

Industrial Mechanic (Millwright) - Online Upgrading

A Guide to Course Content

Industrial Mechanics (Millwright) install, maintain, and repair machinery in factories, mines and production facilities.

Training Requirements:

All candidates applying for upgrading training must be eligible to challenge the Industrial Mechanic Interprovincial Journeyman examination.

This program is designed to prepare individuals to challenge the Industrial Mechanic (Millwright) Interprovincial Journeyman examination.

The upgrading program encompasses the scope of the trade. Completion of all assignments will aid in success.

As there is no practical component to the upgrading training program, additional study and practice is recommended in areas where individuals have minimal on-the-job experience.

Important Notes:

In 2022-23, the courses will begin at the end of August 2022, with the enrollment for the courses closing December 31st. Students are expected to complete their course by the end of training in June 2023.

In 2023-24, the courses will begin at the end of August 2023, with the enrollment for the courses closing November 30th. This program course has an end date for the technical training year and students must complete the entire course by May 31st, 2024.

Computers used by participants for this program must meet certain minimum technical requirements. This information will be provided upon successful application to this program.

Interested candidates must contact SATCC, not Saskatchewan Polytechnic, when applying for this program.

This document briefly summarizes the training delivered in the upgrading program.

The content of the technical training components is subject to change without notice.

A - PERFORMS COMMON OCCUPATIONAL SKILLS

- **A-1 PERFORMS SAFETY RELATED FUNCTIONS**
 - Uses personal protective equipment (PPE) and safety equipment
 - Maintains safe worksite
 - Protects the environment
 - Performs lock-out/tag-out and zero-energy state procedures

- **A-2 USES TOOLS AND EQUIPMENT**
 - Uses hand and portable power tools
 - Uses shop machines
 - Uses access equipment

- **A-3 PERFORMS ROUTINE TRADE TASKS**
 - Plans work
 - Fabricates workpiece
 - Lubricates systems and components
 - Performs leveling of components and systems
 - Uses fastening and restraining devices
 - Performs material identification
 - Performs heat treatment of metal
 - Uses mechanical drawings and schematics

- **A-4 USES COMMUNICATION AND MENTORING TECHNIQUES**
 - Uses communication techniques
 - Uses mentoring techniques

- **A-5 PERFORMS MEASURING AND LAYOUT**
 - Prepares work area, tools and materials
 - Measures material and components
 - Lays out components
 - Maintains precision measuring and layout tools

- **A-6 PERFORMS CUTTING AND WELDING OPERATIONS**
 - Cuts material using oxy-fuel and plasma arc equipment
 - Joins material using oxy-fuel welding equipment
 - Welds material with gas metal arc welding (GMAW) equipment
 - Maintains welding equipment
 - Welds material using shielded metal arc welding (SMAW) equipment

B – PERFORMS RIGGING, HOISTING/LIFTING AND MOVING

- **B-7 PLANS RIGGING, HOISTING/LIFTING AND MOVING**
 - Determines load
 - Selects rigging equipment
 - Selects hoisting/lifting and moving equipment
 - Secures area

- **B-8 RIGS, HOISTS/LIFTS AND MOVES LOAD**
 - Sets up rigging, hoisting, and lifting equipment
 - Performs hoist/lift and move
 - Maintains rigging, hoisting/lifting and moving equipment

C – SERVICES MECHANICAL POWER TRANSMISSION COMPONENTS AND SYSTEMS

- **C-9 SERVICES PRIME MOVERS**
 - Installs prime movers
 - Diagnoses prime movers
 - Maintains prime movers
 - Repairs prime movers

- **C-10 SERVICES SHAFTS, BEARINGS AND SEALS**
 - Installs shafts, bearings and seals
 - Diagnoses shafts bearings and seals
 - Maintains shafts, bearings and seals
 - Repairs shafts, bearings and seals

- **C-11 SERVICES COUPLINGS, CLUTCHES AND BRAKES**
 - Installs couplings, clutches and brakes
 - Diagnoses couplings, clutches and brakes
 - Maintains couplings, clutches and brakes
 - Repairs couplings, clutches and brakes

- **C-12 INSTALLS CHAIN AND BELT DRIVE SYSTEMS**
 - Installs chain and belt drive systems
 - Diagnoses chain and belt drive systems
 - Maintains chain and belt drive systems
 - Repairs chain and belt drive systems

- **C-13 MAINTAINS GEAR SYSTEMS**
 - Installs gear systems
 - Diagnoses gear systems
 - Maintains gear systems
 - Repairs gear systems

- **C-14 PERFORMS SHAFT ALIGNMENT PROCEDURES**
 - Performs rough alignment
 - Performs dial alignment
 - Performs laser alignment

D – SERVICES MATERIAL HANDLING/PROCESS SYSTEMS

- **D-15 SERVICES ROBOTICS AND AUTOMATED EQUIPMENT**
 - Installs robotics and automated equipment
 - Diagnoses robotics and automated equipment
 - Maintains robotics and automated equipment
 - Repairs robotics and automated equipment
- **D-16 SERVICES FANS AND BLOWERS**
 - Installs fans and blowers
 - Diagnoses fans and blowers
 - Maintains fans and blowers
 - Repairs fans and blowers
- **D-17 SERVICES PUMPS**
 - Installs pumps
 - Diagnoses pumps
 - Maintains pumps
 - Repairs pumps
- **D-18 SERVICES COMPRESSORS**
 - Installs compressors
 - Diagnoses compressors
 - Maintains compressors
 - Repairs compressors
- **D-19 SERVICES PROCESS PIPING, TANKS AND CONTAINERS**
 - Installs process tanks and containers
 - Installs process piping
 - Diagnoses process tanks and containers
 - Diagnoses process piping
 - Maintains process tanks and containers
 - Maintains process piping
 - Repairs process tanks and containers
 - Repairs process piping
- **D-20 SERVICES CONVEYING SYSTEMS**
 - Installs conveying systems
 - Diagnoses conveying systems
 - Maintains conveying systems
 - Repairs conveying systems

E – SERVICES FLUID POWER SYSTEMS

- **E-21 SERVICES HYDRAULIC SYSTEMS**
 - Installs hydraulic systems
 - Diagnoses hydraulic systems
 - Maintains hydraulic systems
 - Repairs hydraulic systems

- **E-22 SERVICES PNEUMATIC AND VACUUM SYSTEMS**
 - Installs pneumatic vacuum systems
 - Diagnoses pneumatic vacuum systems
 - Maintains pneumatic vacuum systems
 - Repairs pneumatic vacuum systems

F – PERFORMS PREVENTATIVE AND PREDICTIVE MAINTENANCE TESTING AND COMMISSIONING

- **F-23 PERFORMS PREVENTATIVE AND PREDICTIVE MAINTENANCE**
 - Performs preventative maintenance activities
 - Performs vibration analysis procedures
 - Performs balancing procedures
 - Performs non-destructive testing (NDT) procedures
 - Performs fluid analysis procedures
 - Performs/schedules predictive maintenance activities

- **F-24 COMMISSIONS AND DECOMMISSIONS EQUIPMENT**
 - Commissions systems and components
 - Decommissions systems and components

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