

NL Curriculum Standard



PLAN OF TRAINING

Ironworker (Structural/Ornamental)

March 2026



**Government of Newfoundland and Labrador
Department of Education and Early Childhood Development
Apprenticeship and Trades Certification Division**

Approved by:

A handwritten signature in black ink, appearing to read "Kerna Harnum", is written over a horizontal line.

Chairperson, Provincial Apprenticeship and Certification Board

Date: April 15th, 2026

Preface

This curriculum standard is aligned with the 2025 Red Seal Occupational Standard (RSOS) and National harmonization sequencing for the Ironworker (Structural / Ornamental) trade. It describes the curriculum content for the Ironworker (Structural / Ornamental) training program.

Acknowledgements

The Provincial Trade Advisory Committee (PTAC), industry representatives, instructors and apprenticeship staff provided valuable input to the development of this provincial plan of training. Without their dedication to quality apprenticeship training, this document could not have been produced.

We offer a sincere thank you.

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NLCS Plan of Training – Ironworker (Structural / Ornamental)

Document Status	Date Approved	Mandatory Implementation Date	Comments
Final	April 2026	September 2026	

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A. RSOS Comparison Table

RSOS 2025 Tasks		2026 POT	
Task 1 – Maintains safe and healthy workplace			
1.01	Maintains safe work environment	IR1000	Safety
1.02	Uses personal protective equipment (PPE) and safety equipment	IR1000	Safety
1.03	Participates in healthy and respectful work environment	IR1000	Safety
Task 2 – Uses and maintains tools and equipment			
2.01	Uses hand tools and measuring equipment	IR1020	Hand and Power Tools
2.02	Uses power tools	IR1020	Hand and Power Tools
2.03	Uses powder actuated tools	IR1020	Hand and Power Tools
2.04	Uses mobile elevating work platforms	IR1040	Access Equipment
2.05	Uses material handling equipment	IR1050	Material Handling
2.06	Uses ladders	IR1040	Access Equipment
2.07	Uses scaffolding	IR1040	Access Equipment
2.08	Uses surveying equipment	IS3150	Secondary Structural Steel Members
2.09	Uses welding equipment	IR1060	Welding
2.10	Uses mechanical cutting equipment	IR1070	Mechanical Cutting
2.11	Uses thermal cutting equipment	IR1080	Thermal Cutting
Task 3 – Organizes work			
3.01	Organizes materials and supplies	IR1100	Layout – Foundations and Walls
3.02	Performs layout	IR1100	Layout – Foundations and Walls
		Addressed in context throughout units	
3.03	Uses drawings and documentation	IR1110	Drawings and Documents I
		IR2110	Drawings and Documents II
3.04	Plans tasks	IR1090	Job Planning

RSOS 2025 Tasks		2026 POT	
Task 4 – Maintains continuous learning.			
4.01	Upskills in new trade practices and procedures.	Addressed in context throughout units	
4.02	Upskills in emerging technologies		
Task 5 – Using communication and mentoring techniques.			
5.01	Uses communication techniques	MENT700	Mentoring I
5.02	Uses mentoring techniques	MENT701	Mentoring II
Task 6 – Plans lift			
6.01	Assesses load	IR1120	Lift Planning I
		IR2120	Lift Planning II
6.02	Performs pre-lift analysis	IR1120	Lift Planning I
		IR2120	Lift Planning II
6.03	Selects rigging, hoisting and positioning equipment	IR1120	Lift Planning I
		IR2120	Lift Planning II
6.04	Secures lift area	IR1120	Lift Planning I
		IR2120	Lift Planning II
Task 7 – Rigs, hoists and positions load.			
7.01	Inspects rigging, hoisting and positioning equipment	IR1130	Rigging, Hoisting and Positioning I
		IR2130	Rigging, Hoisting and Positioning II
7.02	Assembles rigging, hoisting and positioning equipment	IR1130	Rigging, Hoisting and Positioning I
		IR2130	Rigging, Hoisting and Positioning II
7.03	Attaches rigging equipment to load	IR1130	Rigging, Hoisting and Positioning I
		IR2130	Rigging, Hoisting and Positioning II
7.04	Performs hoisting and positioning operations	IR1130	Rigging, Hoisting and Positioning I
		IR2130	Rigging, Hoisting and Positioning II
7.05	Secures load before rigging removal	IR1130	Rigging, Hoisting and Positioning I
		IR2130	Rigging, Hoisting and Positioning II
Task 8 – Performs post-lift activities.			
8.01	Conducts post-lift inspection	IR1130	Rigging, Hoisting and Positioning I
		IR2130	Rigging, Hoisting and Positioning II
8.02	Disassembles rigging, hoisting and positioning equipment	IR1130	Rigging, Hoisting and Positioning I
		IR2130	Rigging, Hoisting and Positioning II
8.03	Maintains rigging, hoisting and positioning equipment	IR1130	Rigging, Hoisting and Positioning I
		IR2130	Rigging, Hoisting and Positioning II
Task 9 – Performs mobilization, erection, and demobilization of cranes.			
9.01	Mobilizes telescopic boom cranes	IS1140	Introduction to Cranes
		IR1140	Crane Operations – Conventional and Hydraulic
9.02	Erects lattice boom cranes, tower cranes, derricks and components	IR1140	Crane Operations – Conventional and Hydraulic
		IR2140	Crane Operations – Tower
9.03	Performs demobilization and disassembly of cranes	IR1140	Crane Operations – Conventional and Hydraulic
		IR2140	Crane Operations – Tower

