



Ironworker **(Structural/Ornamental)** **Guide to Course Content**

2024

Online: www.saskapprenticeship.ca

Recognition:

To promote transparency and consistency, this document has been adapted from the 2015 Ironworker (Structural/Ornamental) National Occupational Analysis (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. The Task Matrix is broken down into the following:

Major Work Activity: 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 Ironworker (Structural/Ornamental) 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 IRONWORKER (STRUCTURAL/ORNAMENTAL) 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 Iron Workers Local Union 771 in Regina.

Level One: 8 weeks

Level Two: 8 weeks

Level Three: 7 weeks

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 transcript (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 journeyman 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. Applicants whose first language is not English must have a minimum Canadian Language Benchmark Assessment of six (CLB6).

Note: A CLB assessment is valid for a one-year period from date of issue.

Designated Trade Name	Math Credit at the Indicated Grade Level ^①	Science Credit at Grade Level
Ironworker(Structural/Ornamental)	Grade 10	Grade 10
<p>① - (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.).</p> <p>*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.</p> <p>For information about high school curriculum, including Math and Science course names, please see: http://www.curriculum.gov.sk.ca</p> <p>Individuals not meeting the entrance requirements will be subject to an assessment and any required training.</p>		

IRONWORKER (STRUCTURAL/ORNAMENTAL)

TASK MATRIX

This chart outlines the major work activities, tasks and sub-tasks from the 2015 Ironworker (Structural/Ornamental) Red Seal National Occupational Analysis (NOA). 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.

A - Common Occupational Skills

12%

A-1 Interprets occupational documentation	1.01 Interprets drawings and specifications 1, 2, 3	1.02 Interprets standards, regulations and procedures 1 (2, 3 In Context)			
A-2 Communicates in the workplace	2.01 Communicates with co-workers 1	2.02 Communicates with others 1	2.03 Communicates with apprentices 1	2.04 Uses hand signals 1, 2, 3	2.05 Communicates electronically 1, 2, 3
A-3 Uses and maintains tools and equipment	3.01 Uses hand tools and measuring equipment 1 (2, 3 In Context)	3.02 Uses power tools 1 (2, 3 In Context)	3.03 Uses powder-actuated tools 1 (2, 3 In Context)	3.04 Uses aerial work platforms 1 (2, 3 In Context)	3.05 Uses ladders 1 (2, 3 In Context)
	3.06 Uses scaffolding 1 (2, 3 In Context)	3.07 Uses personal protective equipment (PPE) 1 (2, 3 In Context)	3.08 Uses surveying equipment 1, 2, 3	3.09 Uses welding equipment 1,3 (2 In Context)	3.10 Uses thermal and oxy-fuel cutting equipment 1 (2, 3 In Context)
A-4 Organizes work	4.01 Organizes materials and supplies 1, 2, 3	4.02 Marks layouts 1, 2, 3	4.03 Maintains safe work environment 1 (2, 3 In Context)	4.04 Assesses site hazards 1 (2, 3 In Context)	4.05 Plans work tasks 1, 2, 3

B – Rigging and hoisting

25%

B-5 Selects rigging equipment	5.01 Matches load to lift capability 1, 2 (3 In Context)	5.02 Inspects rigging equipment 1, 2 (3 In Context)	5.03 Maintains rigging equipment 1, 2 (3 In Context)
B-6 Uses hoisting and lifting equipment	6.01 Uses hoisting equipment 1, 2 (3 In Context)	6.02 Uses lifting equipment 1, 2 (3 In Context)	6.03 Attaches rigging to load 1, 2 (3 In Context)

C - Cranes

13%

C-7 Assembles and erects cranes	7.01 Assesses crane site limitations 1, 2, 3	7.02 Determines crane position 1, 2, 3	7.03 Prepares bases 1, 2, 3	7.04 Erects cranes and components 1, 2, 3
C-8 Disassembles cranes	8.01 Disassembles crane components 1, 2, 3	8.02 Prepares crane for transport 1, 2, 3		

D – Erection, Assembly and Installation

40%

D-9 Installs primary and secondary structural members	D-9.01 Erects falsework 1, 2, 3	D-9.02 Attaches structural members 1, 2, 3	D-9.03 Levels, plumbs and aligns structural members 1, 2, 3	D-9.04 Completes installation of structural members 1, 2, 3
D-10 Installs ornamental components and systems	10.01 Installs curtain walls and window walls 2, 3	10.02 Installs miscellaneous components 3		
D-11 Installs conveyors, machinery and equipment	11.01 Installs material handling systems 2, 3	11.02 Aligns material handling systems 2, 3	11.03 Places machinery and equipment 2, 3	

