MANUFACTURING SKILL STANDARDS COUNCIL

"Certifying the Industrial Athlete of the Future"

Standards—Logistics
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Background

The Manufacturing Skill Standards Council (MSSC) was officially recognized by the federal National Skill Standards Board (NSSB) in 1998 as the "Voluntary Partnership" for Manufacturing under the bipartisan National Skill Standards Act of 1994. MSSC was mandated to establish the industry-defined core skill standards and certifications needed for frontline work (entry-level through frontline supervisor) common across all sectors of manufacturing.

In 2007, MSSC received funds under a U.S. Department of Labor grant to the North Central Texas Workforce Investment Board, in close cooperation with Hillwood Alliance Texas, to develop an additional industry-led standards, training and certification system for frontline workers in supply chain logistics. These are the material handling and distribution workers in all supply chain facilities: raw material providers, production sites, distribution centers-warehouses and transporters. This was the basis for the MSSC Certified Logistics Technician (CLT) training and certification program launched in 2009 under the aegis of MHI, the nation's association of material handling companies.

These industry-recognized, nationally portable CLA and CLT credentials help prepare individuals for careers in the rapidly growing and changing world of global supply chain logistics. Companies will benefit from a pipeline of higher skilled workers, decreased recruitment costs, reduced turnover, elimination of remedial training costs, and an agile, readily trainable workforce able to adapt to change—the "Industrial Athlete of the Future."

To ensure that its standards remain current with industry best practice and technological change, MSSC updates them every 2-3 years with industry subject matter experts. In the 2020 review of these standards for the 2021 edition, MSSC formed a select Committee (SC) on Emerging Logistical Process Technologies to choose and define a set of newly emerging "Industry 4.0" technologies for inclusion in the standards. These technologies are Cybersecurity, Biometrics, Autonomous Robots, Augmented Reality, Data Analytics, Remote Learning, Artificial Intelligence (AI), 5G, Industrial Internet of Things ((IIOT).

Over the years, several other federal agencies and programs have used MSSC's standards-based training and certification programs including the Army, Air Force, Marines, the Department of Veterans Affairs, Job Corps, and the federal prison system. In 2009, MSSC became a Founding Partner of the NAM-endorsed Skills Certification System. In 2011, the American National Standards Institute (ANSI) accredited MSSC under ISO Standard 17024 (Personnel Certification) for CLT, making MSSC the only national certification body with this esteemed recognition for logistics.

MSSC's Work Standards are those used for CLA and CLT Assessments since they define the Key Activities and related Performance Indicators in which MSSC CLA & CLT certificants need to demonstrate competency. MSSC's Work Standards for Logistics are organized around two key activity areas.

- ***The Foundational-Level Certified Logistics Associate (CLA)***
- ***The Mid-Level Certified Logistics Technician (CLT)***

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MSSC Work Standards

CERTIFIED LOGISTICS ASSOCIATE (CLA)

Key Activities and Performance Indicators

1. Demonstrate an understanding of the various roles in the global supply chain logistics life cycle

a. Demonstrates clear understanding of how the product and logistics life cycle affects the company's viability, profitability and international competitiveness
b. Exhibits clear understanding of how one's role affects other parts of the product life cycle
c. Understands various transportation options
d. Applies clear understanding of the basic principles of cost effectiveness and productivity enhancements
e. Understands productivity measures in logistics operations

2. Demonstrate an understanding of the logistics environment

a. Exhibits clear understanding of security requirements and regulations (e.g. CTPAT, FAST, Homeland Security, etc.) applicable to the logistics environment
b. Applies clear understanding of the environmental impact of logistics activities
c. Demonstrates clear understanding of the physical layout of the logistics environment (e.g., warehouse physical layout, etc.)
d. Understands supply chain logistics terminology and nomenclature.
e. Describe Cybersecurity
f. Describe Biometrics

