



Mobile Crane Operator

Guide to Course Content



Online: www.saskapprenticeship.ca

Recognition:

To promote transparency and consistency, portions of this document has been adapted from the 2021 Mobile Crane Operator Red Seal Occupational Standard (Employment and Social Development Canada).

A complete version of the Occupational Standard can be found at www.red-seal.ca

STRUCTURE OF THE GUIDE TO COURSE CONTENT

To facilitate understanding of the occupation, this guide to course content contains the following sections:

Task Matrix: a chart which outlines graphically the major work activities, tasks and sub-tasks of this standard detailing the essential skills and the level of training where the content is covered.

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities.

Task: distinct actions that describe the activities within a major work activity.

Sub-task: distinct actions that describe the activities within a task.

Training Profile Chart: a chart which outlines the model for Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training.

Technical Training Course Content for the Mobile Crane Operator trade: a chart which outlines the model for SATCC technical training sequencing. For the harmonized level of training, a cross reference to the Harmonized apprenticeship technical training sequencing, at the learning outcome level, is provided.

TRAINING REQUIREMENTS FOR THE **MOBILE CRANE OPERATOR** TRADE

To graduate from each level of the apprenticeship program, an apprentice must successfully complete the required technical training and compile enough on-the-job experience to total at least 1800 hours each year. Total trade time required is 5400 hours and at least 3 years in the trade.

There are three levels of technical training delivered by the Western Trade Training Institute in various locations around the province:

	8 weeks equivalent (online and in-class over 4 months)
Level One:	Block 1: 4 days in-class Block 2: 4 days in-class Block 3: 5 days in-class
	8 weeks equivalent (online and in-class over 4 months)
Level Two:	Block 1: 4 days in-class Block 2: 4 days in-class Block 3: 5 days in-class
	2 weeks equivalent (online and in-class)
Level Three:	11 successive days in-class

The information contained in this document details the technical training delivered for each level of apprenticeship. An apprentice spends approximately 15% of their apprenticeship term in a technical training institute learning the technical and theoretical aspects of the trade. The hours and percentages of technical and practical training may vary according to class needs and progress.

The content of the technical training components is subject to change without notice.

Entrance Requirements for Apprenticeship Training

Your grade twelve transcripts (with no modified classes) or GED 12 is your guarantee that you meet the educational entrance requirements for apprenticeship in Saskatchewan. In fact, employers prefer and recommend apprentices who have completed high school. This ensures the individual has all of the necessary skills required to successfully complete the apprenticeship program, and receive journeyperson certification.

Individuals with “modified” or “general” classes in math or science do not meet our entry requirements. These individuals are required to take an entrance assessment prescribed by the SATCC.

English is the language of instruction in all apprenticeship programs and is the common language for business in Saskatchewan. Before admission, all apprentices and/or “upgraders” must be able to understand and communicate in the English language.

Designated Trade Name	Math Credit at the Indicated Grade Level❶	Science Credit at Grade Level
Mobile Crane Operator	Grade 10	Grade 10
❶ - (One of the following) WA – Workplace and Apprenticeship; or F – Foundations; or P – Pre-calculus, or a Math at the indicated grade level (Modified and General Math credits are not acceptable.). *Applicants who have graduated in advance of 2015-2016, or who do not have access to the revised Science curricula will require a Science at the minimum grade level indicated by trade. For information about high school curriculum, including Math and Science course names, please see: http://www.curriculum.gov.sk.ca/ Individuals not meeting the entrance requirements will be subject to an assessment and any required training		