RSOS 2025 Tasks		2026 POT	
Task 10 – Installs primary and secondary structural members.			
10.01	Uses falsework	IS2150	Primary Structural Steel Members
		IS3150	Secondary Structural Steel Members
10.02	Attaches structural members	IS2150	Primary Structural Steel Members
		IS3150	Secondary Structural Steel Members
10.03	Levels, plumbs and aligns structural members	IS2150	Primary Structural Steel Members
		IS3150	Secondary Structural Steel Members
10.04	Completes installation of structural members	IS2150	Primary Structural Steel Members
		IS3150	Secondary Structural Steel Members
Task 11 – Installs ornamental, miscellaneous, and steel cladding systems and components.			
11.01	Installs curtain walls and window walls	IS3010	Ornamental Components and Systems
		IS3000	Curtain Walls
11.02	Installs miscellaneous components	IS3020	Miscellaneous Metals
11.03	Installs steel cladding and building envelope systems and components	IS2000	Pre-Engineered Metal Buildings
Task 12 – Installs conveyors, machinery and equipment.			
12.01	Installs material handling systems	IS2160	Conveyers, Machinery and Equipment I
		IS3160	Conveyers, Machinery and Equipment II
12.02	Performs alignment and commissioning of material handling systems	IS2160	Conveyers, Machinery and Equipment I
		IS3160	Conveyers, Machinery and Equipment II
Task 13 – Decommissions, disassembles and removes structural, ornamental, mechanical and miscellaneous components.			
13.01	Ensures decommissioning of structure and components	Addressed in context throughout units	
13.02	Disassembles structural, ornamental, mechanical and miscellaneous components		
Task 14 – Maintains and repairs components.			
14.01	Assesses current condition of components	IS2180	Maintenance and Repair I
		IS3180	Maintenance and Repair II
14.02	Performs repairs, revisions and reinforcing of components	IS2180	Maintenance and Repair I
		IS3180	Maintenance and Repair II
14.03	Replaces components	IS2180	Maintenance and Repair I
		IS3180	Maintenance and Repair II

RSOS 2025 Tasks		2026 POT	
14.04	Performs preventative maintenance	IS2180	Maintenance and Repair I
		IS3180	Maintenance and Repair II

B. Program Structure

For each and every course, a formal assessment is required for which 70% is the pass mark. A mark of 70% must be attained in both the theory examination and the practical project assignment, where applicable.

The order of course delivery within each level can be determined by the educational agency, as long as pre-requisite conditions are satisfied.

Upon completion of an entry level program, individuals may be required to complete other certifications (employer or job site specific) in order to gain employment.

Level 1			
Course No.	Course Name	Hours	Pre-Requisite(s)
IR1000	Safety	6	N/A
IR1010	Healthy and Respectful Work Environments	12	N/A
IR1020	Hand and Power Tools	18	N/A
IR1040	Access Equipment	18	N/A
IR1050	Material Handling	12	N/A
IR1060	Welding	36	N/A
IR1070	Mechanical Cutting	6	N/A
IR1080	Thermal Cutting	12	N/A
IR1090	Job Planning	6	N/A
IR1100	Layout - Foundations and Walls	30	N/A
IR1110	Drawings and Documents I	18	N/A
IR1120	Lift Planning I	15	N/A
IR1130	Rigging, Hoisting and Positioning I	15	N/A
IS1140	Introduction to Cranes	12	N/A
IS1150	Introduction to Primary and Secondary Structural Members	12	N/A
IR1180	Ironworker Math Essentials	36	N/A
MENT700	Mentoring I	6	N/A
Total Hours		270	

REQUIRED WORK EXPERIENCE

Level 2			
Course No.	Course Name	Hours	Pre-Requisite(s)
IS2000	Pre-Engineered Metal Buildings	24	Level 1
IR2110	Drawings and Documents II	30	
IR2120	Lift Planning II	18	
IR2130	Rigging, Hoisting and Positioning II	24	
IR1140	Crane Operations - Conventional and Hydraulic	30	
IS2150	Primary Structural Members	42	
IS2160	Conveyors, Machinery and Equipment I	12	
IS2180	Maintenance and Repair I	30	
Total Hours		210	

