



# Electrical Power Testing

## Level I Certification Content Outline

### Standard Model/Computer-Based Testing

***The candidate for NICET certification as a Level I Electrical Power Testing technician should have the knowledge and experience to:***

Under the direct supervision of a higher-level technician, work safely around electrical power equipment and cabling; identify test equipment; and make simple electrical connections.

*Note: For each exam, the skills and knowledge listed under each task are suggestive of those involved in that task, but are not intended to constitute an exhaustive listing.*

### 1.1 Field Testing

*(Approximately 10 - 15% of the exam)*

#### **1.1.1 Identify basic test equipment and make simple test connections.**

**Knowledge:**

Types of test equipment  
Methods of connecting of test equipment to apparatus

**Skills:**

Identify basic test equipment and accessories, including insulation resistance test set, multi-meter, low resistance ohmmeter, voltage detector, overpotential test set, transformer turns ratio test set, relay test set, temperature and humidity instrument, high current test set, ground resistance test set, phase rotation meter, capacitance meter, etc.

Verify that test equipment has been calibrated.

Use hand tools, such as socket wrench, torque wrench, pliers, screwdriver, etc.

### 1.2 Safety

*(Approximately 75 - 80% of the exam)*

#### **1.2a Safety/General Safety**

##### **1.2a.1 Correctly use portable fire extinguishers.**

**Knowledge:**

Classification of fire extinguisher types and applications for each  
NFPA classifications for firefighting equipment

**Skills:**

Use proper firefighting techniques for each type of fire.

Confirm that an extinguisher is of the appropriate type and properly certified for use.

##### **1.2a.2 Recognize sources of safety information.**

**Knowledge:**

Federal agencies that establish safety and environmental regulations  
NFPA 70E  
ANSI Z535.4  
OSHA 29 CFR, Part 1926 Subpart C  
OSHA 29 CFR 1910.145, 331 - 335, and 1200

**Skills:**

Read and interpret visual warning signs, including arc flash placards.

Read and interpret job safety and hazard information.

Locate information in the MSDS.



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## **1.2a.3 Apply first aid and CPR when needed.**

### **Knowledge:**

Symptoms that require attention  
American Red Cross First Aid and Safety Handbook  
American Heart Association Guidelines for CPR and ECC

### **Skills:**

Recognize situations requiring first aid or CPR.  
Apply standard first aid.  
Apply CPR.

## **1.2a.4 Properly use personal protective equipment, including hard hats, safety boots, safety glasses, hearing protection, work gloves, body harnesses, and fire-retardant clothing.**

### **Knowledge:**

OSHA 29 CFR, Part 1910, Subpart I  
OSHA 29 CFR, Part 1926, Subpart E  
NFPA 70E, Article 250 and Annexes H and M  
Purpose of PPE

### **Skills:**

Properly wear correctly sized PPE.  
Inspect for and recognize damage that would impair the safety of the equipment.

## **1.2a.5 Follow safe work practices involving ladders and scaffolds.**

### **Knowledge:**

OSHA 29 CFR, Part 1910, Subpart D  
OSHA 29 CFR, Part 1926, Subparts L, M, and X  
Methods associated with ladder safety, scaffold use, and fall protection

### **Skills:**

Recognize safe procedures and hazards associated with ladders and scaffolds.  
Select a ladder that is appropriate to the application and free of defects.  
Verify that scaffolding has been approved for use.  
Inspect fall protection equipment prior to use.  
Use correct fall protection procedures and equipment.  
Remove defective equipment from service.

## **1.2a.6 Recognize confined spaces and safety procedures.**

### **Knowledge:**

Hazards associated with confined spaces  
OSHA 29 CFR, Part 1910.132 and 146

### **Skills:**

Recognize confined spaces, potential hazards, and entry requirements.

## **1.2b Safety/Lockout and Tagout**

### **1.2b.1 Recognize lockout and tagout.**

#### **Knowledge:**

Meanings of tags and locks  
OSHA 29 CFR 1910.147, Subpart J  
Different forms of stored energy and isolations

#### **Skills:**

Respond appropriately to the presence of tags and locks.

## **1.5 Management and Planning**

*(Approximately 5 -10% of the exam)*

### **1.5.1 Communicate accurately and ethically about work.**

#### **Knowledge:**

NICET Code of Ethics as it applies to reporting on work activities

#### **Skills:**

Read and write standard English.  
Recognize and properly use the names of basic electrical devices, standard electrical tests, and units of electrical current, voltage, resistance, and frequency.

Note on Standards: A number of technical standards are listed in this Content Outline because they stand as authoritative sources of some of the critical knowledge required to properly perform a particular task. Successful candidates are expected to have a working knowledge of the relevant parts of the referenced standards. In other words, the candidate is expected to have the same knowledge of a referenced standard when taking a NICET test as he/she should have available by recall and interpretive thought when performing the task. (In some cases, standards are listed because they are the ultimate source of knowledge that is more typically acquired through secondary sources.)