



## Department-Approved Course Requirements: 1-Hour Hoisting and Rigging

<b>Course Required for:</b>	<input checked="" type="checkbox"/> <b>Worker Training</b>
<b>Purpose:</b>	This course is a general elective course that can help fulfill the requirement for an individual applying for a Site Safety Training Card. <b>THIS IS AN AWARENESS-LEVEL TRAINING ONLY and does not provide any other qualification or authorization outside of the Site Safety Training Card.</b>
<b>Duration:</b>	1 Hour of instructional time, excluding breaks
<b>Class Size:</b>	<b>1-40 Trainees</b>
<b>NYC Requirement:</b>	In order to continue to operate in the City of New York, the designated construction worker is required to complete a minimum number of hours of approved site safety training and to carry site safety identification cards as proof of completion of the training (As per New York City Local Law 196 of 2017 also known as 'LL196' or 'Local Law'). This course provides one hour towards the satisfaction of that requirement.
<b>Facility Requirements:</b>	<p>The Training Facility used by the Course Provider must:</p> <ul style="list-style-type: none"><li>• Have sufficient room to accommodate all expected attendees and the equipment needed to perform hands-on exercises where required as part of the course.</li><li>• Make provisions for the presentation of training material in all media types (computer, projectors, video/DVD players, etc.); and</li><li>• Comply with all applicable laws, rules and regulations relating to occupancy, zoning, egress, fire detection, fire suppression, light, ventilation, cleanliness, sanitary facilities, emergency notification and evacuation procedures.</li></ul> <p>Training may be held at construction sites, provided the above requirements are met.</p>
<b>Instructor Requirement:</b>	<p>To deliver this course the instructor(s) must demonstrate that he or she is credentialed or trained in instructional methods and learning processes. The instructor(s) must also successfully demonstrate his or her ability to solve or resolve problems relating to the subject matter by possession of a recognized degree, certificate, licensure or professional standing, or by extensive knowledge, training, and experience, in the subject matter being taught. To the extent that the course instructor(s) holds, or has held, a trade license issued by the Department, it must be in good standing and not be surrendered to, suspended by or revoked by the Department.</p> <p>The instructor(s) must also be authorized by the Occupational Safety and Health Administration ('OSHA') as a trainer(s) for its Construction and Outreach Program.</p>
<b>Curriculum Requirement:</b>	All <b>topics</b> listed under <b>Course Content Outline</b> must be covered using the listed <b>Instructional Delivery Method</b> . The time dedicated to each outline topic should be appropriate for the course content and can vary depending on the trade or job performed by the trainee. The <b>Instructional Delivery Materials</b> used in this course must contain all current applicable NYC Construction Code references, current rules, policies and bulletins.

**Course Curriculum  
Proposal Package  
Review:**

A comprehensive review will be performed by the **Department of Buildings** to determine compliance with these Course Curriculum Requirements.

**Instruction Delivery Method**

**Media:** Lecture/Discussion, Slide Presentation, Props; defective slings (synthetic, wire rope), defective shackles, thimbles and other rigging equipment that has been removed and tagged damaged, new slings, a torque wrench, short (6') sections of rope for each trainee, a longer section of rope (20') for use during sling angle demonstration in class.

**Handouts:** Slides, references and handbook

**Guided Learning:** Instructor will guide trainees through various rigging and hoisting calculations and reductions of hitches as well as demonstrate how force (weight) changes (is dynamic)

**Course Content Outline**

1. Introduction
  - a. Instructor introduces topic and describes their qualifications and relevant experience for training this module.
  - b. Establish that all trainees can hear and fully understand you i.e. 'raise your hand if you fully understand me' or 'clap your hands if you fully understand me'
  - c. State basic classroom rules, bearings and decorum
    - i. Inform trainees of duration or training and breaks (if any)
    - ii. Remind trainees about limiting distractions (phone use, texting, sidebar conversations)
    - iii. Emergency procedures (location and means of egress, exits or other contingencies)
    - iv. Location of restrooms
  - d. Training Objectives and Expectations:
    - i. Trainees will become generally familiar with terms and various equipment used during hoisting and rigging operations and activities.
    - ii. Trainees will be able to recognize and avoid typical hazards associated with hoisting and rigging.
    - iii. Trainees be introduced at an AWARENESS LEVEL basic rigging information and lifting principles.
2. Define Hoisting and provide graphic examples from in the fields
3. Define Rigging and provide graphic examples from the field
  - a. Stress the importance of moving material safety inside and outside of construction sites.
  - b. Lessons Learned Case Study : Investigation of Rigging Failure on March 15, 2008 Fatal Tower Crane Collapse at 303 East 51st Street, New York, NY  
[https://www.osha.gov/doc/engineering/2008\\_r\\_02.html](https://www.osha.gov/doc/engineering/2008_r_02.html)
4. The Basic Science behind Hoisting and Rigging: In simple terms explain and demonstrate principles of force, compression, tension, torque and angles.
  - a. Explain that weight, which is force on earth, is not a constant measurement and changes with other factors i.e. mass and acceleration ( $F=M \times A$ )
  - b. Review the different types of slings and identify rigging terminology (graphically)
  - c. Review Rigging Hitches and Capacity of various rigging components (graphically illustrate)

- d. Center of Gravity Determinations
  - e. Softeners
  - f. Wire rope deficiencies
  - g. Sling angles
  - h. How to retain control a load (tag lines, clearness, pre-lift planning)
  - i. Strength reductions i.e. D/d ratio, basket, vertical, choker hitches
  - j. 3 and 4-legged bridle hitches (sharing load calculations and field rules of thumb)
  - k. Effects of Environmental Conditions including sustained wind speeds and gusts
  - l. Sail effect and shape of load
5. Describe the people involved in rigging and hoisting activities
- a. Qualified Person
  - b. Professional Engineer
  - c. Qualified Rigger
  - d. Licensed Rigger
  - e. Riggers
  - f. Competent Persons
  - g. Signal Persons
  - h. Lift Director
6. Knots Hands-on exercise: Each trainee with use their 6' section of rope to tie several basic rope knots.
7. Explain and illustrate the correct use and care and incorrect use and care of rigging and hoisting equipment (graphic comparative representation)
- a. Rope dynamic loading (angles)
  - b. Rope shock loading (bouncing)
  - c. Chainfalls
  - d. Come-along cable pullers
  - e. Shackle placement
  - f. Slings
  - g. Hooks
  - h. Wire rope (proper care and deformation)
  - i. Synthetic slings
  - j. Wire rope clips 'U' and 'J' types
  - k. Spreader bars
  - l. Snagging hazards i.e. nets projections, clearances of building and structures
8. Explain rigging inspection process
- a. Applicable OSHA and ANSI/ASME Regulations and Standards
  - b. Proper Sling and Rigging Hardware Selections
  - c. Documentation Requirements
9. Resources:
- a. Applicable OSHA Standards Subpart H and Subpart CC CFR Title 29 1926.1400

- b. ANSI/ASME Regulations and Standards
  - c. Worker's Rights (See OSHA: <https://www.osha.gov/Publications/OSHA3146.pdf>)
  - d. OSHA Regional Map: <https://www.osha.gov/html/RAmap.html>
10. Review of all Training Topic and Individual Practical Test for calculations and or knots
11. Debriefing (Informal evaluation)
- a. Guided by instructor, trainees, in a class discussion talk about the course's content and means of delivery and provide verbal feedback to the instructor.
  - b. Instructor takes notes (either committing them to writing during discussion or ascribing them later into noted-comments).
  - c. Instructor applies lessons learned from debriefing to future trainings.
12. Written (Multiple Choice) Assessment