B-5 Performs rigging calculations

5.01 Performs sling angle calculations

5.02 Performs working load limit (WLL) calculations

1, 2, 3

1, 2, 3

C – Inspects and Maintains Crane

13%

C-6 Performs pre-operational checks and regular inspections

6.01 Inspects engine systems

6.02 Inspects air systems

6.03 Inspects electrical systems

6.04 Inspects hydraulic systems

6.05 Inspects chassis/car body and running gear components

1, 2, 3

1, 2, 3

1, 2, 3

1, 2, 3

1, 2, 3

6.06 Inspects outriggers and counterweights

1, 2, 3

6.07 Inspects boom components and attachments

1, 2, 3

6.08 Inspects hoisting systems

1, 2, 3

C-7 Performs operational and continual checks

7.01 Checks operating controls

7.02 Inspects monitoring and warning systems

7.03 Monitors running lines, hoist ropes and standing ropes

7.04 Monitors gauges and warning systems

7.05 Monitors support base

1, 2, 3

1, 2, 3

1, 2, 3

1, 2, 3

1, 2, 3

C-8 Performs minor crane maintenance

8.01 Changes oil and filter

8.02 Greases crane

8.03 Lubricates wire ropes

8.04 Makes adjustments and replacements

1

1, 2, 3

1, 2, 3

1, 2, 3

D – Performs Rigging

12%

D-9 Inspects, maintains and stores slings and hardware	9.01 Lubricates slings and hardware 1, 2	9.02 Identifies deficiencies in slings and hardware 1, 2	9.03 Disposes of damaged slings and hardware 1, 2	9.04 Stores slings and hardware 1, 2
D-10 Follows rigging procedures	10.01 Selects required rigging 1, 2, 3	10.02 Rigs loads 1, 2, 3	10.03 Monitors rigging 1, 2, 3	

E – Plans Lift, Prepares Site and Sets Up Crane

15%

E-11 Performs pre-lift planning	11.01 Participates in routine, engineered and specialty lift planning 1, 2, 3	11.02 Evaluates risks and hazards 1, 2, 3	
E-12 Sets up crane	12.01 Performs final site inspection 1, 2, 3	12.02 Positions crane 1, 2, 3	12.03 Completes setup 1, 2, 3

F – Assembles, Disassembles and Transports Crane

13%

F-13 Loads and unloads components for transport	13.01 Loads crane and components 1, 3	13.02 Unloads and crane and components 1, 3
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F-14 Drives crane on public roadways	14.01 Performs pre-trip planning	14.02 Prepares crane for transport	14.03 Drives cranes		
	1	1	1		
F-15 Assembles and disassembles lattice boom cranes	15.01 Installs tracks on car body (lattice boom)	15.02 Installs superstructure/upperworks (lattice boom)	15.03 Installs outrigger boxes (lattice boom)	15.04 Installs boom base (lattice boom)	15.05 Installs counterweights (lattice boom)
	1	1	1	1	1, 3
	15.06 Assembles main boom, tip and boom attachments (lattice boom)	15.07 Installs hook blocks and overhaul ball (lattice boom)	15.08 Removes hook blocks and overhaul ball (lattice boom)	15.09 Disassembles main boom, tip and boom attachments (lattice boom)	15.10 Removes counterweights (lattice boom)
	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 3
	15.11 Removes boom base (lattice boom)	15.12 Removes superstructure/upperworks (lattice boom)	15.13 Removes tracks from car body (lattice boom)	15.14 Removes outrigger boxes (lattice boom)	
	1	1	1	1	
F-16 Assembles and disassembles telescopic boom cranes	16.01 Installs tracks on car body (telescopic boom)	16.02 Installs outrigger boxes (telescopic boom)	16.03 Installs superstructure/upperworks (telescopic boom)	16.04 Installs main boom (telescopic boom)	16.05 Installs hook blocks and overhaul ball (telescopic boom)
	1	1	3	1	1, 2, 3
	16.06 Installs counterweights (telescopic boom)	16.07 Installs jibs and inserts (telescopic boom)	16.08 Removes jibs and inserts (telescopic boom)	16.09 Removes counterweights (telescopic boom)	16.10 Removes hook blocks and overhaul ball (telescopic boom)
	1	1, 2, 3	1, 2, 3	1	1, 2, 3
	16.11 Removes main boom (telescopic boom)	16.12 Removes outrigger boxes (telescopic boom)	16.13 Removes tracks from car body (telescopic boom)	16.14 Removes superstructure/upperworks (telescopic boom)	
	1	1	1	3	

