED INSTRUCTION For the Occupations:

OCCUPATION (Sponsor Title)	Occupation Type	O*NET-CODE	RAPIDS
Industrial Mechanic	Competency	49-9041.00	0292

DEVELOPED IN COOPERATION WITH THE
U. S. DEPARTMENT OF LABOR
OFFICE OF APPRENTICESHIP

Section 1 - Minimum Qualifications for Apprenticeship

[29 CFR 29.5(b)(10)]

A. Applicants shall meet the following minimum qualifications:

1. **Age:** Shall be at least 16 years of age.
2. **Education:** Shall possess a high school diploma or GED equivalency.
3. **Physical/Mental:** Shall be physically capable of performing the essential functions of the occupation without endangering the health and safety of themselves and/or fellow workers. Applicants shall be allowed to request reasonable accommodation for a disability to meet this standard when applicable.

B. Selection Procedures

Please enter selection procedures for this occupation (s):

1. «Sponsor» shall adopt of the Alternate Selection method (Title 29,CFR part 30.5) to include:

- Random selection from pool of eligible applicants.
 - Selection from pool of current employees.
-

Attachment A

A1A

**WORK PROCESS SCHEDULE
INDUSTRIAL MECHANIC**

O*NET-SOC CODE: 49.9041.01 RAPIDS CODE: 0171

This schedule is attached to and a part of these Standards for the above identified occupation.

1. TYPE OF OCCUPATION

Time-based Competency-based Hybrid

2. TERM OF APPRENTICESHIP

The type of the occupation is Competency and supplemented by approximately **735 hours** of related instruction.

Upon completion of all training, the apprentice will receive a Certificate of Completion of Apprenticeship as a Retail Store Manager.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

A numeric ratio of apprentices to mentors consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship, the ratio of apprentices to mentors will be 1 apprentice to 1 mentor.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on either a percentage or a dollar amount of the current hourly journeyworker wage rate, which is: \$_____.

2-Year Term

1st 12 months = \$_____ /85% 2nd 12 months = \$_____ /100%

5. WORK PROCESS SCHEDULE (See attached Work Process Schedule)

The sponsor may modify the work processes to meet local needs prior to submitting these Standards to the appropriate Registration Agency for approval.

6. RELATED INSTRUCTION OUTLINE (See attached Related Instruction Outline)

A.1

WORK PROCESS SCHEDULE
INDUSTRIAL MECHANIC
O*NET-SOC CODE: 49.9041.01 RAPIDS CODE: 0171

Description: Responsible for maintaining and repairing factory equipment and other industrial machinery such as conveying systems, production machinery, and packaging equipment.

On-The-Job Learning: Apprentices will receive training in the various work experiences listed below. The order in which this training is given will be determined by the flow of work on the job and will not necessarily be in the order listed. The times allotted to these various processes are the estimated times which the average apprentice will require to learn each phase of the occupation. They are intended only as a guide to indicate the quality of the training being provided and the ability of the apprentice to absorb this training in an average amount of time.

On the Job Learning Activities	Trainer/Supervisor Signature	Date Completed
Shop Safety		
<ul style="list-style-type: none"> Demonstrate familiarity with the operating manual and safety instructions for commonly used power tools, applicable OSHA industrial shop safety requirements and compliance with company safety practices and procedures. 		
<ul style="list-style-type: none"> Demonstrate understanding of built-in safety devices such as interlocks and limit switches on commonly used power tools. 		
<ul style="list-style-type: none"> Demonstrate proper use of personal protection devices such as safety glasses, hard hats, safety shoes and hearing protection. 		
<ul style="list-style-type: none"> Insuring that power tools are secured properly before start-up 		
<ul style="list-style-type: none"> Checking safety devices (covers, guards, limit switches, etc) are in place and functioning properly prior to operating machine 		
<ul style="list-style-type: none"> Observing safe and proper environmental handling of stock materials and fluids such as coolants 		
<ul style="list-style-type: none"> Maintaining clean, neat and safe work area 		
<ul style="list-style-type: none"> Demonstrate knowledge and proper application of hazardous energy lockout/tag out procedures 		
<ul style="list-style-type: none"> Hazardous waste disposal procedures 		
Administration		

