



Emerging Technician - Electrical

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Test Type: The Emerging Technician credential in Electrical is just one more piece of the comprehensive credentialing solution offered by AMTEC. It provides a credible means of verifying the knowledge and skills expected by industry from an entry-level industrial electrical technician. This certification is awarded for successfully attaining the national cut-score established by subject matter experts in the field of Emerging Technician - Electrical. These credentials were developed by NOCTI which also serves as the third-party delivery partner for AMTEC.

Revision Team: This credential was developed by NOCTI for the Advanced Manufacturing Technical Education Collaborative (AMTEC). Subject matter experts were recruited by AMTEC from its education and industry connections.



47.0303 – Industrial Mechanics and
Maintenance Technology



Career Cluster - Architecture
and Construction



449-9041.00 – Industrial
Machinery Mechanics

Written Assessment

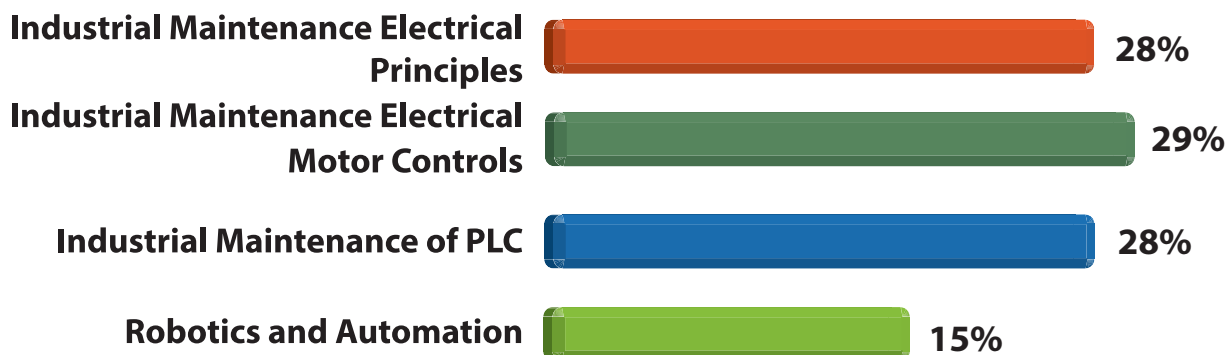
This written assessment consists of questions to measure an individual's factual theoretical knowledge.

Administration Time: 2 hours

Number of Questions: 111

Number of Sessions: This assessment may be administered in one, two or three sessions.

Areas Covered



Specific Competencies and Skills Tested in This Assessment

Industrial Maintenance Electrical Principles

- Demonstrate knowledge of basic electrical safety principles
- Demonstrate basic knowledge of electricity
- Analyze and install electrical components and circuits
- Install/replace wire
- Operate electrical/electronic test equipment

Industrial Maintenance Electrical Motor Controls

- Install/maintain/troubleshoot limit and proximity switches
- Troubleshoot/calibrate/adjust and replace sensors and input devices
- Troubleshoot/repair/replace motors (AC and DC)
- Install/maintain/troubleshoot servo motors
- Install/maintain/troubleshoot VFD drives (Variable Frequency Drive)
- Install/repair/replace motor starters
- Interpret electrical schematics and relay logic

Industrial Maintenance of PLC

- Demonstrate knowledge of basic PLC systems
- Describe and connect PLC hardware
- Manipulate PLC software
- Interpret ladder logic programs
- Use sequential function chart programming
- Use PLC communication tools

Robotics and Automation

- Describe robot hardware and operation
- Describe Cartesian axes and coordinate system
- Set up, repair, and maintain robots and automated equipment
- Program robots
- Perform robot maintenance and PM
- Troubleshoot robots using error codes

Sample Questions

Potential difference refers to the energy difference in electrons between the two reference points measured in

- A. amperes
- B. coulombs
- C. ohms
- D. volts

Which of the following meters does NOT use power from the circuit it is measuring to make a reading?

- A. voltmeter
- B. ammeter
- C. ohmmeter
- D. wattmeter

The Hall Effect sensor detects

- A. metallic objects
- B. non-metallic objects
- C. magnetic fields
- D. non-magnetic fields

What does discrete I/O mean?

- A. only ON-OFF devices
- B. multiple switch devices
- C. only ON devices
- D. only OFF devices

Joint motion speed value is expressed as

- A. a percentage of minimum speed
- B. feet per second
- C. meters per second
- D. a percentage of maximum speed