E – Maintenance and Upgrading

10%

E-12 Repairs components	12.01 Assesses current condition of components 1, 2, 3	12.02 Field-fabricates components 1, 2, 3	12.03 Replaces components 1, 2, 3	12.04 Performs preventative maintenance 1, 2, 3
E-13 Decommissions disassembles and removes structural, mechanical and miscellaneous components	13.01 Ensures decommissioning of structure or components 1, 2, 3	13.02 Plans sequence of disassembly 1, 2, 3	13.03 Removes components 1, 2, 3	

TRAINING PROFILE CHART

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

SATCC Level One	Transcript Code	Hours
Safety Awareness	SFTY 134	18
Access Equipment	EQPT 157	15
Tools and Equipment	EQPT 156	20
Hoisting Lifting and Rigging 1	RIGG 130	33
Welding 1	WLDR 133	18
Drawing Interpretation	BPRT 130	40
Cranes 1	EQPT 158	18
Structural Components	STRU 130	36
Building Erection 1	STRU 131	12
Ironworker Mathematics (Exceed)	MATH 118	30
		240

SATCC Level Two	Transcript Code	Hours
Hoisting Lifting and Rigging 2	RIGG 200	22
Drawing Interpretation	BPRT 202	48
Cranes 2	EQPT 200	60
Erection and Dismantling	STRU 204	12
Pre-engineered Structures	STRU 208	20
Building Erection 2	STRU 205	18
Reinforcing Rebar	MATE 200	12
Ironworker Mathematics (Exceed)	MATH 221	30
Welding 2	WELD 217	18
		240

SATCC Level Three	Transcript Code	Hours
Pre-engineered Structures	STRU 300	26
Welding 3	WELD 307	6
Cranes 3	EQPT 303	40
Machinery and Equipment	EQPT 304	30
Pre-cast Concrete	MATE 301	24
Building, Dismantling and Storage	STRU 301	18
Miscellaneous and Ornamental Ironwork	MATE 300	54
Equipment Certifications	EQPT 302	12
		210

Exceed Topics

Throughout this guide to course content there are topics, which exceed the scope of work set out by the Ironworker Structural/Ornamental National Occupational Analysis (NOA). Industry in Saskatchewan has deemed certain topics to fall within the scope of work of Ironworker Structural/Ornamental trade and therefore require technical training to also cover these topics.

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 National Occupational Analysis (NOA) 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	240 hours
Safety Awareness <ul style="list-style-type: none">demonstrate the use of safety equipment, their applications, maintenance, and procedures for usedemonstrate safe work practicesdiscuss regulatory requirements pertaining to safetyyou will able to use fall arrest equipment NOA subtasks covered in this section of training: A-3 Uses and maintains tools and equipment A-3.07 Uses personal protective equipment (PPE) A-4 Organizes work A-4.03 Maintains safe work environment A-4.04 Assesses site hazards		18 hours
Tools and Equipment <ul style="list-style-type: none">identify types of hand, electric, hydraulic, pneumatic and gas tools, and levelling and alignment instrumentsdemonstrate the use of tools and equipment, their applications, maintenance, and storage, and procedures for useuse explosive actuated tools NOA subtasks covered in this section of training: A-3 Uses and maintains tools and equipment A-3.01 Uses hand tools and measuring equipment A-3.02 Uses power tools A-3.03 Uses powder-actuated tools A-3.09 Uses welding equipment		20 hours
Access Equipment <ul style="list-style-type: none">demonstrate the use of ladders, scaffolding and aerial work platforms, their applications, limitations, and procedures for usedemonstrate safe work practices concerning the set up and use of scaffolds, ladders, and angel wingsdiscuss the use of swing stages and sky climbersdiscuss the use of crane man basketsdescribe the use of aerial work platform operation		15 hours

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

- A-3.04 Uses aerial work platforms
- A-3.05 Uses ladders
- A-3.06 Uses scaffolding

Hoisting, Lifting, and Rigging 1

33 hours

- describe hoisting, lifting, and rigging equipment, their applications, limitations, and procedures for use
- discuss the procedures used to perform hoisting and lifting operations
- perform calculations required when hoisting and lifting
- demonstrate international crane hand signals

NOA subtasks covered in this section of training:

A-2 Communicates in the workplace

- A-2.04 Uses hand signals
- A-2.05 Communicates electronically

B-5 Selects rigging equipment

- B-5.01 Matches load to lift capability
- B-5.02 Inspects rigging equipment
- B-5.03 Maintains rigging equipment

B-6 Uses hoisting and lifting equipment

- B-6.01 Uses hoisting equipment
- B-6.02 Uses lifting equipment
- B-6.03 Attaches rigging to load

Welding 1

18 hours

- describe knowledge of oxy-fuel equipment and accessories
- perform oxy-fuel cutting
- describe SMAW equipment and accessories
- perform SMAW welding

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

- A-3.09 Uses welding equipment
- A-3.10 Uses thermal and oxy-fuel cutting equipment

Drawing Interpretation and Work Planning

40 hours

- identify types of drawings, knowledge of drawings and their applications
- explain the procedures used to interpret and extract information from drawings
- prepare trade related documentation and its use
- demonstrate knowledge of the procedures used to prepare and complete trade documentation
- organize work tasks to facilitate effective handling of work materials
- demonstrate effective communication practices

NOA subtasks covered in this section of training:

A-1 Interprets occupational documentation

- A-1.01 Interprets drawings and specifications
- A-1.02 Interprets standards, regulations and procedures

A-2 Communicates in the workplace

- A-2.01 Communicates with co-workers
- A-2.02 Communicates with others
- A-2.03 Communicates with apprentices
- A-2.04 Uses hand signals
- A-2.05 Communicates electronically

A-4 Organizes work

- A-4.01 Organizes materials and supplies
- A-4.05 Plans work tasks

Cranes 1

18 hours

- describe types of cranes, their applications, and limitations
- perform crane lifting operations
- interpret basic load charts

NOA subtasks covered in this section of training:

C-7 Assembles and erects cranes

- C-7.01 Assesses crane site limitations
- C-7.02 Determines crane position
- C-7.03 Prepares bases
- C-7.04 Erects cranes and components

C-8 Disassembles cranes

- C-8.01 Disassembles crane components
- C-8.02 Prepares crane for transport

*Includes hydraulic, conventional, tower and electric overhead travelling cranes.

Structural Components

36 hours

- explain structural components, their characteristics, and applications
- perform fastening methods relating to structural steel erection
- describe knowledge of falsework, their characteristics, and applications
- discuss the procedures used to erect and dismantle falsework

NOA subtasks covered in this section of training:

A-4 Organizes work

- A-4.02 Marks layouts

D-9 Installs primary and secondary structural members

- D-9.01 Erects falsework
- D-9.02 Attaches structural members

Building Erection 1

12 hours

- demonstrate the full erection and dismantling of a structural steel structure using a crane (dismantle to exterior skeleton)
- interpret drawings
- identify structural components
- demonstrate safe worksite practices
- demonstrate rigging techniques

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

A-3.08 Uses surveying equipment

A-4 Organizes work

A-4.02 Marks layouts

D – Erection, Assembly and Installation

D-9 Installs primary and secondary structural members

D-9.02 Attaches structural members

D-9.03 Levels, plumbs and aligns structural members

D-9.04 Completes installation of structural members

E-12 Repairs components

E-12.01 Assesses current condition of components

E-12.02 Field-fabricates components

E-12.03 Replaces components

E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

E-13.01 Ensures decommissioning of structure or components

E-13.02 Plans sequence of disassembly

E-13.03 Removes components

Ironworker Mathematics (Exceed)

30 hours

- use whole numbers, and common and decimal fractions
- perform conversions and comparisons with fractions, decimals, and percent
- perform calculations and conversions with the metric and imperial systems
- perform calculations for average, perimeter, area, and volume
- solve basic problems involving common and decimal fractions

This section of training exceeds the minimum sequencing as set out in the Ironworker (Structural/Ornamental NOA).

Level 1 subtasks from the NOA that are taught in context:

A-1 Interprets occupational documentation

A-2 Communicates in the workplace

A-3 Uses and maintains tools and equipment

B-5 Selects rigging equipment

B-6 Uses hoisting and lifting equipment

C-7 Assembles and erects cranes

C-8 Disassembles cranes

For details regarding the In Context Topic, see pages 49.