F-17 Assembles and disassembles specialty equipment and attachments

17.01 Assembles specialty equipment and attachments

17.02 Disassembles specialty equipment and attachments

3

3

G – Operates Crane

23%

G-18 Performs common craning operations

18.01 Configures electronic operational aids

18.02 Mobilizes crane on jobsite

1, 2, 3

1, 2, 3

G-19 Operates friction drive lattice boom cranes

19.01 Operates friction drive crawler-mounted lattice boom cranes

19.02 Operates friction drive truck-mounted lattice boom cranes

1, 2, 3

1, 2, 3

G-20 Operates hydraulic drive lattice boom cranes

20.01 Operates hydraulic drive crawler-mounted lattice boom cranes

20.02 Operates hydraulic drive truck-mounted lattice boom cranes

1, 2, 3

1, 2, 3

G-21 Operates telescopic boom cranes

21.01 Operates crawler-mounted telescopic cranes

21.02 Operates rubber tire-mounted telescopic cranes

1, 2, 3

1, 2, 3

G-22 Performs specialty craning operations

22.01 Operates crane with piledriving equipment

22.02 Performs duty cycle operations

22.03 Operates cranes on floating platforms

22.04 Performs multi-crane lifts

22.05 Uses personnel hoisting equipment

3

3

3

2, 3

3

G-23 Secures crane	23.01 Secures crane for short-term	23.02 Secures crane for long-term
	1, 2, 3	1, 2, 3

TRAINING PROFILE CHART

This Training Profile Chart represents Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training at the topic level.

Mobile Crane Operator technical training for levels 1 and 2 are provided in alternative delivery. This method uses a combination of in-class training and at-home course work between training sessions. As a result, hours are listed below for a specific training level, but not for individual courses.

Technical training for levels 1 and 2 are both equivalent to 8 weeks in length, while level 3 is a 2 week in-class session.

Level One	Hours
Safety and Communication	
Basic Rigging	
Introduction to Load Weight Calculations	
Introduction to Load Charts	
Introduction to Mobile Crane Operations	
	240

Level Two	Hours
Advanced Rigging	
Advanced Load Weight Calculations	
Advanced Load Charts	
Pre-Operational Checks, Inspections and Maintenance	
Mobile Crane Set-up	
Advanced Mobile Crane Operations	
	240

Level Three	Hours
Safety/Tools and Equipment for Specialty Operations	
Pre-operational Checks, Inspections and Maintenance for Specialty Equipment	
Load Weight and Rigging Calculations for Specialty Equipment	
Load Charts for Specialty Equipment	
Specialty Mobile Crane Setup and Lift Planning	
Mobile Crane Operations for Specialty Equipment	
	80

TECHNICAL TRAINING COURSE CONTENT

This chart outlines the model for Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training sequencing. For the harmonized level of training, a cross reference to the Red Seal Occupational Standard (RSOS) apprenticeship technical training sequencing, at the learning outcome level, is provided.

Sub-tasks listed are the minimum to be covered in a topic. Related sub-tasks not listed may be used as a reference and taught “in context” in other topics

Level One	8 Weeks Equivalent	240 hours
Safety and Communication - types of personal protective equipment (PPE) and clothing and describe their applications, limitations and procedures to maintain - identification of hazards, and describe workplace safety and health regulations - techniques for effective verbal and non-verbal communication - applicable hand signals used during craning operations - trade related documents and describe their applications - hand, power and measuring tools and describe their applications and procedures for use - fasteners and retaining devices, their applications and procedures for use - characteristics and applications of engine lubricating oils, gear oils and other lubricants including transport and disposal requirements (WHMIS) - types and uses of fire extinguishers including inspection and disposal requirements RSOS topics covered in this section of training: A-1 Performs safety related functions A-1.01 Maintains safe work environment A-1.02 Uses personal protective equipment (PPE) and safety equipment A-1.03 Uses documentation A-2 Use communication and mentoring techniques A-2.01 Uses communication techniques E-11 Performs pre-lift planning E-11.02 Evaluates risks and hazards		
Basic Rigging - codes, standards and regulations pertaining to wire ropes, rigging hardware and slings - wire ropes, rigging hardware and slings and describe their applications, limitations, and maintenance requirements - procedures used to select, install, connect, store and troubleshoot issues with wire ropes, rigging hardware and slings - procedures used to dispose of damaged rigging components - information pertaining to rigging and hoisting found on drawings and specifications - procedures used to determine the appropriate sling size and sling angle calculations for a given load - principle of safe working load (S.W.L.) including considerations and calculations used to determine WLLs		

