

# ATLT-1080: LIFTING TECHNOLOGIES SAFETY TRAINING

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## Cuyahoga Community College

**Viewing: ATLT-1080 : Lifting Technologies Safety Training**

**Board of Trustees:**

2015-12-03

**Academic Term:**

Spring 2019

**Subject Code**

ATLT - AIT-Lifting Technologies

**Course Number:**

1080

**Title:**

Lifting Technologies Safety Training

**Catalog Description:**

Covers the safety activities required in a lifting and rigging fabrication plant. Includes understanding of the hazards associated with wire rope, synthetic, and chain sling fabrication facilities. The safety considerations required for the handling, storage, shipping and receiving of rigging materials will also be covered.

**Credit Hour(s):**

1

**Lecture Hour(s):**

1

## Requisites

**Prerequisite and Corequisite**

Departmental approval: admission to Lifting Technologies apprenticeship program.

## Outcomes

**Course Outcome(s):**

Discuss the common safety requirements associated with a sling and rigging equipment operation.

**Objective(s):**

1. List the various Personal Protective Equipment (PPE) associated in the rigging shop.
2. Identify the material handling equipment for lifting technologists.
3. Explain compressed gas storage used for cutting and brazing
4. Discuss proper lifting techniques.
5. Describe precautions for testing rigging gear.

**Course Outcome(s):**

Discuss the specific safety requirements associated with a wire rope rigging operation.

**Objective(s):**

1. Discuss swager safety considerations.
2. Discuss wire rope handling safety.
3. List wire rope fabrication safety .

**Course Outcome(s):**

Discuss the specific safety requirements associated with a chain sling rigging.

**Objective(s):**

1. List safety precautions for chain welding operation.

2. Identify safety hazards and precautions for heat treatment of chain links.
3. Discuss chain handling safety.

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**Course Outcome(s):**

Discuss the specific safety requirements associated with a synthetic sling rigging operation.

**Objective(s):**

1. List various cutting precautions.
2. Differentiate between sewing and round sling safety operation.

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**Course Outcome(s):**

Discuss the specific safety requirements associated with a shipping/receiving department in a rigging fabrication operation.

**Objective(s):**

1. Recognize safety considerations for dock operations including loading and unloading trucks.
2. Discuss packaging hazards.

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**Methods of Evaluation:**

1. Participation
2. Assignments
3. Quizzes & Exams
4. Practical application projects

**Course Content Outline:**

1. Safety Requirements: Sling and Equipment
  - a. Personal Protective Equipment PPE
    - i. Safety Glasses
    - ii. Gloves
    - iii. Steel Toe Footwear
    - iv. Uniform
    - v. Face Shield
    - vi. Dust Mask
  - b. Material Handling equipment
    - i. Powered industrial truck
    - ii. Pallet jack
    - iii. Turntable
    - iv. Reel jack
    - v. Jib crane
  - c. Compressed Gas Cylinders
    - i. Storage
      1. Fixed upright rack
      2. Portable upright rack
    - ii. 3.Component inspection
      1. Inspect hoses
      2. Inspect regulators
      3. Inspect Tip
    - iii. Transport
  - d. Lifting Techniques
    - i. Body mechanics
      1. Back
      2. Knees
      3. Legs
    - ii. Ergonomics
  - e. Proof test
    - i. Equipment
      1. Capacity
      2. Guards

- ii. Material handling
  - iii. Procedure
    - 1. Working loads
    - 2. Component equipment
    - 3. Inspection
- 2. Safety requirements: Wire rope
  - a. Swager safety
    - i. Die
    - ii. Hardware
    - iii. Settings
    - iv. Safety Zone
  - b. Handling
    - i. Equipment Selection
    - ii. PPE
    - iii. Pinch points
    - iv. Burns
    - v. Cutting and abrasions
  - c. Fabrication
- 3. Safety requirements: Chain
  - a. Handling
    - i. Cutting
    - ii. Lifting
    - iii. Body mechanics
  - b. Welding
    - i. Equipment
      - 1. Grounding
      - 2. Shielding
      - 3. Grinder
      - 4. Torch
      - 5. Plasma cutter
    - ii. PPE
  - c. C.Heat Treatment
    - i. Equipment
      - 1. Settings
      - 2. Cooling apparatus
      - 3. Tempil sticks
    - ii. 2.PPE
    - iii. Safe zone
- 4. Safety requirements: Synthetic slings
  - a. Cutting operations
    - i. Hot knife
    - ii. Shears
    - iii. Heat sealing device
    - iv. Rotary fabric knife
  - b. Sewing/Round sling
    - i. Equipment
    - ii. Materials
    - iii. Material handling
    - iv. Tagging
- 5. Safety Requirements: Shipping/Receiving
  - a. Dock Operations
    - i. Equipment
      - 1. Dock leveler
      - 2. Chocks
      - 3. Lighting
      - 4. Powered industrial truck PIT
    - ii. Offload area
    - iii. Staging area
  - b. Packaging hazards

- i. Body mechanics
- ii. Equipment
  - 1. Banding and strapping
  - 2. Cutting
  - 3. Material handling

## Resources

Associated Wire Rope Fabricators (AWRF). *Swager Safety Guide*. Tulsa, OK: Associated Wire Rope Fabricators, 2013.

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Associated Wire Rope Fabricators (AWRF). • *Recommended Guideline for Proof Test Procedures for Wire Rope Slings*. Tulsa: OK: Associated Wire Rope Fabricators, 2011.

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Associated Wire Rope Fabricators (AWRF). • *Recommended Guideline for Proof Test Procedures for Chain Slings*. Tulsa: OK: Associated Wire Rope Fabricators, 2011.

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Jerry Klink. *Rigging Handbook*. 4th Edition (Paperback). Stevensville, MI: ACRA Enterprises, Inc., 2012.

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Swartz, George. *Forklift Safety Guide*. Government Institutes Publishing, 1999.

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Harris, Michael K. *Welding Health and Safety*. American Industrial Hygiene Association, 2002.

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