

**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. The 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 with 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)

**Lunch:** 1 Hour

**Course Outline**

**Rigging Safety**

- Definitions
- Qualifications
- Responsibilities

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- Manufacturer Responsibilities
- Common Rigging Problems
- Terminology
- Attaching & Moving the Load
- Communication – Hand and Voice Signals

#### **Rigging Lift Planning**

- General Requirements
- Lift Team Responsibilities
  - Before Operations
  - During Operations
  - Post Operations
- Examples of Lift Team Members
  - Person in Charge
  - Lifting Authority
  - Rigger/Crane Operator
  - Technical Support
  - 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
- Hook Included Angle
- Hook Connection of Slings
- Shackle Types
  - Round Pin
  - Screw Pin
  - Bolt Type/Four Part
- Shackle Inspection

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- Shackle to Sling Connection
- Shackle Loading
- Sling Types
  - Wire Rope
  - Synthetic Web
  - Polyester Round
  - Chain
- Sling Inspection
- Wire Rope Sling
  - Characteristics
  - Components
  - Fittings
- Synthetic Web Slings
  - Characteristics
  - Inspection/Replacement Criteria
- Polyester Round Slings
  - Characteristics
  - Color Chart
  - Inspection/Replacement Criteria
- Chain Slings
  - Characteristics
  - Inspection/Replacement Criteria
- Rings, Links, and Swivels
- Turnbuckles
  - Usage
  - Inspection
- Spreader/Equalizer Bars
- Pad Eyes
- Eye Bolts
- Cable Clamps
- Plate Clamps
- Magnets
- Load Binding
  - Ratchet Binders
  - Lever Binders
  - Ratchet Straps
- House Keeping/Storage

**Rigging Techniques**

- Three Basic Hitched
  - Vertical Leg
  - Choker
  - Vertical Basket

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- Sling Lifting Capacity
  - Rated Load
- Single Leg Hitch
- Two Leg Hitch
- Three/Four Leg Hitch
- Double Choker Hitch
  - Choker Hitch Angle Reduction
- D/d Ratio
- The Rigging Triangle
- Sling Angles
- Determining the Weight of the Load
- Center of Gravity
- Moving the Load
- Load Control
  - Tag Lines
  - Hands-Free Devices
    - Advantages
    - Why Hands-Free Devices
    - Device Types
- Common Rigging Knots
  - Bowline
  - Clove Hitch
  - Square
  - Slip
  - Figure 8
- Personnel Transfer

**Annex F**

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

**Air Tugger Safety**

- Definitions
- CFM & PSI
- Installation and Inspection
- Snatch Blocks



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- 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  
OSHA 29 CFR 1926.1421