



Tower Crane Operator Course Outline

2022-2023

1-877-363-0536
apprenticeship@gov.sk.ca
saskapprenticeship.ca



TRAINING PROFILE CHART

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

Tower 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.

Level One	Hours
Safety/Tools and Equipment	
Rigging	
Mobile Crane Operations	
Load Charts I	
Load Weight Calculations	
	240 hours

Level Two	Hours
Rigging	
Load Weight Calculations II	
Load Charts II	
Tower Crane Setup	
Tower Crane Operations	
Pre-operational Checks, Inspections and Maintenance	
	240 hours

TECHNICAL TRAINING COURSE OUTLINE

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.

Level One	8 weeks	240 hours
Safety/Tools and Equipment		
<ul style="list-style-type: none">• safety• communications for hoisting• high voltage electrical fundamentals• trade related documents• tools and equipment• fasteners and retaining devices		
Rigging		
<ul style="list-style-type: none">• wire rope• rigging hardware• introduction to rigging and hoisting• sling configurations		
Load Weight Calculations		
<ul style="list-style-type: none">• load weight calculations I		
Load Charts		
<ul style="list-style-type: none">• load charts I		
Tower Crane Operations		
<ul style="list-style-type: none">• lifting theory and forces• introduction to crane operations• introduction to computerized operational aids• job planning• introduction to tower cranes		



Level Two**8 weeks****240 hours**

Rigging

- advanced rigging and hoisting
-

Load Weight Calculations

- load weight calculations ii
-

Load Charts

- tower crane load charts
-

Pre-operational Checks, Inspections and Maintenance

- tower crane components
 - access equipment
 - hydraulic systems
 - electrical systems
 - mechanical systems
 - continual checks
-

Tower Crane Set-up

- assembly and disassembly
 - positioning and stabilizing self-erecting tower cranes
 - climbing and lowering
-

Tower Crane Operations

- pre-lift activities
 - hammerhead tower crane
 - luffing jib tower crane
 - self-erecting tower crane
 - specialty crane operations
-

TOWER CRANE OPERATOR TASK MATRIX CHART

This chart outlines the major work activities, tasks and sub-tasks from the 2010 Tower Crane Operator National Occupational Analysis. Each sub-task details the corresponding essential skill and level of training where the content is covered. *

* Sub-tasks with numbers in the boxes is where the content will be delivered in training. Level one to be implemented in 2016/2017 and level two in 2017/2018.

A – COMMON OCCUPATIONAL SKILLS

Task A-1 Performs safety-related functions	1.01 Maintains safe work environment 1, 2	1.02 Uses personal protective equipment (PPE) and safety equipment 1, 2
Task A-2 Contributes to workplace organization	2.01 Communicates with others 1, 2	2.02 Uses documentation 1, 2

B – CRANE INSPECTION AND MAINTENANCE

Task B-3 Performs pre-operational checks and regular inspections	3.01 Inspects structural components 1, 2	3.02 Inspects mechanical components 1, 2	3.03 Inspects lines and wire ropes 1, 2	3.04 Inspects hydraulic system components 1,2	3.05 Inspects electrical system components 1, 2	3.06 Inspects supports components 1, 2
	3.07 Inspects support components 1,2	3.08 Inspects cab components 1,2	3.09 Inspects cab components 1,2	3.10 Completes inspection documentation 1,2		

Task B-4 Performs continual checks	4.01 Monitors site conditions 1, 2	4.02 Monitors lines and wire ropes 1, 2	4.03 Monitors equipment performance and conditions 1,2	4.04 Monitors structural and support components 1, 2
Task B-5 Performs minor crane maintenance	5.01 Maintains mechanical components 1,2	5.02 Lubricates wire ropes and crane components 1,2		

C – CRANE SET-UP, HOISTING CALCULATIONS AND LIFT PLANNING

Task C-6 Participates in tower crane assembly, disassembly and transportation	6.01 Participates in crane assembly 1	6.02 Participates in crane disassembly 1	6.03 Transports self-erecting tower crane (Not common core) 1	6.04 Participates in assembly and disassembly of self-erecting tower cranes (Not common core) 1
Task C-7 Plans lifts	7.01 Interprets load charts 1, 2	7.02 Plans work procedures 1, 2	7.03 Prepares for specialty lifts 1,2	

D – RIGGING

Task D-8 Inspects and maintains rigging equipment	8.01 Identifies deficiencies in slings and hardware 1,2	8.02 Lubricates slings and hardware 1,2	8.03 Stores rigging equipment 1,2
Task D-9 Manages rigging	9.01 Selects required rigging equipment 1, 2	9.02 Rigs load 1, 2	9.03 Monitors rigging 1,2

E – CRANE OPERATIONS

Task E-10 Performs pre-lift (warm-up) activities	10.01 Performs function test 1, 2	10.02 Confirms limits 1, 2				
Task E-11 Operates tower cranes	11.01 Trolleys carriage 1, 2	11.02 Booms (luffs) up and down 1, 2	11.03 Swings (slews) jib 1,2	11.04 Hoists load 1,2	11.05 Travels crane 1,2	11.06 performs functions simultaneously 1, 2
Task E-12 Climbs (raises) tower cranes	12.01 Performs bottom-climbing procedures 1, 2	12.02 Performs top-climbing procedures 1, 2				
Task E-13 Performs specialty tower crane operations	13.01 Participates in multi-crane lifts 2	13.02 Operates in multi-crane site 2	13.03 Hoists personnel 1			
Task E-14 Shuts down and secures tower cranes	14.01 Secures crane while leaving controls 1, 2	14.02 Secures crane while unattended 1, 2	14.03 Secures crane for extended periods 1,2			

**The Tower Crane Operator National Occupational Analysis describing the “full scope” of the trade, can be found at www.red-seal.ca*

For more detailed information on course content, please refer to the Tower Crane Operator Guide to Course Content at www.saskapprenticeship.ca