3. Operate and use equipment

a. Recognizes and understands uses of different types of material handling and packaging equipment
b. Understands methods for securing vehicles and cargo
c. Operates forklifts, tractors, hand trucks and dollies safely
d. Operates conveyor systems safely and within operational guidelines
e. Operates automated storage systems in a manner that assures efficiency and safety
f. Understands preventive and corrective maintenance programs for machines and equipment
g. Demonstrates understanding of test equipment and tools

h. Describe Autonomous Robots

i. Describe Augmented Reality

4. Practice safety principles

a. Participates in all national, state, and local safety training requirements
b. Is aware of, understands and complies with relevant safety standards (such as OSHA, DOT, ANSI, etc.)
c. Maintains a clean and orderly work area
d. Demonstrates emergency procedures to be applied in the event of an incident or accident
e. Demonstrates procedures to be applied to safely stop unsafe processes

5. Practice safety principles in the handling of materials and operation of equipment

a. Applies safe material handling procedures
b. Understands material handling techniques for moving materials and cargo in a safe manner
c. Understands safety concepts, principles and practices related to the operation of automated machines and/or process
d. Demonstrates safe lifting and carrying practices
e. Identifies and complies with safety markings displayed on containers and cargoes
f. Identifies, monitors, and reports potential work hazards, out-of-compliance conditions, and safety concerns immediately
g. Demonstrates knowledge and uses appropriate personal protective equipment

6. Practice's quality control principles

a. Understands quality improvement roles and responsibilities within an organization
b. Understands quality systems such as SPC, Six Sigma, TQM, Lean Management, PDCA and relevant ISO standards
c. Participates in quality control programs and initiatives
d. Explains difference between preventative and corrective maintenance actions
e. Understands corrective action procedures and methods for dealing with and avoiding future occurrence of non-conformances
f. Uses established procedures to promptly document and communicate quality problems or issues
g. Participates in quality audit process
h. Presents quality improvement recommendations in a clear and concise manner
i. Describe Data Analytics

7. Employ's work communication practices

a. Facilitates communication between shifts by providing input about completed work, work that remains to be completed and shift problems or issues
b. Communicates appropriate information to both internal (i.e., coworkers, supervisors, management, etc.) and external customers

c. Clearly and effectively communicates thoughts, ideas, and information orally and in writing
d. Employs communication practices to solve interpersonal problems
e. Communication reflects a clear understanding and accurate use of logistics nomenclature and terminology
f. Elicits clear statements of customer requirements and specifications
g. Applies appropriate actions for handling internal and external customer complaints

h. Describe Remote Learning

8. Practice's teamwork and good workplace behavior to solve problems

a. Demonstrates ethical and responsible behavior at work through the appropriate:
    - Use of company IT systems
    - Handling of tools and equipment
    - Handling of proprietary information
    - Communications with co-workers, management, customers, and suppliers
b. Understands and follows company's Code of Conduct
c. Demonstrates an understanding of work requirements, agreements and goal setting concepts
d. Applies problem solving tools and procedures to identify problems and suggest potential solutions
e. Works in a team environment to solve problems
f. Demonstrates characteristics of an effective team member in a logistics operation

g. Understands principles for aligning team goals to customer and business needs

9. Uses relevant computer systems and applications to increase productivity

a. Demonstrates effective use of computer systems and software applications (i.e., internet browser, email, word processing, spreadsheet, presentation) to fulfill roles and responsibilities
b. Demonstrate an understanding of common software systems (e.g., Order Management System, Warehouse Management System, etc.) used in a logistics operation
c. Demonstrates an understanding of the basic technology used to capture and store information in logistics operations (scanners, sensors, etc.)
d. Demonstrates an understanding of advanced technology used to capture and store information in logistics operations (RFID, etc.)
e. Understands processes and technologies, that will impact supply chain operations such as omni-channel distribution, real-time tracking of products and packages, same-day, and real-time location delivery
f. Describe 5G technology
g. Describe Industrial Internet of Things (IIOT)
h. Describe Artificial Intelligence (AI)

MSSC Worker Standards

CERTIFIED LOGISTICS ASSOCIATE (CLA)

