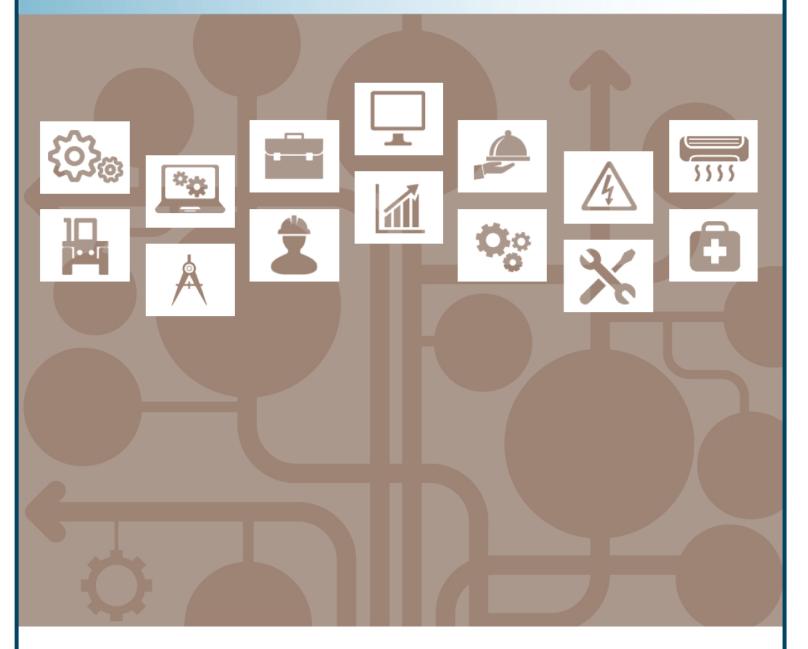


Entry Level Assessment Blueprint

Industrial Maintenance Mechanics



Test Code: 2074 / Version: 01

Specific Competencies and Skills Tested in this Assessment:

Machinery and Equipment

- Disassemble, repair, and reassemble machinery/equipment
- Maintain operating condition and perform preventive maintenance of the machinery/equipment
- Identify and troubleshoot component defects and malfunctions
- Test operation of newly repaired machinery/equipment
- Analyze test results, machine error messages, and information from operators in order to diagnose machinery/equipment problems
- Maintain record of repairs and maintenance performed

Tools and Safety

- Select and differentiate appropriate use of various hand tools
- Demonstrate appropriate care of hand tools
- Identify and safely use large machine tools, including lathes, mills, hoists, rigging equipment, and presses
- Identify safe use of ladders and scaffolding
- Demonstrate understanding of lock-out/tag-out procedures
- Exhibit understanding of shop safety



Electronics and Electrical Principles

- Apply basic electrical principles
- Demonstrate knowledge of basic CNC operations
- Demonstrate knowledge of basic programmable logic controllers (PLCs)
- Exhibit basic knowledge of electrical symbols

Specific Competencies and Skills continued:

Hydraulics and Pneumatics

- Interpret basic hydraulic and pneumatic symbols
- Apply knowledge of hydraulic and pneumatic components
- Interpret hydraulic and pneumatic principles

Motors and Motor Controls

- Apply basic electrical principles of motors
- Interpret appropriate applications for types of motors (linear, servo, AC induction, DC motors, and transformers)
- Select appropriate applications for frequency drives
- Identify motor components

Mechanism Drives

- Apply principles of mechanisms
- Identify appropriate applications of various gears and drives
- Demonstrate knowledge of appropriate set-up procedures
- Apply principles of mechanics

Industrial Robotics Systems

- Interpret appropriate industrial robotic functions and applications
- Interpret basic robotic programming, including CADD
- Identify various industrial robotic design features

Blueprints and Schematics

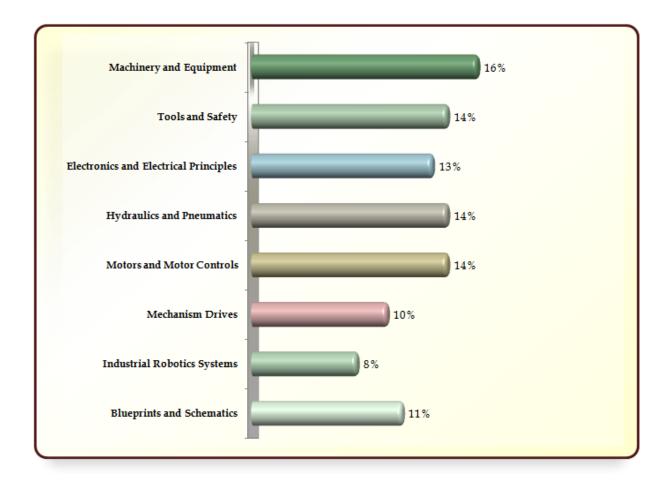
- Interpret various lines
- Exhibit knowledge of legends
- Interpret blueprint and schematic components
- Interpret title block information
- Demonstrate knowledge of views, angles, and tolerances



Written Assessment:

Administration Time: 3 hours **Number of Questions:** 169

Areas Covered:



Sample Questions:

A flow meter measures

- A. force per unit of area
- B. volume per unit of time
- C. the product of force and area
- D. the product of volume and time

The electrical component used for memory logic is the

- A. control transformer
- B. closed pushbutton
- C. control relay
- D. circuit breaker

A body weighing 100 pounds is lifted 10 feet. What is its change in potential energy?

- A. 10 pounds
- B. 1,000 pounds
- C. 10 foot pounds
- D. 1,000 foot pounds

The graphite connectors that ride against the motor commutator are called

- A. brushes
- B. slip rings
- C. armatures
- D. fields

The zero point of a robot is considered the

- A. first program step
- B. last program step
- C. origin of a coordinate system
- D. point of axis movement

Performance Assessment:

Administration Time: 3 hours

Number of Jobs: 4

Areas Covered:

20% Connect and Operate a Circuit

Assemble pneumatic circuit, test functionality of automatic mode, adjust flow control, switch to manual mode, safety, and time to complete Job 1.

31% Assemble a Multiple Shaft Gear Drive System

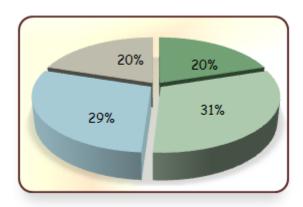
Mount and level motor, install and align flexible coupling, install and adjust gears, install prony brakes, start and run motor, record motor current, torque down prony brakes, record motor current rise, safety, and time to complete Job 2.

29% Read and Interpret an Industrial Blueprint

Material use, surface finish, surface tolerance, identify "Line B", include angle on taper, safety, and time to complete Job 3.

20% Troubleshoot an Electrical Control System

Determine the malfunction, remove faulty fuse, replace fuse, start and run motor, safety, and time to complete Job 4.



Sample Job: Read and Interpret an Industrial Blueprint

Maximum Time: 30 minutes

Participant Activity: The participant will read the blueprint provided and

properly record specifications.

