



M&A Safety Services

512 Viaulet Road
Youngsville, Louisiana 70592
Main: 337-451-4685
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www.masafetyservices.com

Crane Operator Safety – 16 Hour (API RP 2D 7th 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: 16 hours – Course length shall vary depending on the number of delegates. Total course time include 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 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.



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Course Content Summary

-) Classroom
-) Practicals

Breaks: 10 minutes (approximately every hour)

Lunch: 1 Hour

Course Outline

Crane Safety

-) Scope
-) Definitions
 - o Lifting Authority
 - o Qualified
 - o Qualified Crane Operator
 - o Qualified Crane Inspector
-) Qualified Crane Operator Qualifications
-) Physical Requirements
-) Operating Practices
-) Hook Inspection
-) Handling the Load
-) Moving the Load
-) Hand Signals
-) Personnel Transfer
-) Refueling
-) Fire Extinguishers
-) Conditions Requiring Load Testing
-) Load Testing Requirements
 - o Pull Test
-) Usage and Inspection
-) Crane Usage Categories
 - o Infrequent Usage Production Duty Cycle
 - o Moderate Usage Intermittent Duty Cycle
 - o Heavy Usage
-) Inspection Categories
 - o Initial Inspection
 - o Pre-Use Inspection
 - o Monthly Inspection
 - o Quarterly Inspection
 - o Annual Inspection



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-) Inspection and Load Test Records
-) Preventative Maintenance
-) Maintenance Procedures
 - o Repairs and Replacement
 - o Lubrication
-) Crane Rerating & Derating
-) Wire Rope and Sling Inspection, Maintenance, and Replacement
 - o Wire Rope
 - Inspections
 - Replacement
 - Maintenance
 - Testing
 - Pendant Lines

Crane Lift Planning

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

Annex A

-) Crane Operation
 - o Operational Considerations
 - o Moving the Load



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Annex B

-) Usage, Inspection, Testing, and Maintenance
 - o Determining Crane Usage
 - o Crane Inspection
 - o Pre-Use Inspection
 - o Monthly Inspection
 - o Quarterly Inspection
 - o Annual Inspection
 - Crane Components
 -) Hoist Assemblies
 -) Foundation
 -) Swing Circle Assembly
 -) Hook Roller Assemblies
 - o Ring Gear
 - o Hook Rollers
 - o Brackets, Bracket Pads, and Bolts
 - o King Post
 - o Ball/Roller Bearing
 - o Bearing Wear
 - Depression Measurement Method
 - Rotation Method
 - o Crane/Bearing Connection Integrity
 - o Operating Characteristics
 -) Anti-two Block
 - o Testing
 - o Proximity Warning Device
 - o Stalling of the Hoist Drum
 - o Control Override Device
 - o No Override Two-blocking Systems

Annex C

-) Crane-assisted Personnel Transfer
 - o Purpose
 - o General Information
 - o Facility Personnel Transfer Procedures
 - o Vessel Personnel Transfer Procedures
 - o Personnel Transfer Device Operations
 - o Personnel Transfer Device Procedures

Annex D

-) Load Testing



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Annex E

-) Crane Maintenance
 - Maintenance Procedure
 - Repairs and Replacement

Annex F

-) Wire Rope and Sling Inspection, Maintenance, and Replacement
 - Wire Rope Sling Selection Consideration
 - Rope Lay
 - Wire Rope Inspection
 - Sheave Inspection
 - Sheave Gauge
 - Wire Rope Rejection Criteria
 - Wire Rope Replacement Selection Criteria
 - Recommended Storage and Handling Procedures
 - Installation Guidelines
 - Wedge-type Socket Installation Guidelines
 - Recommended Methods of Lubrication
 - Wire Rope Operational Considerations
 - Types of Slings
 - Use of Slings
 - Sling Inspection
 - Guides for Fabrication and Lifting Procedures

Annex G

-) Lift Categories
 - General
 - Routine Lifts
 - Non-routine Lifts
 - Simple Lifts
 - Complicated Lifts
 - Complex/Critical Lifts

Annex I

-) Loading and Unloading Offshore Support Vessels
 - Lifting Operations – General
 - Load Chart Examples
 - Communications
 - Lift Planning
 - Toolbox Talk
 - Safety
 - Cranes – Fitness-for-Service



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Practical Session

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

Practical shall verify that the delegate is able to complete the following:

-) Select and wear appropriate PPE during practical training
-) Conduct proper pre-use inspection of crane and rigging gear
-) Select the appropriate hardware/rigging gear to complete required lifts
-) Effectively control the crane operations and uses operating indicators
-) Accelerate, decelerate, and swing crane in a smooth safe manner
-) Verify the load is not swinging prior to landing the load
-) Respond to standardized hand signals from signal person
-) Verify slings are properly connected/free before continuing operations
-) Keep the hook clear of riggers while the slings are disconnected
-) Ensure overall safety of the rigging team during crane operations
-) Place the hook in a bucket (verify depth position)
-) Stores hardware/rigging gear properly 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 Seventh Edition