## Department-Approved Course Requirements

<table>
<thead>
<tr>
<th>Course Title:</th>
<th>8-Hour Master Rigger Renewal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Required for:</td>
<td>Licensee Continuing Education</td>
</tr>
<tr>
<td>Purpose:</td>
<td>This course is a renewal requirement for the holder of a NYC Master Riggers license.</td>
</tr>
<tr>
<td>Duration:</td>
<td>8 hours of instructional time, excluding breaks &amp; meals</td>
</tr>
<tr>
<td>Class Size:</td>
<td>1 – 30 trainees</td>
</tr>
<tr>
<td>NYC Requirement:</td>
<td>To renew a New York Master Rigger license, licensees must successfully complete 8 hours of training.</td>
</tr>
</tbody>
</table>

### Facility Requirements:

- The Training Facility used by the Course Provider must:
  - Have sufficient room to accommodate all expected attendees and the equipment needed to perform hands-on exercises where required as part of the course;
  - Make provisions for the presentation of training material in all media types (computer, projector, video/DVD player, etc.); and
  - Comply with all applicable laws, rules & regulations relating to occupancy, zoning, egress, fire detection, fire suppression, light, ventilation, cleanliness, sanitary facilities, emergency notification & evacuation procedures.

Training may be held at construction sites, provided the above requirements are met.

### Instructor Requirement:

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.

### Curriculum Requirement:

All topics listed under Course Content Outline must be covered using the listed Instructional Delivery Method. 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 Instructional Delivery Materials used in this course must contain all current applicable NYC Construction Code references, current rules, policies & bulletins.
Department-Approved Course Requirements

1. Introduction to Cranes & Derricks
   Include instruction on inspection, maintenance, repair, use, installation, hazards associated with the relevant sections of the building code and industry practice with regards to Rigging

2. Crane & Rigging Accidents
   Common causes of accidents with cranes
   Historical crane accidents in NYC and other major cities
   Overview of rigging incident statistics for the most current 24-month period:
   Failure; injury; death. Close review of two failure scenarios with emphasis on what went wrong and how the incident could have been prevented.

3. CFR 29 OSHA 1926 Overview
   Subparts: E (PPE-Personal Protective Equipment), H (Material Handling, Storage), K (Electrical), L (Scaffolds), M (Fall Protection), CC (Cranes and Derricks in Construction)

4. NYC Construction Codes Overview
   Cover all applicable code, rules, related Department policy statements, Regulatory notices, bulletins and memos, including:
   2014 Building Code, Chapter 33; Reference Standard RS 19-2

5. NYC Department of Buildings Overview
   Cover all applicable administrative standard operating procedures, policy procedure notices, permits/Department notifications, forms, filing and site documents, plans, inspection checklists/logs and wind and weather advisories

6. NYC Department of Transportation Overview
   Cover all applicable code, rules, regulations, operating procedures, policy procedures, permits/notifications, forms, filing and site documents, plans, etc., required by the NYC Department of Transportation to operate a crane.

7. NYC Transit Authority Overview
   Cover all applicable code, rules, regulations, operating procedures, policy procedures, permits/notifications, forms, filing and site documents, plans, etc., required by the MTA/ NYC Transit Authority to operate a crane near TA infrastructure

8. Basic Building Structure
   Structural framing, floor framing, roof framing, exterior envelope, roof parapet, masonry walls columns, concrete slabs, walls, and columns. Special emphasis on building structures traditionally used to support rigging equipment (floors, exterior walls, bearing & non-bearing, parapets, roof damage, structural steel beams and columns).