- procedures to cut, uncoil and wind wire rope
- block and sheaves, their components, purpose, operation, characteristics and applications including procedures to inspect

RSOS topics covered in this section of training:

B-5 Performs rigging calculations

B-5.01 Performs sling angle calculations

B-5.02 Performs working load limit (WLL) calculations

C-8 Performs minor crane maintenance

C-8.03 Lubricates wire ropes

D-9 Inspects, maintains and stores slings and hardware

D-9.01 Lubricates slings and hardware

D-9.02 Identifies deficiencies in slings and hardware

D-9.03 Disposes of damaged slings and hardware

D-9.04 Stores slings and hardware

D-10 Follows rigging procedures

D-10.01 Selects required rigging

D-10.02 Rigs loads

D-10.03 Monitors rigging

Introduction To Load Weight Calculations

- procedure to determine weight of basic-shaped loads
- procedure to determine center of gravity and its affect on a load

RSOS topics covered in this section of training:

B-3 Determines load weights

B-3.01 Identifies weight

B-3.02 Calculates weight

Introduction To Load Charts

- basic load charts, their characteristics and applications
- crane capacity, crane component capacity and working radius for basic lifting operations
- hazards associated with exceeding working load limits such as structural and stability failures
- factors reducing rated capacities such as wind, weather, ground conditions and personnel experience

RSOS topics covered in this section of training:

B-4 Calculates crane capacity

B-4.01 Determines radius and crane configuration

B-4.02 Interprets load charts

Introduction To Mobile Crane Operations

- lifting theory and forces
- units of measure and symbols regarding lifting plans and load charts
- procedures used to plan and organize job tasks
- procedures used to perform pre/post-operational inspections, setup and continual checks
- procedures used to setup a crane including factors affecting the lift such as tail swing, load path, blocking and clearances
- introduction to various crane types, their components, characteristics and applications including assembly, inspection and operation

- regulations pertaining to crane transport and storage
- crane computers and integrated computerized components, their applications and procedures for use
- introduction to duty cycles, their purpose and applications

RSOS topics covered in this section of training:

A-1 Performs safety related functions

A-1.03 Uses documentation

C-6 Performs pre-operational checks and regular inspections

C-6.01 Inspects engine systems

C-6.02 Inspects air systems

C-6.03 Inspects electrical systems

C-6.04 Inspects hydraulic systems

C-6.05 Inspects chassis/car body and running gear components

C-6.06 Inspects outriggers and counterweights

C-6.07 Inspects boom components and attachments

C-6.08 Inspects hoisting systems

C-7 Performs operational and continual checks

C-7.01 Checks operating controls

C-7.02 Inspects monitoring and warning systems

C-7.03 Monitors running line, hoist ropes, and standing ropes

C-7.04 Monitors gauges and warning systems

C-7.05 Monitors support base

C-8 Performs minor crane maintenance

C-8.01 Changes oil and filter

C-8.02 Greases crane

C-8.03 Lubricates wire ropes

C-8.04 Makes adjustments and replacements

E-11 Performs pre-lift planning

E-11.01 Participates in routine, engineered and specialty lift planning

E-11.02 Evaluates risks and hazards

E-12 Sets up crane

E-12.01 Perform final site inspection

E-12.02 Positions crane

E-12.03 Completes setup

F-13 Loads and unloads components for transport

F-13.01 Loads crane and components

F-13.02 Unloads crane and components

F-14 Drives crane on public roadways

F-14.01 Performs pre-trip planning

F-14.02 Prepares crane for transport

F-14.03 Drives crane

F-15 Assembles and disassembles lattice boom cranes

F-15.01 Installs tracks on car body (lattice boom)

F-15.02 Installs superstructure/upperworks (lattice boom)

F-15.03 Installs outrigger boxes (lattice boom)

F-15.04 Installs boom base (lattice boom)

F-15.05 Installs counterweights (lattice boom)

