



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: 3-5 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



M&A Safety Services

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Breaks: 10 minutes (approximately every hour)

Lunch: 1 Hour (if applicable)

Course Outline

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



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Crane Inspection

-) Usage categories
 - o Infrequent
 - o Moderate
 - o Heavy
-) Inspection categories
 - o Initial
 - o Pre-Use
 - o Monthly
 - o Quarterly
 - o Annual
 - o 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



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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
-) 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

API RP 2D Sixth Edition