Level Two

8 weeks

240 hours

Hoisting, Lifting and Rigging 2

22 hours

- calculate weights of beams, angles, channels, and hollow structural steel
- perform calculations related to inclined planes and mechanical advantage
- describe the use of hoisting chains, rollers, hydraulic jacks, beam clamps, air castors, tuggers, and tiffors
- describe hydraulic gantry systems and their components

NOA subtasks covered in this section of training:

A-2 Communicates in the workplace

A-2.04 Uses hand signals

A-2.05 Communicates electronically

B-5 Selects rigging equipment

B-5.01 Matches load to lift capability

B-5.02 Inspects rigging equipment

B-5.03 Maintains rigging equipment

B-6 Uses hoisting and lifting equipment

B-6.01 Uses hoisting equipment

B-6.02 Uses lifting equipment

B-6.03 Attaches rigging to load

Drawing Interpretation

48 hours

- interpret specifications and details on various structural steel drawings
- interpret specifications and details on drawings depicting miscellaneous steel components, handrails, platforms, and stairs
- interpret welding symbols
- interpret specifications and shop fabrication drawings
- interpret ornamental drawings
- interpret reinforcing rebar drawings

NOA subtasks covered in this section of training:

A-1 Interprets occupational documentation

A-1.01 Interprets drawings and specifications`

A-4 Organizes work

A-4.01 Organizing materials and supplies

A-4.05 Plans work tasks

Cranes 2

60 hours

- define terminology associated with cranes and lifting operations
- describe safe work practices pertaining to cranes and crane lifting operations
- interpret codes and regulations pertaining to cranes and crane lifting operations
- interpret information pertaining to crane lifting operations found on drawings and specifications
- Interpret tables and charts to lift and move loads
- explain the principle of leverage and their application to cranes

- identify types of cranes and describe their components, characteristics, and applications

NOA subtasks covered in this section of training:

C-7 Assembles and erects cranes

- C-7.01 Assesses crane site limitations
- C-7.02 Determines crane position
- C-7.03 Prepares bases
- C-7.04 Erects cranes and components

C-8 Disassembles cranes

- C-8.01 Disassembles crane components
- C-8.02 Prepares crane for transport

*Includes hydraulic, conventional, tower and electric overhead travelling cranes.

Erection and Dismantling

12 hours

- identify knowledge of structural steel members, their characteristics, and applications
- erect structural steel members and components
- demonstrate the procedures used to dismantle, remove, and store structural steel members and components

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

- A-3.08 Uses surveying equipment

A-4 Organizes work

- A-4.02 Marks layouts

D-9 Installs primary and secondary structural members

- D-9.01 Erects falsework
- D-9.02 Attaches structural members
- D-9.03 Levels, plumbs and aligns structural members
- D-9.04 Completes installation of structural members

E-12 Repairs components

- E-12.01 Assesses current condition of components
- E-12.02 Field-fabricates components
- E-12.03 Replaces components
- E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

- E-13.01 Ensures decommissioning of structure or components
- E-13.02 Plans sequence of disassembly
- E-13.03 Removes components

Pre-engineered Structures

20 hours

- read and review blueprints
- describe pre-engineered structures and their components
- review safe assembly of pre-engineered structures

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

A-3.08 Uses surveying equipment

A-4 Organizes work

A-4.02 Marks layouts

D-9 Installs primary and secondary structural members

D-9.02 Attaches structural members

D-9.03 Levels, plumbs and aligns structural members

D-9.04 Completes installation of structural members

E-12 Repairs components

E-12.01 Assesses current condition of components

E-12.02 Field-fabricates components

E-12.03 Replaces components

E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

E-13.01 Ensures decommissioning of structure or components

E-13.02 Plans sequence of disassembly

E-13.03 Removes components

Building Erection 2

18 hours

- erect an interior structural steel component using power rigging equipment
- interpret drawings
- identify structural components
- demonstrate safe worksite practices
- demonstrate rigging techniques
- use power rigging equipment

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

A-3.08 Uses surveying equipment

A-4 Organizes work

A-4.02 Marks layouts

D-9 Installs primary and secondary structural members

D-9.02 Attaches structural members

D-9.03 Levels, plumbs and aligns structural members

D-9.04 Completes installation of structural members

E-12 Repairs components

- E-12.01 Assesses current condition of components
- E-12.02 Field-fabricates components
- E-12.03 Replaces components
- E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

- E-13.01 Ensures decommissioning of structure or components
- E-13.02 Plans sequence of disassembly
- E-13.03 Removes components

Reinforcing Rebar

12 hours

- identify types of reinforcing materials and accessories
- describe the procedures to prepare for reinforcing concrete
- demonstrate reinforcing rebar installation and tying techniques