F-15.06 Assembles main boom, tip and boom attachments (lattice boom)

- F-15.07 Installs hook blocks and overhaul ball (lattice boom)
- F-15.08 Removes hook blocks and overhaul ball (lattice boom)
- F-15.09 Disassembles main boom, tip and boom attachments (lattice boom)
- F-15.10 Removes counterweights (lattice boom)
- F-15.11 Removes boom base (lattice boom)
- F-15.12 Removes superstructure/upperworks (lattice boom)
- F-15.13 Removes tracks from car body (lattice boom)
- F-15.14 Removes outrigger boxes (lattice boom)

F-16 Assembles and disassembles telescopic boom cranes

- F-16.01 Installs tracks on car body (telescopic boom)
- F-16.02 Installs outrigger boxes (telescopic boom)
- F-16.04 Installs main boom (telescopic boom)
- F-16.05 Installs hook blocks and overhaul ball (telescopic boom)
- F-16.06 Installs counterweights (telescopic boom)
- F-16.07 Installs jibs and inserts (telescopic boom)
- F-16.08 Removes jibs and inserts (telescopic boom)
- F-16.09 Removes counterweights (telescopic boom)
- F-16.10 Removes hook blocks and overhaul ball (telescopic boom)
- F-16.11 Removes main boom (telescopic boom)
- F-16.12 Removes outrigger boxes (telescopic boom)
- F-16.13 Removes tracks from car body (telescopic boom)

G-18 Performs common craning operations

- G-18.01 Configures electronic operational aids
- G-18.02 Mobilizes crane on jobsite

G-19 Operates friction-drive lattice boom crane

- G-19.01 Operates friction drive crawler-mounted lattice boom cranes
- G-19.02 Operates friction drive truck-mounted lattice boom cranes

G-20 Operates hydraulic drive lattice boom cranes

- G-20.01 Operates hydraulic drive crawler-mounted lattice boom cranes
- G-20.02 Operates hydraulic drive truck-mounted lattice boom cranes

G-21 Operates telescopic boom cranes

- G-21.01 Operates crawler-mounted telescopic cranes
- G-21.02 Operates rubber tire-mounted telescopic cranes

G-23 Secures crane

- G-23.01 Secures crane for short term
- G-23.02 Secures crane for long term

Advanced Rigging

- non-routine and advanced rigging and lifts, their applications, limitations and procedures
- non-routine and advanced rigging and lift techniques
- reeving operations
- methods and equipment used for reeving operations
- multi-crane lifts and their applications
- procedures used for multi-crane lifts
- procedures used to select, install, connect and troubleshoot issues with specialized rigging hardware and slings

RSOS topics covered in this section of training:**B-5 Performs rigging calculations**

B-5.01 Performs sling angle calculations

B-5.02 Performs working load limit (WLL) calculations

D-9 Inspects, maintains and stores slings and hardware

D-9.01 Lubricates slings and hardware

D-9.02 Identifies deficiencies in slings and hardware

D-9.03 Disposes of damaged slings and hardware

D-9.04 Stores slings and hardware

D-10 Follows rigging procedures

D-10.01 Selects required rigging

D-10.02 Rigs loads

D-10.03 Monitors rigging

Advanced Load Weight Calculations

- procedure to determine weight of irregular shaped loads
- procedure to determine center of gravity

RSOS topics covered in this section of training:**B-3 Determines load weights**

B-3.01 Identifies weight

B-3.02 Calculates weight

G-22 Performs specialty craning operations

G-22.04 Performs multi-crane lifts

Advanced Load Charts

- advanced load charts, their characteristics and applications
- crane capacity, crane component capacity and working radius for advanced lift operations

RSOS topics covered in this section of training:**B-4 Calculates crane capacity**

B-4.01 Determines radius and crane configuration

B-4.02 Interprets load charts

Pre-operational Checks, Inspections and Maintenance

- engines and drive systems, components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- mechanical systems, components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- chassis/car body and running gear components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- outriggers and counterweights, components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- hoisting and boom systems and their components, purpose and operation including procedures used to inspect, maintain and troubleshoot
- turntable systems, components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- electrical systems, components their purpose and operation including procedures used to inspect, maintain and troubleshoot
- air systems and their components their purpose and operation including procedures used to inspect, maintain and troubleshoot
- steering systems and their components their purpose and operation including procedures used to inspect, maintain and troubleshoot
- hydraulic systems, pumps and their components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- procedures used to test and monitor controls and warning systems while operating
- procedures used to monitor crane during operation including hoist and running lines and support conditions