Core Competencies

1. Global supply chain logistics life cycle

1. Understands Product Life Cycle
2. Understands Logistics Life Cycle
3. Understands supply chain logistics roles and responsibilities
4. Understands impact of logistics life cycle on business operations and international competitiveness
5. Understands productivity measures in logistics operations
6. Understands impact of shipping requirements and workplace procedures on operating costs
7. Understands critical cost elements of logistics life cycle

2. Logistics environment

1. Understands supply chain logistics terminology and nomenclature
2. Understands physical, information and information system security concepts, principles and procedures
3. Understands international, national, state and local security regulations
4. Understands environmental rules and regulations governing logistics environment
5. Understands warehouse layout concepts and principles

3. Material handling equipment

1. Understands methods for securing vehicles and cargo
2. Understands different types of battery-changing equipment and attachments, such as changers and washers
3. Understands different types of lift trucks (such as fork, tuggers and turret) and features that impact a variety of indoor and outdoor applications
4. Understands various conveyor configurations
5. Understands various types of material handling and packaging equipment
6. Understands preventive and corrective maintenance programs for machines and equipment
7. Understands loading dock equipment, such as levelers, dock locks and indicator lights
8. Understands test equipment and tools, such as multimeters, meggers, digital analyzers and tachometers
9. Understands overhead handling equipment, such as monorails, hoists, chain falls and cranes

4. Safety principles

1. Understands common safety concepts, principles and practices
2. Understands work safety concepts, principles and practices
3. Understands accident and incident prevention and response
4. Understands OSHA, DOT, ANSI and other federal, state and local government policies, requirements, regulations and procedures governing health and workplace safety

5. Safe material handling and equipment operations

1. Understands material handling techniques for moving materials and cargo in a safe manner
2. Understands types, functionality, use and maintenance of personal protective equipment
3. Understands safety concepts, principles and practices related to the operation of automated machines and/or process
4. Understands safety requirements for operating automated machines/automated processes

5. Understands safety requirements for material handling equipment such as forklifts, cranes, rigging and conveyor systems

6. Quality control principles

1. Understands quality improvement roles and responsibilities within an organization
2. Understands corrective action procedures and methods for dealing with and avoiding future occurrence of non-conformances
3. Understands quality systems such as SPC, Six Sigma, TQM, Lean Management, PDCA and relevant ISO standards
4. Uses statistical quality tools to reach accurate decisions about quality data
5. Uses proper forms to document problems and corrective action
6. Understands tagging and segregating non-conforming materials

7. Work communications

1. Organizes and expresses ideas orally and in writing
2. Communicates customer needs effectively to others including shift-to-shift, coworkers and managers
3. Communicates work information to team members
4. Elicits information from internal and external customers

8. Teamwork and good workplace conduct to solve problems

1. Understands workplace codes of conduct and responsibilities for ethical and responsible behavior in all work activities
2. Understands problem solving methods and procedures
3. Understands creative thinking concepts applicable to solving problems
4. Define a problem and also document a solution to allow for its effective evaluation and implementation
5. Understands the characteristics of a high performance team
6. Understands principles for aligning team goals to customer and business needs
7. Understands goal setting concepts (e.g., SMART goals)

9. Using computers

1. Understands basic industry accepted computer applications (e.g., word processing, spreadsheets, databases, e-mail and browsers)
2. Understands computer applications (e.g., Order Management Systems and Traffic Management Systems)
3. Understands basic technology used to capture and store information in logistics operations (scanners, sensors, etc.)
4. Understands advanced technology used to capture and store information in logistics operations (RFID, etc.)
5. Understands emerging technology that will impact supply chain operations such as omni-channel distribution, real-time tracking of products and packages, same-day and real-time location delivery

MSSC Work Standards

CERTIFIED LOGISTICS TECHNICIAN (CLT)

