

WORK PROCESS SCHEDULE
INDUSTRIAL MAINTENANCE MECHANIC
O*NET-SOC CODE: 49-9041.00 RAPIDS CODE: 0308 HY

The following schedule is an example of work experience (OJL) and training considered necessary to develop a skilled and productive worker in the Industrial Maintenance Mechanic trade. Within the limits of basic trade requirements, the schedule is adaptable to local conditions.

	Approximate Hours
Safety and Health Skills	180
Basic Skills	780
Industrial Mechanical Skills	1440
Industrial Electrical Skills	1440
Leadership Competencies	160
Total	4000

RELATED INSTRUCTION OUTLINE
INDUSTRIAL MAINTENANCE MECHANIC
O*NET-SOC CODE: 49-9041.00 RAPIDS CODE: 0308HY

This instruction shall include, but not be limited to the following Lanier Technical College Technical Certificates of Credit

IE41 – Industrial Electrician

IF11 – Industrial Fluid Power Technician

The program descriptions are below. **Total RTI contact hours is 630**

IE41 – Industrial Electrician: The Industrial Electrician Technical Certificate of Credit prepares students for employment using basic electrical maintenance skills. Instruction is provided in the occupational areas of industrial safety, direct and alternating current principles, and industrial wiring.

IF11 – Industrial Fluid Power Technician: The Industrial Fluid Power Technician certificate program prepares students to inspect, maintain, service, and repair industrial mechanical systems, fluid power systems, and pumps and piping systems. Topics include safety procedures, mechanics, fluid power, and pumps and piping system maintenance.

Industrial Systems Technology Diploma Program Course Descriptions:

IDSY 1101 DC Circuit Analysis: 3 Credit Hours, 60 Contact Hours: This course introduces direct current (DC) concepts and applications. Topics include: electrical principles and laws; batteries; DC test equipment; Series, parallel, and simple combination circuits; and laboratory procedures and safety practices.

IDSY 1105 AC Circuit Analysis: 3 Credit Hours, 60 Contact Hours: This course introduces alternating current concepts, theory, and application of varying sine wave voltages and current, and the physical characteristics and applications of solid state devices. Topics include, but are not limited to, electrical laws and principles, magnetism, inductance and capacitance.

IDSY 1110 Industrial Motor Controls I: 4 Credit Hours, 105 Contact Hours: This course introduces the fundamental concepts, principles, and devices involved in industrial motor controls, theories and applications of single and three-phase motors, wiring motor control circuits, and magnetic starters and braking. Topics include, but are not limited to, motor theory and operating principles, control devices, symbols and schematic diagrams, NEMA standards, Article 430 NEC and preventative maintenance and troubleshooting.

IDSY 1170 Industrial Mechanics: 4 Credit Hours, 120 Contact Hours: This course introduces and emphasizes the basic skill necessary for mechanical maintenance personnel. Instruction is also provided in the basic physics concepts applicable to the mechanics of industrial production equipment, and the application of mechanical principles with additional emphasis on power transmission and specific mechanical components.

IDSY 1130 Industrial Wiring: 4 Credit Hours, 105 Contact Hours: This course teaches the fundamental concepts of industrial wiring with an emphasis on installation procedures. Topics include: grounding, raceways, three-phase systems, transformers (three-phase and single-phase), wire sizing, overcurrent protection, NEC requirements, industrial lighting systems, and switches, receptacles, and cord connectors.

IDSY 1190 Fluid Power Systems: 4 Credit Hours, 105 Contact Hours: This course provides instruction in the fundamentals of safely operating hydraulic, pneumatic, and pump and piping systems. Theory and practical application concepts are discussed. Topics include hydraulic system principles and components, pneumatic system principles and components, and the installation, maintenance, and troubleshooting of pump and piping systems.

IDSY 1195 Pumps and Piping Systems: 3 Credit Hours, 75 Contact Hours: This course provides instruction in the fundamentals concepts of industrial pumps and piping systems. Topics include: pump identification, pump operation, installation, maintenance and troubleshooting, piping systems and installation of piping systems.

Totals: 25 Credit Hours, 630 Contact Hours

Company:		
Apprentice:		
Mentor:		
OJT Skills matrix for 2 year Industrial Maintenance Apprenticeship - 4000 hours		
	OJT hours	Total hours
A. Safety and Health skills		
1. Demonstrate good safety practices	8	
2. Demonstrate proper techniques for lifting and carrying	4	
3. Exercise extreme caution when working around electric lines and equipment	10	
4. Understand the hazards and safety involved in NFPA-70E	40	
5. Maintain work area properly	16	
6. Practice ladder and scaffold safety and safety involved with overhead operations	8	
7. Safely operate hand tools	16	
8. Properly handle gas cylinders, hoses, and regulators	8	
9. Wear required safety equipment / PPE	8	
10. Identify types of fire extinguishers and their proper uses	4	
11. Practice fire safety when operating heating equipment or working with hot materials	4	
12. Demonstrate safe practices when using powers tools	16	
13. Demonstrate safe use of solvents	4	
14. Read and interpret SDS and GHS sheets	4	
15. Demonstrate awareness of confined space entry requirements	4	
16. Identify hazardous materials on site (i.e. leaking gas, asbestos)	4	
17. Understands and complies with OSHA guidelines and requirements	8	
18. Administer first aid and CPR	6	
19. Understands the principles and use of Lock-out/tag-out	8	
		180
B. Basic Skills		
1. Use good time management skills (i.e. efficient use of time on job site)	40	
2. Follows GMP as defined by the company	40	
3. Read measuring devices	60	
4. Read and interpret drawings	120	
5. Knowledge of basic applied computer skills and CMMS	80	
6. Reads blueprints, specification and sketches and uses basic mathematics	160	
7. Read and interpret applicable codes	40	
8. Perform simple layout work and make templates	80	
9. Use various power tools	80	
10. Use precision measuring instruments such as height and depth gauges, calipers, micrometers	80	
		780
D. Industrial Mechanical Skills		
1. Theory of machines and mechanical principles	120	
2. Disassembles and Reassembles machinery	120	
3. Welding and Fabrication	120	
4. Lay out work from blueprints, sketches and written instructions	40	
5. Knowledge of various complex hydraulic/pneumatic systems	120	
6. Overhauls various complex machinery such as power transmission	120	
7. Lubricating of systems	80	
8. Reliability Concepts	80	
9. Performs preventive maintenance on mechanical equipment	120	
10. Broad knowledge of mechanical principles	120	
11. Lay out and plan component installation	80	
12. Sets up and operates various kinds of machine such as lathes, planers, milling machines	320	
		1440
Industrial Electrical Skills		
1. Safety Electrical	60	
2. Wiring	120	
3. Process Control Equipment / wiring	120	
4. Install Troubleshoot and Repair Electrical Equipment	360	
5. Electric Motors / Drives	160	
6. General Electrical Maintenance	160	
7. Reliability Concepts	60	
8. PLC programming	120	
9. Inputs, outputs, sensors, actuators	120	
		1440
F. Leadership Competencies		
1. Project planning and scheduling	80	
2. Preparing and presenting technical information	80	
		160
Target for a 2 year program		4000
Total Hours Planned		4000