RSOS topics covered in this section of training:

C-6 Performs pre-operational checks and regular inspections

- C-6.01 Inspects engine systems
- C-6.02 Inspects air systems
- C-6.03 Inspects electrical systems
- C-6.04 Inspects hydraulic systems
- C-6.05 Inspects chassis/car body and running gear components
- C-6.06 Inspects outriggers and counterweights
- C-6.07 Inspects boom components and attachments
- C-6.08 Inspects hoisting systems

C-7 Performs operational and continual checks

- C-7.01 Checks operating controls
- C-7.02 Inspects monitoring and warning systems
- C-7.03 Monitors running lines, hoist ropes and standing ropes
- C-7.04 Monitors gauges and warning systems
- C-7.05 Monitors support base

C-8 Performs minor crane maintenance

- C-8.02 Greases crane
- C-8.03 Lubricates wire ropes
- C-8.04 Makes adjustments and replacements

Mobile Crane Set-up

- describe a pre-lift plan meeting including legal obligations and company policies regarding lift plan documentation for non-routine operations.
- procedures to mobilize cranes on jobsite according to manufacturer and regulatory specifications
- positioning, setup, blocking and leveling operations and their applications for non-routine operations
- lattice boom cranes and their associated components and procedures used for assembly and disassembly (advanced)
- telescopic boom cranes and their associated components and procedures used for assembly and disassembly (advanced)
- procedures used to prepare cranes for transport
- procedures used to transport cranes, their components and accessories
- regulations and procedures pertaining to crane storage
- procedures to resume operations after long-term storage

RSOS topics covered in this section of training:

E-11 Performs pre-lift planning

E-11.01 Participates in routine, engineered and specialty lift planning

E-11.02 Evaluates risks and hazards

E-12 Sets up crane

E-12.01 Performs final site inspection

E-12.02 Positions crane

E-12.03 Completes setup

F-15 Assembles and disassembles lattice boom cranes

F-15.06 Assembles main boom, tip and boom attachments (lattice boom)

F-15.07 Installs hook blocks and overhaul ball (lattice boom)

F-15.08 Removes hook blocks and overhaul ball (lattice boom)

F-15.09 Disassembles main boom, tip and boom attachments (lattice boom)

F-16 Assembles and disassembles telescopic boom cranes

F-16.05 Installs hook blocks and overhaul ball (telescopic boom)

F-16.07 Installs jibs and inserts (telescopic boom)

F-16.08 Removes jibs and inserts (telescopic boom)

F-16.10 Removes hook blocks and overhaul ball (telescopic boom)

Advanced Mobile Crane Operations

- advanced operation of telescopic boom cranes, their attachments, characteristics and applications
- advanced operation of hydraulic drive lattice boom cranes, their attachments, characteristics and applications
- advanced operation of friction drive lattice boom cranes, their attachments, characteristics and applications
- specialty crane operations, their characteristics, applications and procedures
- pick and carry operations, procedures and limitations for use

RSOS topics covered in this section of training:

G-18 Performs common craning operations

G-18.01 Configures electronic operational aids

G-18.02 Mobilizes crane on jobsite

G-19 Operates friction drive lattice boom cranes

G-19.01 Operates friction drive lattice boom cranes

G-19.02 Operates friction drive truck-mounted lattice boom cranes

G-20 Operates hydraulic drive lattice boom cranes

G-20.01 Operates hydraulic drive crawler-mounted lattice boom cranes

G-20.02 Operates hydraulic drive truck-mounted lattice boom cranes

G-21 Operates telescopic boom cranes

G-21.01 Operates crawler-mounted telescopic cranes

G-21.02 Operates rubber tire-mounted telescopic cranes

G-22 Performs specialty craning operations

G-22.04 Performs multi-crane lifts

G-23 Secures crane

G-23.01 Secures crane for short term

G-23.02 Secures crane for long term

Level Two topics from the RSOS that are taught in context:

