

**Crane Operator Safety – 4 Hour**  
(API RP 2D Sixth Edition)  
Course Outline

**Prerequisites:** The delegate should have previously completed a rigging course. The individual should have no history of a disabling medical condition, which may be sufficient reason for disqualification.

**Course Length:** 4 hours – Course length shall vary depending on the number of delegates. Total course time includes breaks.

**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 crane and 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 the 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 thirty (30) minutes to complete the exam.
- Successful completion of practical session is mandatory.

**Course Content Summary**

- Classroom
- Practicals

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

**Lunch:** 1 Hour (if applicable)

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Crane Requirements

- API Definitions

Types of Cranes

- Mechanical Cranes
- Non-Mechanical Cranes
- Electric Powered Cranes
- Other Crane Types

Crane Components

- Body of Crane
- Swing Circle Assembly
  - Hook Rollers
  - Ball King
  - King Post
  - Ring Gear
- Boom Types
  - Lattice
  - Box
- Boom Components
  - Jib
  - Head Sheave Assembly
  - Structural Integrity
    - Boom Bolts
    - Pin Connectors
  - Pendants
  - Limit Devices
    - Boom-hoist limit
    - Load hoist limits
    - Boom stops
    - All locking devices
    - Anti-two block devices
  - Hoist Equipment
    - Main/Auxiliary Hoist
    - Blocks/Hooks
    - Wedge sockets

Crane Inspection

- Usage categories
  - Infrequent

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- Moderate
- Heavy
- Inspection categories
  - Initial
  - Pre-Use
  - Monthly
  - Quarterly
  - Annual
  - Recordkeeping

**Crane Maintenance**

- Maintenance Procedures
- Wire Rope Construction/Handling
- Loading Wire Rope on Crane Drum
- Wire Rope Inspection/Replacement Guidelines
- Sheave Inspection

**Crane Operations**

- Lift Capacity
- Boom Angles
- Load Radius
- Load Charts
- Load Limiting Factors
- Other Factors
- Crane Accident Review (Big Blue)
- Operator Responsibilities
- Personnel Transfer
- Before Starting the Lift
- Before Leaving Controls

**Crane Safety**

- Crane/Rigging Lift Plan
- Personal Protective Equipment
- Hand Signals/Communication

**Practical Session**

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

Practical shall verify the following:

- Conducts proper pre-use inspection of crane and rigging gear

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- Selects the appropriate hardware/rigging gear to complete required lifts
- Effectively controls the crane operations and uses operating indicators
- Accelerates, decelerates, and swings crane in a smooth safe manner
- Verifies the load is not swinging prior to landing the load
- Responds to standardized hand signals from signal person
- Verifies slings are properly connected/free before continuing operations
- Keeps the hook clear of riggers while the slings are disconnected
- Ensures overall safety of the rigging team during crane operations
- Places the hook in a bucket (verify depth position)
- Properly stores hardware/rigging gear following its 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**

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