NOCTI
Partner Credential Blueprint

SEMI FOUNDATION

Equipment Technician

Codes: 9295 and 9296 / Version: 01

General Assessment Information

Blueprint Contents

Test Type: This certification assessment is a customized assessment for the SEMI Foundation. This assessment measures technical skills at the occupational level. This assessment covers both a written and performance component and is used primarily at the postsecondary level. It can also be used at the secondary level for robust semi-conductor programs. This assessment can be delivered in an online or paper/pencil format.

Revision Team: The assessment content is based on input from representatives from the states of Arizona, California, Delaware, Florida, Idaho, Massachusetts, Minnesota, New Hampshire, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Texas, Virginia, Washington, and Wisconsin.

CIP Code
47.0303 - Industrial Mechanics and Maintenance Technology/Technician

Learning that works for America CTE
Career Cluster
Manufacturing

o*net in*it
51-9141.00 - Semiconductor Processing Technicians

SEMI FOUNDATION

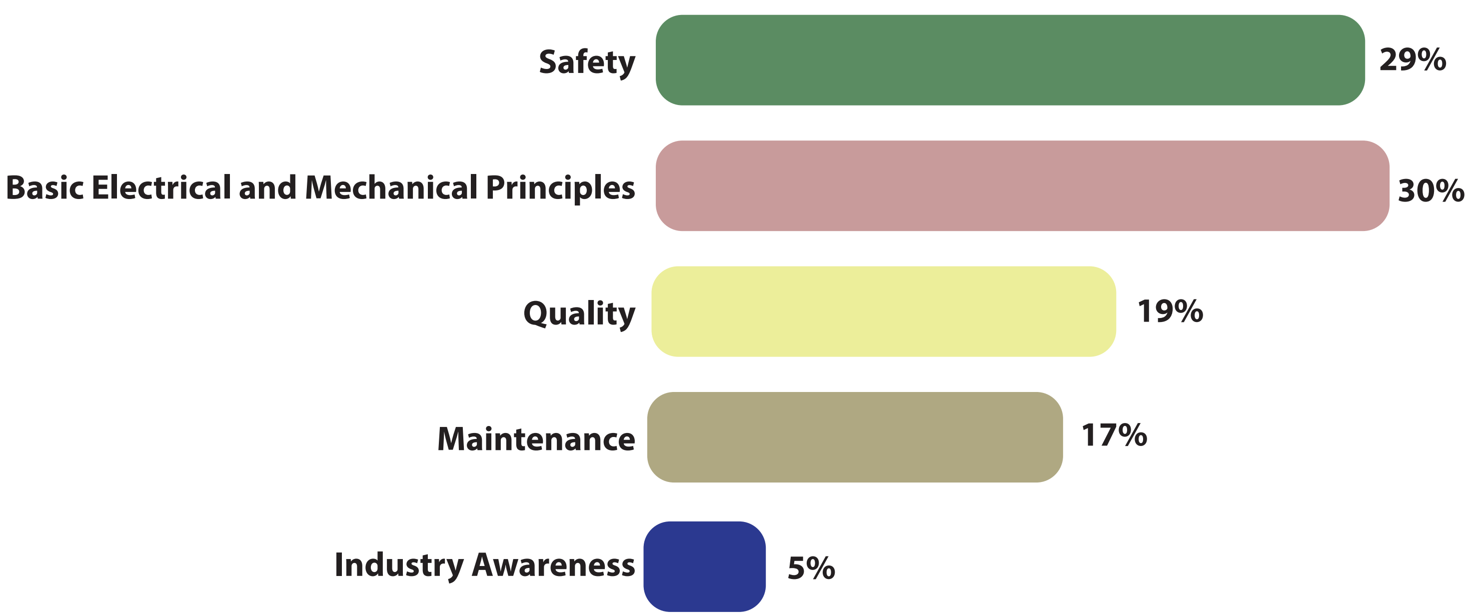
The SEMI Foundation supports the development of a diverse, skilled semiconductor workforce by advancing equitable access to education, career pathways, and industry connections. Through partnerships with schools, community organizations, and employers, the SEMI Foundation works to strengthen talent pipelines and expand opportunities in semiconductor manufacturing and advanced technology careers.

Written Assessment

NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

Administration Time: 3 hours
Number of Questions: 100
Number of Sessions: This assessment may be administered in one or two sessions.

Areas Covered



Specific Standards and Competencies Included in this Assessment

Safety

- Identify and reference chemical information found on the SDS
- Recognize electrical safety fundamentals
- Recognize and identify Personal Protective Equipment (PPE)
- Describe OSHA standards and application
- Summarize cleanroom safety practices
- Explain the importance of machine guarding and safety systems

Basic Electrical and Mechanical Principles

- Understand and explain basic electrical concepts
- Understand and explain basic pneumatic applications
- Understand and explain gas delivery system
- Discuss basic vacuum principles
- Discuss Radio Frequency (RF) fundamentals
- Describe basic operation of robots

Quality

- Describe the impact of quality on workers and the company
- Explain the importance of procedures
- Discuss Statistical Process Control (SPC)
- Demonstrate proper reporting and documentation
- Discuss Total Productive Maintenance (TPM) principles
- Discuss lean manufacturing concepts
- Demonstrate and apply model-based problem solving

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Specific Standards and Competencies (continued)

Maintenance

- Describe the difference between preventative and corrective maintenance
- Understand the importance of following instructions and plans
- Identify common hand tools and measurement tools for preventative and corrective maintenance
- Understand common equipment consumables

Industry Awareness

- Explain cleanroom protocol
- Describe basic semiconductor manufacturing processes
- Summarize fabrication facility support systems

Sample Questions

Which pH level is an acid?

A. 5
B. 8
C. 11
D. 14

Why is particle control critical in a semiconductor fab?

A. a single particle can short-circuit or block a device feature
B. particles increase the temperature of wafers during processing
C. particles impact adhesion of photoresist
D. particles can cause excessive etching in finer patterns

The primary purpose of cooling water systems in semiconductor fab is to

A. provide drinking water and safety showers for facility personnel
B. remove heat generated by equipment to maintain stable operating temperatures
C. supply water for chemical mixing and wafer cleaning processes
D. provide emergency fire suppression water storage

What can happen if a backing pump unexpectedly fails?

A. damage to the primary pump
B. the main chamber pumps down too quickly
C. the heat exchanger will burn out
D. wafer temperature will decrease

What are the three areas in which lean manufacturing reduces waste?

A. purchasing, receiving, and materials
B. robots, energy, and water
C. time, quality, and cost
D. people, process, and materials

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Sample Questions

Which best demonstrates a culture that values quality procedures?

A. workers feel comfortable stopping production when they notice problems
B. supervisors discourage reporting issues to avoid downtime
C. teams focus only on meeting production targets, not customer requirements
D. employees are told to figure out their own methods for completing tasks

A device that detects the presence of an object is called a/an

A. toggle switch
B. temperature sensor
C. proximity switch
D. end effector

Which fitting type is common in semiconductor high-purity gas lines?

A. VCR
B. PVC
C. NPT
D. RJ45

It is critical to move slowly and deliberately in a cleanroom to

A. minimize particle generation and air turbulence
B. increase the static charge on cleanroom garments
C. prevent vibration damage to the raised flooring
D. conserve energy and avoid physical fatigue

Which consumable is typically used to create a seal between two stationary, flat surfaces?

A. washer
B. gasket
C. filter
D. bearing

Performance Assessment

A corresponding performance-based assessment (8442) is currently in pilot and is not included in this blueprint. Upon completion of pilot testing, a new performance assessment blueprint will be published.