A-1 Performs safety related functions

For details regarding the In Context Topic, see page 24

Safety/Tools and Equipment for Specialty Operations

- safety equipment, their applications, maintenance and procedures for use
- safe work practices and regulatory requirements pertaining to safety
- strategies for teaching workplace skills and mentoring
- communication devices, their operation and the procedures used to communicate during hoisting operations
- procedures used to operate cranes near high voltage electrical equipment
- procedures used to complete documentation
- tools and equipment, their applications, maintenance and procedures for use
- fasteners and retaining devices, their applications and procedures for use

RSOS topics covered in this section of training:**A-2 Uses communication and mentoring techniques**

A-2.02 Uses mentoring techniques

C-8 Performs minor crane maintenance

C-8.02 Greases crane

C-8.03 Lubricates wire ropes

C-8.04 Makes adjustments and replacements

E-11 Performs pre-lift planning

E-11.02 Evaluates risks and hazards

Pre-operational Checks, Inspection and Maintenance for Specialty Equipment

- specialty crane engines and drive systems, components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty crane mechanical systems, components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty crane chassis/car body and running gear components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty crane outriggers and counterweights, components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty crane hoisting and boom systems and their components, purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty crane turntable systems, components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty crane electrical systems, components their purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty Crane air systems and their components their purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty crane steering systems and their components their purpose and operation including procedures used to inspect, maintain and troubleshoot
- specialty crane hydraulic systems, pumps and their components, their purpose and operation including procedures used to inspect, maintain and troubleshoot
- procedures used to test and monitor controls and warning systems while operating specialty cranes
- procedures used to monitor crane during specialty crane operation including hoist and running lines and support conditions

RSOS topics covered in this section of training:

C-6 Performs pre-operational checks and regular inspections

- C-6.01 Inspects engine systems
- C-6.02 Inspects air systems
- C-6.03 Inspects electrical systems
- C-6.04 Inspects hydraulic systems
- C-6.05 Inspects chassis/car body and running gear components
- C-6.06 Inspects outriggers and counterweights
- C-6.07 Inspects boom components and attachments
- C-6.08 Inspects hoisting systems

C-7 Performs operational and continual checks

- C-7.01 Checks operating controls
- C-7.02 Inspects monitoring and warning systems
- C-7.03 Monitors running lines, hoist ropes and standing ropes
- C-7.04 Monitors gauges and warning systems
- C-7.05 Monitors support base

Load Weight and Rigging Calculations for Specialty Equipment

- engineered lift drawings, their requirements, limitations and applications for use
- procedures to determine the weight of a load from an engineered lift drawing
- procedure to calculate the center of gravity
- identify specialty rigging equipment, their components, regulations and limitations for use
- inspection and disposal requirements of specialty rigging
- define the size, type and illustrate the use of equalizer beams and spreader bars

RSOS topics covered in this section of training:

B-3 Determines load weights

- B-3.01 Identifies weight
- B-3.02 Calculates weight

B-5 Performs rigging calculations

- B-5.01 Performs sling angle calculations
- B-5.02 Performs working load limit (WLL) calculations

C-8 Performs minor crane maintenance

- C-8.02 Greases crane
- C-8.03 Lubricates wire ropes
- C-8.04 Makes adjustments and replacements

D-10 Follows rigging procedures

- D-10.01 Selects required rigging
- D-10.02 Rigs loads
- D-10.03 Monitors rigging

G-22 Performs specialty craning operations

- G-22.04 Performs multi-crane lifts
-

Load Charts for Specialty Equipment

- specialty load charts, their characteristics and applications
- crane capacity, crane component capacity and working radius for specialty lift operations
- methods and equipment used for reeving operations on specialty equipment
- working load limits (WLL) for specialty cranes

RSOS topics covered in this section of training:

