NOCTI
Partner Credential Blueprint

AMTEC Industry 4.0 Assessment

Codes: 9077 Version: 01

General Assessment Information

Blueprint Contents

Test Type: The Industry 4.0 credential 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 industry 4.0 technician. This certification is awarded for successfully attaining the national cut-score established by subject matter experts in the field of Industry 4.0. 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.

CIP Code

47.0303 – Industrial Mechanics and Maintenance Technology

Learning that works for America CTE™

Career Cluster - Manufacturing

O*net™ in*it

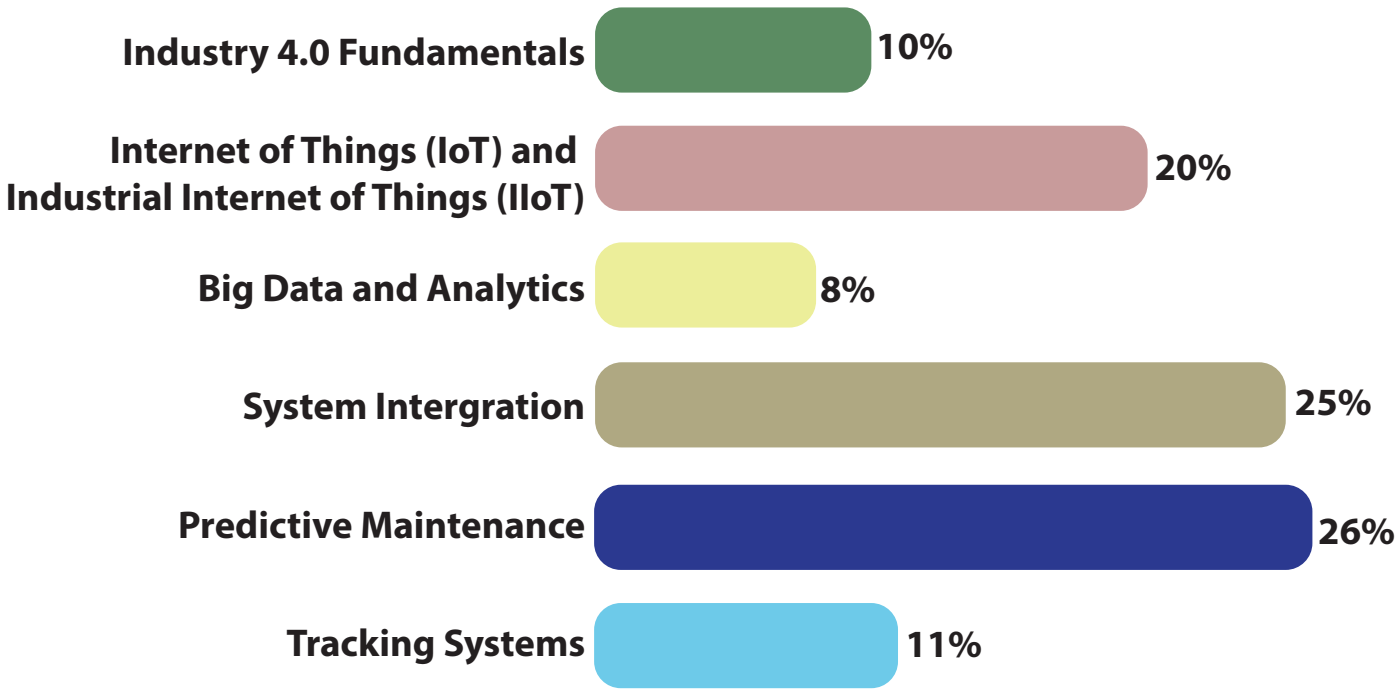
49-9041.00 – Industrial Machinery Mechanics

Written Assessment

This written assessment consists 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, two or three sessions.

Areas Covered



Specific Competencies and Skills Tested in This Assessment

Industry 4.0 Fundamentals
- Define additive manufacturing and advanced materials as it relates to Industry 4.0
- Describe how cybersecurity impacts Industry 4.0
- Identify extended, virtual, and augmented reality's role in Industry 4.0
- Identify smart systems related to Industry 4.0
- Discuss the concept of proactive maintenance

Internet of Things (IoT) and Industrial Internet of Things (IIoT)
- Identify interconnectivity of IoT and IIoT
- Identify IIoT devices
- Identify IIoT media
- Discuss cybersecurity related to Industry 4.0
- Review safety precautions related to IoT and IIoT

Big Data and Analytics
- Explain the role of Big Data in Industry 4.0
- Explain the use of Artificial Intelligence (AI)
- Describe the use of digital twins in the production environment
- Describe and explain the utilization of Big Data and The Cloud

System Integration
- Discuss application of robotics in Industry 4.0
- Review safety related to robot integration
- Discuss the usage of advanced HMIs and PLCs
- Describe electrical control theory and circuits
- Discuss the application of Variable Frequency Drives (VFDs)
- Describe advanced fluid power systems
- Identify basic network concepts

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Specific Competencies and Skills (continued)

Predictive Maintenance

- Apply proactive mindset for equipment performance monitoring
- Review safety hazards related to predictive maintenance

Tracking Systems

- Identify the integration of intelligent tracking systems
- Review safety hazards related to tracking systems

Sample Questions

Extended reality (XR) is a

A. digital twin on the manufacturing floor
B. mixture of augmented and virtual reality
C. type of 3D printing technology
D. type of robotic technology

Industrial Internet of Things (IIoT) devices are designed to

A. help with early detection of machine faults
B. allow for reactive maintenance opportunities
C. eliminate all manual labor
D improve engineering material properties

Big Data in Industry 4.0 allows manufacturers to

A. enable reactive maintenance
B. increase cybersecurity risks
C. make data-driven decisions
D. tune process controls

Which is a category of vision applications on a robot?

A. speech recognition
B. text-to-speech conversion
C. GPS navigation
D. object recognition

The primary concern regarding robotic safety in Industry 4.0 is

A. decreased productivity
B. limited connectivity
C. potential for human-robot collisions
D. lack of customization options

Motor current analyzers are used for

A. object recognition
B. detecting imbalances
C. viscosity testing
D. filter buildup