9. Inspection of Cranes, Ropes & Operator Responsibility
   Periodic/annual inspection performed by owner, the Department of Buildings & documentation to be maintained
   Frequent inspection, who can perform & documentation to be maintained
   How to perform a frequent inspection
   Components inspected during a frequent inspection & how to identify hazards
   Steps to take if hazard discovered Inspection process & safety checklists, including what to inspect, how to inspect, frequently to inspect, including rigging systems & anchorage, individual components, slings, hoists mortars, etc.
   Identification of wear, defects, failure signs in all rigging equipment.
   Handling, maintenance, repair/replacement of rigging equipment, rope, hardware, etc.
   Rope (wire and fiber) and hardware used in rigging, type, strength, application, manufacturers' specifications & limitations, handling.
   Connection & termination of wire/fiber rope (fasteners, knots, hitches, hooks, shackles, thimbles, eyes, tackle blocks, etc.) including connection to suspended work platforms, (i.e., scaffold platforms); hoist loads (materials, equipment).

10. Maintenance and Repair of Cranes and Ropes
    Types of maintenance required
    Who can maintain cranes
    Who can repair a crane
    Safeguards to take before beginning maintenance or repairs

11. Crane Setup
    Ground conditions
    Deviation from plans not permitted
    Founding of crane, outrigger placement and cribbing
    Danger to underground infrastructure, excavations, foundations, etc.

12. Reading Plans

13. Operating Cranes
    Starting up the crane
    Hazards of operating in a dense urban environment
    High wind hazards
    Operating near power lines
    Prohibition against hoisting over pedestrians, traffic & adjoining buildings
    Requirements for shutting down and securing the crane
    Communication between workers & supervisors while rigging: radios; hand signals; flags; etc.

14. Reading Load Charts
    NYC-approved load charts
15. Lifting & Lowering Loads

Weights & materials; Center of gravity; Rigging requirements; Critical Picks
Logs & record keeping, including maintenance records for equipment, pre-task & safety
meetings. Hoisting & hoisting equipment (manual, electric, etc.), pulley, block/tackle,
sheaves, drums, slings (all types), chains, electric hoist motors, capacity, rigging of motors,
mechanical/electrical safety devices and their operation, critical picks. Construction & use of
suspended working platforms, manufacturer’s specifications, limitations, max spans, guardrails,
planking, debris netting, stirrups, maneuvering, drifting, securing of platform during & end of
shift. Suspension methods, slings, c-hooks, outrigger beams, clamps, counterweights, shoring
scaffolds (outrigger supports), masonry and concrete anchors (expansion, adhesive, screw),
pull testing of anchorage devices. Off-the-shelf hardware, as well as site-built hardware
systems must be included.

16. Operational Aids and Safety Devices

Types of aids, safety devices, functions, how to use, steps to take if operational aid/safety
device not working. Acceptable means to substitute for a malfunctioning aid/safety device
Personal fall-arrest systems, use, storage, maintenance, installation & anchorage.
Other types of personal protection (hard hats, respirators, gloves, shoes, eye protection, clothing.

17. Crane & Derrick Safety Protocols & Emergency Procedures

Electrical safety during rigging installation & use, including work performed from
suspended working decks (welding, use of electrical equipment, etc.).
Overhead protection/safety exclusion zones during rigging, hoisting & use of scaffolding:
sidewalk sheds, barriers, flag persons, hazard signage.

18. Crane Assembly, Jumping & Disassembly

19. Rigging Requirements

The definition of Rigging such as the traditional uses for rigging in the construction &
industrial environment, including industrial rope access (IRA). The mathematics of
Rigging, measurement, symbols, geometry, calculations, leverage, friction, fulcrum,
center of gravity, uniform and concentrated loading. Also the wind effects on netting &
other components. Calculation of weight, loads, sling loads, drifting loads, balance & tipping
points of objects, center of gravity, non-symmetrical center of gravity & buoyancy (lifting in water).

20. General Construction Site Hazards

21. NYC Buildings Unsafe Condition (311) Notification Procedure

Provide Copy to Trainee & Discuss
22. NYC/DOI Buildings Integrity Training Contact Information Sheet

Provide Copy to Trainee & Discuss
23. Review all Training Topics

Discussion with Questions & Answers
24. Written (Multiple Choice) Assessment

Classroom