<ul style="list-style-type: none"> • Familiar with e-time system operation and procedures for clocking in/out 		
<ul style="list-style-type: none"> • Familiar with computerized maintenance management system; basic system navigation, notification and work order transactions, work order labor entry. 		
<ul style="list-style-type: none"> • Inventory of spare parts – making reservations and parts checkout, direct purchase requisitions. 		
Equipment Operation and General Troubleshooting		
<ul style="list-style-type: none"> • ID Fans 		
<ul style="list-style-type: none"> • Conveyors: Screw, belt, roller, and pneumatic 		
General Maintenance and Familiarization		
<ul style="list-style-type: none"> • Proper use of hand tools 		
<ul style="list-style-type: none"> • Proper use of power tools 		
<ul style="list-style-type: none"> • Selecting the correct fastener. 		
<ul style="list-style-type: none"> • Proper selection and use of torque wrenches 		
<ul style="list-style-type: none"> • Using precision alignment equipment (Rotalign Ultra). 		
Maintenance of Machinery		
<ul style="list-style-type: none"> • Basic Equipment Troubleshooting and Root Cause Analysis (RCA) techniques. 		
<ul style="list-style-type: none"> • Precision Assembly Concepts <ul style="list-style-type: none"> a. Machine component assembly tolerances b. Rotating equipment alignment c. Precision balancing 		
<ul style="list-style-type: none"> • Sprockets and chains <ul style="list-style-type: none"> a. Roller chain drives b. Conveyor chains and sprockets c. Material conveyors 		
<ul style="list-style-type: none"> • Belt Drives <ul style="list-style-type: none"> a. V-belt drives b. Flat belt drives 		
<ul style="list-style-type: none"> • Bearing, seals, and gasketing 		
<ul style="list-style-type: none"> • Couplings and Alignment <ul style="list-style-type: none"> a. Gear couplings b. Chain couplings c. Rubber couplings 		
<ul style="list-style-type: none"> • Gear Reducers 		

<ul style="list-style-type: none"> • Pumps 		
<ul style="list-style-type: none"> • Filters 		
<ul style="list-style-type: none"> • Air compressors 		
<ul style="list-style-type: none"> • Plumbing <ul style="list-style-type: none"> a. Pipe b. Hose c. Copper d. Plastic 		
<ul style="list-style-type: none"> • Rigging 		
<ul style="list-style-type: none"> • Lead screws, ball screws, and tolerances 		
<ul style="list-style-type: none"> • Mechanical drawings <ul style="list-style-type: none"> a. Dimensioning b. Tolerances c. Surface Finish d. Geometric Dimensioning and Tolerancing e. Welding Symbols 		
<ul style="list-style-type: none"> • Gear Reducers 		
<ul style="list-style-type: none"> • Pumps 		
Hydraulics		
<ul style="list-style-type: none"> • Pumps <ul style="list-style-type: none"> a. Gear b. Vane c. Piston 		
<ul style="list-style-type: none"> • Valves <ul style="list-style-type: none"> a. Solenoid operated b. Manual c. Flow control d. Check valves 		
<ul style="list-style-type: none"> • Motors 		
<ul style="list-style-type: none"> • Filters <ul style="list-style-type: none"> a. Suction b. Pressure c. Magnetic 		
<ul style="list-style-type: none"> • Accumulators <ul style="list-style-type: none"> a. Piston b. Bladder 		
<ul style="list-style-type: none"> • Piping, Tubing and Hoses <ul style="list-style-type: none"> a. Installation b. Selecting 		
Hydraulic Cylinders		

Pneumatics		
<ul style="list-style-type: none"> • Compressors <ul style="list-style-type: none"> a. Reciprocating b. Screw 		
<ul style="list-style-type: none"> • Air Reducers/Expanders 		
<ul style="list-style-type: none"> • Air Driers 		
<ul style="list-style-type: none"> • Air Motors 		
<ul style="list-style-type: none"> • Vacuum Pumps <ul style="list-style-type: none"> a. Reciprocating b. Liquid ring 		
<ul style="list-style-type: none"> • Pneumatic cylinders 		
<ul style="list-style-type: none"> • Filters, regulators, and lubricators 		
<ul style="list-style-type: none"> • Solenoid-operated valves 		
<ul style="list-style-type: none"> • Manual valves 		
<ul style="list-style-type: none"> • Flow control valves 		
<ul style="list-style-type: none"> • Check valves 		
Hydraulic and Pneumatic Circuitry and Symbols		
<ul style="list-style-type: none"> • Correctly interpret hydraulic control system schematics 		
<ul style="list-style-type: none"> • Correctly interpret pneumatic control system schematics 		
Basic Machine Lubrication		
<ul style="list-style-type: none"> • Lubricant types 		
<ul style="list-style-type: none"> • Basic Machine Lubrication techniques 		
<ul style="list-style-type: none"> • Lubricant types 		
<ul style="list-style-type: none"> • Basic Machine Lubrication techniques 		
<ul style="list-style-type: none"> • Lubrication systems (pumps, filters, breathers, controls) 		
<ul style="list-style-type: none"> • Lubrication tools 		
Application of PDM Technologies		
<ul style="list-style-type: none"> • Vibration Analysis 		
<ul style="list-style-type: none"> • Thermography 		

Total Hours (Optional)		2000
-------------------------------	--	-------------

RELATED INSTRUCTION OUTLINE
INDUSTRIAL MECHANIC
O*NET-SOC CODE: 49.9041.01 RAPIDS CODE: 0171

Job Related Education Trident Technical College:

Course Name	Approximate Hours
Industrial Safety	45
Fundamentals of Industrial Technology	60
Schematics	60
Industrial Electricity	90
Problem Solving for Mechanical Applications	75
Pumps	75
Mechanical Power Applications	90
Preventative Maintenance	75
Piping Systems	45
Hydraulics	60
Pneumatics	60
Total Hours:	735