Key Activities and Performance Indicators

1. Receive products

a. Understands procedures and importance of receiving to production planning, production, and inventory control
b. Inspects seals and trailer number of inbound trucks prior to entry into the yard and prior to unloading products
c. Understands gate pass protocol and site clearances
d. Understands various physical methods of material identification
e. Verifies documents (e.g., bill of lading, packing lists, etc.) against products being delivered
f. Conducts breakdown of bill of lading to establish proof of delivery
g. Secures trucks to ensure safe unloading of products
h. Inspects load conditions prior to unloading products
i. Ensures that products are unloaded according to relevant governmental regulations, company policies and safe work practices
j. Checks products (e.g., overage, shortage, and damages) while they are being unloaded h. Identifies damaged products
k. Processes inbound discrepancy reported (i.e. overage, shortage and damages) when necessary
l. Uses and interprets logistics forms (e.g., bill of lading, manifests, etc.)

2. Stock products

a. Understands proper material storage techniques based on product life, risk of damage, hazards, weight, and size
b. Understands storage planning methods based on the characteristics of the material
c. Understands safe handling, storage, and movement practices
d. Stocks products in assigned locations
e. Determines most effective means to segregate allocated items
f. Routes products in automatic back orders straight to shipping staging area

3. Process product orders

a. Understands methods for identifying customer requirements
b. Understands various picking processes (e.g., repack, carton and bulk) and how they impact warehouse operations
c. Understands order cycle

d. Inspects pick tickets
e. Pulls from storage products identified in pick tickets
f. Stages products pulled for shipping
g. Understands logistics forms (i.e. order forms, purchase orders, pick lists)
h. Conducts audits to ensure pulled products are as ordered (e.g., right count and condition)
i. Processes paperwork to develop packing manifest

4. Prepare packages for shipment and ship products

a. Uses appropriate packing materials to package products based on products size, weight, function, and design
b. Uses appropriate packaging tools best suited for handling and packaging products
c. Protect products from weather
d. Verifies that outbound product counts are accurate, and products are free form defect
e. Understands logistics forms (e.g. manifests)
f. Verifies outbound products against customer orders
g. Verifies that products are appropriately labeled in accordance with domestic and international regulations and company policy
h. Verifies that the right packages are being loaded in the right trailer
i. Verifies that packages are securely loaded into trailers based on safe loading procedures

5. Maintain control of inventory

a. Understands how inventory control affects overall operations
b. Maintains inventory accuracy and record keeping
c. Applies appropriate inventory maintenance procedures to manage surplus, slow moving, and obsolete stock
d. Applies FIFO and LIFO techniques consistent with established organizational policy and practice
e. Understands impact that effective stock rotation, shelf life and special products characteristics can have on cost effectiveness
f. Understands value of timely replenishment
g. Uses material identification systems to optimize inventory levels for overstock and under stock
h. Deploys proper handling controls for returned products according to established procedures
i. Understands various methods for recording and tracking inventory (e.g., cataloging, microchips, computer files and tracking systems)

j. Understands various inventory counting methods

k. Understands various electronic identification tools (bar coding, scanners, microchips, RFID)

l. Maintains accurate records of returned products

6. Handle hazardous materials in a safe manner

a. Understands classification and safe handling of hazardous materials including the Global Harmonization System
b. Understands the methods for shipping and routing dangerous goods
c. Unloads and loads hazardous materials according to relevant governmental regulations, company policies and safe work practices
d. Transfers and stores hazardous materials in proper storage locations per relevant governmental regulations, company policies and safe work practices
e. Identifies hazardous materials in shipping documentation

7. Evaluate transportation modes

a. Understands traffic management
b. Understands common transportation methods used to transport goods and cargo including rail, marine, road, air, pipeline, and intermodal
c. Understands factors used in evaluating transportation modes to determine optimum choices considering cost, safety, customer requirements, nature of shipment and timeliness.
d. Understands how to use and maintain files related to various performance trends of different transportation modes to permit rapid decision making
e. Understands procedures for handling in-transit damages and claims
f. Completes all required transportation documents in accordance with company and transporter requirements

g. Understands federal, state, and international transportation regulations and agencies

