



## M&A Safety Services

512 Viaulet Road  
Youngsville, Louisiana 70592  
Main: 337-451-4685  
Fax: 337-451-5847  
[www.masafetyservices.com](http://www.masafetyservices.com)

### **Rigging Safety – 16 Hour** (API RP 2D 7<sup>th</sup> Edition) Course Outline

**Prerequisites:** This course shall have no formal pre-requisite. The individual should have no history of a disabling medical condition, which may be sufficient reason for disqualification.

**Course Length:** 14-16 hours – Course length shall vary depending on the number of delegates. Total course time includes breaks and meals.

**Class Size:** The maximum number of delegates that may be trained and tested per instructor shall be twenty-four (24) in the classroom session and twenty (20) in the practical session. A second instructor shall be added for the practical session once the participation exceeds twenty (20) and exercises will be divided into groups.

#### **Course Objective**

- ) Provide delegates assigned to rigging duties the necessary skills to safely perform their jobs.
- ) Provide delegates with recommended practices and guidelines to perform safely while working with cranes.
- ) Delegates should be able to demonstrate these necessary skills during practical examination and demonstrate knowledge during written examination.

#### **Course Design**

- ) Power Point© / Lecture / Audio Video / Visual Aids
- ) Demonstrations
- ) Practical Exercises

#### **Successful Course Completion**

- ) Requires a minimum score of 75% or better.
- ) Grades shall be calculated by dividing the number of questions answered correctly by the total number of exam questions.
- ) Delegates will have no more than one hour to complete the exam.
- ) Successful completion of practical session is mandatory.

#### **Course Content Summary**

- ) Classroom
- ) Practical

**Breaks:** 10 minutes (approximately every hour)



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**Lunch:** 1 Hour

### Course Outline

#### Rigging Safety

- ) Definitions
- ) Qualifications
- ) Responsibilities
- ) Manufacturer Responsibilities
- ) Common Rigging Problems
- ) Terminology
- ) Attaching & Moving the Load
- ) Hand Signals

#### Rigging Lift Planning

- ) General Requirements
- ) Lift Team Responsibilities
  - o Before Operations
  - o During Operations
  - o Post Operations
- ) Examples of Lift Team Members
  - o Person in Charge
  - o Lifting Authority
  - o Rigger/Crane Operator
  - o Technical Support
  - o Vessel Captain
- ) Planning the Lift
- ) Lift Categorization
- ) Risk Assessments
- ) Personnel Qualifications
- ) Documentation
- ) Summary Questions for a Safe Lift

#### Personnel Training Qualifications

- ) Qualified Rigger

#### Rigging Equipment

- ) Sheave Inspection
- ) Load Block Inspection and Components
- ) Wedge Socket Installation
- ) Hook Inspection
- ) Improper Hook Loading



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- ) Hook Included Angle
- ) Hook Connection of Slings
- ) Shackle Types
  - o Round Pin
  - o Screw Pin
  - o Bolt Type/Four Part
- ) Shackle Inspection
- ) Shackle to Sling Connection
- ) Shackle Loading
- ) Sling Types
  - o Wire Rope
  - o Synthetic Web
  - o Polyester Round
  - o Chain
- ) Sling Inspection
- ) Wire Rope Sling
  - o Characteristics
  - o Components
  - o Fittings
- ) Synthetic Web Slings
  - o Characteristics
  - o Inspection/Replacement Criteria
- ) Polyester Round Slings
  - o Characteristics
  - o Color Chart
  - o Inspection/Replacement Criteria
- ) Chain Slings
  - o Characteristics
  - o Inspection/Replacement Criteria
- ) Rings, Links, and Swivels
- ) Turnbuckles
  - o Usage
  - o Inspection
- ) Spreader/Equalizer Bars
- ) Pad Eyes
- ) Eye Bolts
- ) Cable Clamps
- ) Load Binding
  - o Ratchet Binders
  - o Lever Binders
  - o Ratchet Straps



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- ) House Keeping/Storage
- Rigging Techniques
  - ) Three Basic Hitched
    - o Vertical Leg
    - o Choker
    - o Vertical Basket
  - ) Sling Lifting Capacity
    - o Rated Load
  - ) Single Leg Hitch
  - ) Two Leg Hitch
  - ) Three/Four Leg Hitch
  - ) Double Choker Hitch
    - o Choker Hitch Angle Reduction
  - ) D/d Ratio
  - ) The Rigging Triangle
  - ) Sling Angles
  - ) Determining the Weight of the Load
  - ) Center of Gravity
  - ) Moving the Load
    - o Load Control/Tag Lines
  - ) Common Rigging Knots
    - o Bowline
    - o Clove Hitch
    - o Square
    - o Slip
    - o Figure 8
  - ) Personnel Transfer

### Annex F

- ) Slings
- ) Wire Rope Sling
  - o Components
  - o Rope Lay
  - o Inspection & Rejection Criteria
  - o Storage
  - o Replacement
- ) Sling Angle Calculations

### Air Tugger Safety

- ) Definitions
- ) CFM & PSI



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- ) Installation and Inspection
- ) Snatch Blocks
  - o Load Angles
- ) Cable Alignment
- ) Come-A-Long/Manual Chain Hoist

### **Practical Session**

Practical training shall utilize a hydraulic crane, various slings, loads & rigging techniques.

Practical shall verify the following:

- ) The ability to wear appropriate PPE during practical session.
- ) Ability to identify existing hazards and develop a lift plan/JSA.
- ) Ability to inspect and identify damaged hardware
- ) The ability to select appropriate hardware / rigging equipment
- ) Ability to effectively communicate with the crane operator through proper hand signals
- ) The ability to use tag lines appropriately as discussed in class.
- ) The ability to place load(s) appropriately (on runners when applicable) and in appropriate places (outside of walkways).
- ) Ability to appropriately use different rigging techniques taught in class
- ) Ability to properly store slings and hardware after use

### **Training Center Provided Material**

- ) PPE
- ) Crane with Operator
- ) Rigging Material

### **Delegate Requirements**

- ) Must possess good physical health as the practical training is physical demanding.

### **Reference Material / Documents**

API RP 2D Seventh Edition  
OSHA 29 CFR 1926.251  
OSHA 29 CFR 1926.753