B-4 Calculates crane capacity

B-4.01 Determines radius and crane configuration

B-4.02 Interprets load charts

Specialty Mobile Crane Setup and Lift Planning

- describe a pre-lift plan meeting using a lift plan to assign duties for specialty cranes
- legal obligations and company policies regarding specialized lift plan documentation
- procedures used to mobilize specialty cranes on site including transport, positioning and setup procedures as per manufacturer's specifications
- potential considerations such as weather, ground condition and overhead obstacles
- procedures used to prepare worksite for specialty crane operations

RSOS topics covered in this section of training:

E-11 Performs pre-lift planning

E-11.01 Participates in routine, engineered and specialty lift planning

E-11.02 Evaluates risks and hazards

E-12 Sets up crane

E-12.01 Performs final site inspection

E-12.02 Positions crane

E-12.03 Completes setup

F-13 Loads and unloads components for transport

F-13.01 Loads crane and components

F-13.02 unloads crane and components

F-15 Assembles and disassembles lattice boom cranes

F-15.05 Installs counterweights (lattice boom)

F-15.06 Assembles main boom, tip and boom attachments (lattice boom)

F-15.07 Installs hook blocks and overhaul ball (lattice boom)

F-15.08 Removes hook blocks and overhaul ball (lattice boom)

F-15.09 Disassembles main boom, tip and boom attachments (lattice boom)

F-15.10 Removes counterweights (lattice boom)

F-16 Assembles and disassembles telescopic boom cranes

F-16.03 Installs superstructure/upperworks (telescopic boom)

F-16.05 Installs hook blocks and overhaul ball (telescopic boom)

F-16.07 Installs jibs and inserts (telescopic boom)

F-16.08 Removes jibs and inserts (telescopic boom)

F-16.10 Removes hook blocks and overhaul ball (telescopic boom)

F-16.14 Removes superstructure/upperworks (telescopic boom)

F-17 Assembles and disassembles specialty equipment and attachments

F-17.01 Assembles specialty equipment and attachments

F-17.02 Disassembles specialty equipment and attachments

Mobile Crane Operations for Specialty Equipment

- piledriving equipment, their attachments, characteristics, regulations, applications, inspections and procedures to operate
- duty cycle operations, their characteristics, regulations and applications
- crane on floating platform operations, their characteristics, applications, inspections, regulations and procedures to operate
- rail cranes, their characteristics, applications, inspection and procedures to operate
- personnel hoisting equipment, their characteristics, applications, regulations, inspection and use procedures
- other specialized cranes, their characteristics, applications, inspections and procedures to operate
- multi-crane lift operations with unequal size cranes
- regulations pertaining to multi-crane lift operations

RSOS topics covered in this section of training:

E-11 Performs pre-lift planning

E-11.01 Participates in routine, engineered and specialty lift planning

G-18 Performs common craning operations

G-18.01 Configures electronic operational aids

G-18.02 Mobilizes crane on jobsite

G-19 Operates friction drive lattice boom cranes

G-19.01 Operates friction drive lattice boom cranes

G-19.02 Operates friction drive truck-mounted lattice boom cranes

G-20 Operates hydraulic drive lattice boom cranes

G-20.01 Operates hydraulic drive crawler-mounted lattice boom cranes

G-20.02 Operates hydraulic drive truck-mounted lattice boom cranes

G-21 Operates telescopic boom cranes

G-21.01 Operates crawler-mounted telescopic cranes

G-21.02 Operates rubber tire-mounted telescopic cranes

G-22 Performs specialty craning operations

G-22.01 Operates crane with piledriving equipment

G-22.02 Performs duty cycle operations

G-22.03 Operates cranes on floating platforms

G-22.04 Performs multi-crane lifts

G-22.05 Uses personnel hoisting equipment

G-23 Secures crane

G-23.01 Secures crane for short term

G-23.02 Secures crane for long term

Level Three topics from the RSOS that are taught in context:

A-1 Performs safety related functions

For details regarding the In Context Topic, see page 24

In Context Topics

In context means learning that has already taken place and is being applied to the applicable task. Learning outcomes for in context topics are accomplished in other topics in that level.

A-1 Performs safety related functions

A-1.01 Maintains a safe work environment

A-1.02 Uses personal protective equipment (PPE) and safety equipment

A-1.03 Uses documentation