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

- A-3.08 Uses surveying equipment

A-4 Organizes work

- A-4.02 Marks layouts

D-9 Installs primary and secondary structural members

- D-9.02 Attaches structural members
- D-9.03 Levels, plumbs and aligns structural members
- D-9.04 Completes installation of structural members

E-12 Repairs components

- E-12.01 Assesses current condition of components
- E-12.02 Field-fabricates components
- E-12.03 Replaces components
- E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

- E-13.01 Ensures decommissioning of structure or components
- E-13.02 Plans sequence of disassembly
- E-13.03 Removes components

Ironworker Mathematics (Exceed)

30 hours

- use scientific numbers
- perform conversions and comparisons with percent's, rates, ratios and proportions
- perform angle measurement and calculations
- perform calculations involving circles and partial circles
- perform basic geometry observations
- solve basic problems involving perimeter, area and volume

This section of training exceeds the minimum sequencing as set out in the Ironworker (Structural/Ornamental NOA).

Welding 2**18 hours**

- describe welding and gouging equipment and accessories
- describe safe welding practices
- perform the Flux Cored Arc Welding (FCAW)

NOA subtasks covered in this section of training:**A-3 Uses and maintains tools and equipment**

A-3.09 Uses welding equipment

***This section of training exceeds the minimum sequencing as set out in the Ironworker (Structural/Ornamental NOA).**

Level Two topics from the NOA that are taught in context:*A-1 Interprets occupational documentation**A-2 Communicates in the workplace**A-4 Organizes work**B-5 Selects rigging equipment**B-6 Uses hoisting and lifting equipment**C-7 Assembles and erects cranes**C-8 Disassembles cranes*

For details regarding the In Context Topic, see pages 26.



Level Three

7 weeks

210 hours

Pre-engineered Structures

26 hours

- perform interpretation of drawings specific to engineered structures
- describe pre-engineered structures and their components
- erect pre-engineered structure

NOA subtasks covered in this section of training:

A-1 Interprets occupational documentation

A-1.01 Interprets drawings and specifications

A-2 Communicates in the workplace

A-2.04 Uses hand signals

A-2.05 Communicates electronically

A-4 Organizes work

A-4.01 Organizes materials and supplies

A-4.02 Marks layouts

A-4.05 Plans work tasks

B-5 Selects rigging equipment

B-5.01 Matches load to lift capability

B-5.02 Inspects rigging equipment

B-5.03 Maintains rigging equipment

B-6 Uses hoisting and lifting equipment

B-6.01 Uses hoisting equipment

B-6.02 Uses lifting equipment

B-6.03 Attaches rigging to load

D-9 Installs primary and secondary structural members

D-9.01 Erects falsework

D-9.02 Attaches structural members

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Welding 3

6 hours

- demonstrate knowledge of plasma arc cutting equipment and accessories
- use plasma arc cutting equipment

NOA subtasks covered in this section of training:

A-3 Organizes work

A-3.09 Uses welding equipment

Cranes 3

40 hours

- define the terminology associated with EOT cranes
- describe the procedures used to communicate during EOT crane operations
- describe hazards and safe work practices pertaining to EOT cranes and EOT crane operations
- identify EOT crane components, accessories, and attachments
- identify types of EOT controls
- describe the procedures used to assemble and install EOT cranes

NOA subtasks covered in this section of training:

C-7 Assembles and erects cranes

- C-7.01 Assesses crane site limitations
- C-7.02 Determines crane position
- C-7.03 Prepares bases
- C-7.04 Erects cranes and components

C-8 Disassembles cranes

- C-8.01 Disassembles crane components
- C-8.02 Prepares crane for transport

*Includes hydraulic, conventional, tower and electric overhead travelling cranes.