8. Perform dispatch, routing, and tracking operations

a. Understands terms and basic elements of customs regulations including country of origin, NAFTA, FTZ, tariffs/duties and permits
b. Understands customs documentation requirements
c. Understands correct routing procedures
d. Understands materials classification for routing
e. Prepares inbound and outbound shipment receipts and documentation
f. Evaluates consignment loads to identify type, capacity, and compatibility of cargo
g. Maintains effective records of cargo/container movement
h. Verifies that vehicle loads do not exceed legal weight limits
i. Tracks trailer and container movement within the yard, including monitoring and minimizing detention costs
j. Coordinates multiple transportation mode transfers
k. Distributes loads and build trucks to ensure vehicle loads do not exceed legal weight limits
l. Ensures required documentation is prepared and maintained in accordance with government import/export regulations, including documentation provided by third-party intermediaries
m. Identifies governing agencies responsible for import/export regulation enforcement

9. Understand U.S. measurements and metric system conversions

a. Demonstrates working knowledge of U.S. measurement systems
b. Understands how to convert U.S. measurements to and from the metric system
c. Determines accuracy and precision when measuring weight and volume

MSSC Worker Standards

CERTIFIED LOGISTICS TECHNICIAN (CLT)

Knowledge and Skills

1. Product receiving

1. Understands importance of receiving to production planning and production
2. Understands importance of receiving to inventory control
3. Understands warehouse receiving procedures
4. Understands gate pass protocol and site clearances
5. Understands approval and documentation requirements and procedures
6. Understands various physical methods of material identification

2. Product storage

1. Understands proper material storage techniques based on product life, risk of damage, hazards, weight and size
2. Understands storage planning methods based on the characteristics of the materials
3. Understands safe handling, storage and movement practices

3. Order processing

1. Understands various picking processes (e.g., repack, carton and bulk) and how they impact warehouse operations
2. Understands order cycle
3. Understands value of properly staging orders in assigned areas
4. Understands importance of picking accuracy
5. Understands logistics forms (i.e. order forms, purchase orders, pick lists)
6. Understands methods for identifying customer requirements

4. Packaging and shipping

1. Understands various types of packaging materials best suited for different products size, weight, function and design
2. Understands shipping procedures
3. Understands logistics forms (e.g., manifests)
4. Understands packing and protective materials
5. Understands load distribution practices

5. Inventory control

1. Understands how inventory control affects overall operations
2. Understands inventory record keeping systems
3. Understands impact that effective stock rotation, shelf life and special products characteristics can have on cost effectiveness
4. Understands value of timely replenishment
5. Understands various inventory management procedures
6. Understands various methods for recording and tracking inventory (e.g., cataloging, microchips, computer files and tracking systems)
7. Understands various inventory counting methods

8. Understands various electronic identification tools (bar coding, scanners, microchips, RFID)
9. Understands different types of material identification tools
10. Understands impact of product returns on inventory, handling of inventory stock levels and inventory control systems

6. Safe handling of hazardous materials

1. Understands classification and safe handling of hazardous materials including the Global Harmonization System
2. Understands regulations, specifications and procedures that may impact storage of hazardous materials
3. Understands the methods for shipping and routing dangerous goods

7. Evaluation of transportation modes

1. Understands procedures for handling in-transit damages and claims
2. Understands traffic management
3. Understands common transportation methods used to transport goods and cargo including: rail, marine, road, air, pipeline and intermodal
4. Understands costs involved with various modes of transportation
5. Understands advantages and disadvantages for each mode of transportation
6. Understands requirements of transportation modes
7. Understands federal, state and international transportation regulations and agencies

8. Dispatch and tracking operations

1. Understands terms and basic elements of customs regulations including: country of origin, NAFTA, FTZ, tariffs/duties and permits
2. Understands customs documentation requirements
3. Understands correct routing procedures
4. Understands materials classification for routing
5. Understands outbound cargo documentation requirements

9. Measuring and metric conversions

1. Determines accuracy and precision when measuring weight and volume
2. Converts U.S. measurement to and from standard international metrics systems