Machinery and Equipment

30 hours

- identify types of machinery and equipment and their characteristics
- describe the procedures used to install and remove machinery and equipment
- describe safe work practices pertaining to the installation and removal of machinery and equipment

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

- A-3.08 Uses surveying equipment

A-4 Organizes work

- A-4.02 Marks layouts

D-9 Installs primary and secondary structural members

- D-9.02 Attaches structural members
- D-9.03 Levels, plumbs and aligns structural members
- D-9.04 Completes installation of structural members

D-10 Installs ornamental components and systems

- D-10.01 Installs curtain walls and window walls

E-12 Repairs components

- E-12.01 Assesses current condition of components
- E-12.02 Field-fabricates components
- E-12.03 Replaces components
- E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

- E-13.01 Ensures decommissioning of structure or components
 - E-13.02 Plans sequence of disassembly
 - E-13.03 Removes components
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Precast Concrete

24 hours

- describe pre-cast concrete members and their components
- describe the procedures used to erect pre-cast concrete
- describe the procedures used to dismantle pre-cast concrete

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

A-3.08 Uses surveying equipment

A-4 Organizes work

A-4.02 Marks layouts

D-9 Installs primary and secondary structural members

D-9.02 Attaches structural members

D-9.03 Levels, plumbs and aligns structural members

D-9.04 Completes installation of structural members

E12-Repairs components

E-12.01 Assesses current condition of components

E-12.02 Field-fabricates components

E-12.03 Replaces components

E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

E-13.01 Ensures decommissioning of structure or components

E-13.02 Plans sequence of disassembly

E-13.03 Removes components

Building Dismantling and Storage

18 hours

- dismantle a structural steel structure using a crane
- interpret information from drawings as pertains to installation of machinery
- identify structural components pertaining to machinery and equipment installation and removal
- demonstrate safe worksite practices
- demonstrate advanced rigging procedures

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

A-3.08 Uses surveying equipment

A-4 Organizes work

A-4.02 Marks layouts

D-9 Installs primary and secondary structural members

D-9.02 Attaches structural members

D-9.03 Levels, plumbs and aligns structural members

D-9.04 Completes installation of structural members

E-12 Repairs components

E-12.01 Assesses current condition of components

E-12.02 Field-fabricates components

E-12.03 Replaces components

E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

E-13.01 Ensures decommissioning of structure or components

E-13.02 Plans sequence of disassembly

E-13.03 Removes components

Miscellaneous and Ornamental Ironwork

54 hours

- perform interpretation of shop drawings
- describe the components, characteristics, and applications of miscellaneous and ornamental ironwork
- identify the procedures used to fabricate and install miscellaneous and ornamental ironwork
- identify floor and roof decking procedures
- describe wood glulam handling and erection

NOA subtasks covered in this section of training:

A-Uses and maintains tools and equipment

A-3.08 Uses surveying equipment

A-4 Organizes work

A-4.02 Marks layouts

D-10 Installs ornamental components and systems

D-10.02 Installs miscellaneous components

E-12 Repairs components

E-12.04 Performs preventative maintenance

E-13 Decommissions, disassembles and removes structural, mechanical and miscellaneous components

E-13.01 Ensures decommissioning of structure or components

E-13.02 Plans sequence of disassembly

E-13.03 Removes components

Equipment Certifications

12 hours

- demonstrate the use of aerial work platform
- demonstrate the use of telefork operation

NOA subtasks covered in this section of training:

A-3 Uses and maintains tools and equipment

A-3.04 Uses aerial work platforms

A-3.05 Uses ladders

A-3.06 Uses scaffolding

***This section of training exceeds the minimum sequencing as set out in the Ironworker (Structural/Ornamental NOA).**

Level 3 subtasks from the NOA that are taught in context:

- A-1 Interprets occupational documentation***
- A-2 Communicates in the workplace***
- A-3 Uses and maintains tools and equipment***
- A-4 Organizes work***
- B-5 Selects rigging equipment.***
- B-6 Uses hoisting and lifting equipment***
- C-7 Assembles and erects cranes***
- C-8 Disassembles cranes***

For details regarding the In Context Topics, see page 26.

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 Interprets occupational documentation

A-1.01 Interprets drawings and specifications

A-2 Communicates in the workplace

A-2.04 Uses hand signals

A-3 Uses and maintains tools and equipment

A-3.09 Uses welding equipment

A-4 Organizes work

A-4.01 Organizes materials and supplies.

A-4.05 Plans work tasks Drawings

B-5 Selects rigging and equipment

B-5.01 Matches load to lift capability

B-5.02 Inspects rigging equipment

B-5.03 Maintains rigging equipment

B-6 Uses hoisting and lifting equipment

B-6.01 Uses hoisting equipment

B-6.02 Uses lifting equipment

B-6.03 Attaches rigging to load

C-7 Assembles and erects cranes

C-7.01 Assesses crane site limitations

C-7.02 Determines crane position

C-7.03 Prepares bases

C-8 Disassembles cranes

C-8.01 Disassembles crane components

C-8.02 Prepares crane for transport