REQUIRED WORK EXPERIENCE

Level 3			
Course No.	Course Name	Hours	Pre-Requisite(s)
IS3000	Curtain Walls	24	Level 2
IS3010	Ornamental Components and Systems	24	
IS3020	Miscellaneous Metals	18	
IR2140	Crane Operations - Tower	18	
IS3150	Secondary Structural Steel Members	30	
IS3160	Conveyors, Machinery and Equipment II	30	
IS3180	Maintenance and Repair II	30	
MENT701	Mentoring II	6	
IS3200	Program Review	30	
Total Hours		210	

Level 1

IR1000 Safety

Learning Outcomes:

- Demonstrate knowledge of regulatory requirements pertaining to using fall protection equipment, PPE and safety equipment.
- Demonstrate knowledge of PPE and safety equipment, their characteristics, applications and procedures to operate.
- Demonstrate knowledge of procedures to maintain safe work environment.
- Demonstrate knowledge of procedures for emergency response.
- Demonstrate knowledge of training, regulatory and certification requirements to use PPE and safety equipment to maintain safe work environment.

Duration: 6 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify codes, standards and safety regulations pertaining to maintaining safe work environment.
 - i. lock-out and tag-out
 - ii. Occupational Health and Safety (OHS)
 - iii. TDG
 - iv. WHMIS
2. Identify training and certification requirements to maintain safe work environment.
3. identify types of PPE and safety equipment and describe their procedures for use.
4. Identify hazards and describe safe work practices pertaining to using PPE and safety equipment.
5. Describe procedures for emergency response.
6. Identify safety equipment used to maintain safe work environment and describe their procedures for use.
7. Identify worksite hazards and describe procedures to mitigate and eliminate potential risks.
8. Describe procedures to maintain safe work environment.

9. Describe procedures to inspect, store, maintain and dispose of PPE and safety equipment.
10. Describe procedures to handle, store, transport and dispose of hazardous materials.
 - i. lead
 - ii. chromium
 - iii. asbestos
 - iv. combustible materials
 - v. solvents
 - vi. acids
 - vii. oxidizers
 - viii. pressurized gases
 - ix. zinc
 - x. silica
11. Describe fundamentals of housekeeping.
12. Describe procedures to inspect work environment.

Practical Requirements:

None

IR1010 Healthy and Respectful Work Environments

Learning Outcomes:

- Demonstrate knowledge of personal health and well-being.
- Demonstrate knowledge of techniques to manage personal health and well-being.
- Demonstrate knowledge of professionalism and professional ethics.
- Demonstrate knowledge of value of diversity, equity, inclusion and belonging in workplace.

Duration: 12 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Describe how personal health and well-being impacts professional practice and healthy work environments.
2. Identify and describe physical and emotional requirements of trade.
3. Identify workplace stressors.
4. Describe elements of healthy organizational cultures and the importance of collaboration and community.
5. Identify behaviours that affect physical and mental health.
6. Describe stress and time management techniques.
7. Identify supports and techniques to manage health and well-being.
8. Identify characteristics and purpose of professionalism and professional ethics that impact professionalism.
9. Identify elements of codes of ethics, codes of conduct and other professional standards, and describe their characteristics and applications.
10. Describe diversity, equity and inclusion.
 - i. diversity and differences between individuals
 - ii. equity and importance of access to opportunities and resources
 - iii. inclusion and the creation of respectful work environments
11. Identify conduct that constitutes harassment and discrimination.

Practical Requirements:

None

IR1020 Hand & Power Tools

Learning Outcomes:

- Demonstrate knowledge of hand tools and measuring tools, their characteristics, applications and operation.
- Demonstrate knowledge of procedures to use and maintain hand tools and measuring tools

Duration: 18 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Interpret information pertaining to hand tools, power tools and measuring tools found in manufacturers' specifications.
2. Identify hazards and describe safe work practices pertaining to using and maintaining hand tools, power tools and measuring tools.
3. Identify training, certification and regulatory requirements pertaining to using and maintaining power tools.
4. Identify types of hand and power tools and describe their characteristics, applications and operating principles.
5. Identify types of measuring tools, and describe their characteristics, applications and operating principles.
1. Identify types of power sources and describe their characteristics and applications.
 - i. pneumatic
 - ii. electric
 - iii. gas
 - iv. hydraulic
 - v. mechanical
 - vi. powder actuated
 - vii. battery
6. Describe procedures to inspect, identify and remove damaged, worn or unsafe hand tools, power tools and measuring tools from service.

7. Describe procedures to clean, maintain, store and dispose of hand tools, power tools and measuring tools.

Practical Requirements

None

IR1040 Access Equipment

Learning Outcomes:

- Demonstrate knowledge of mobile elevation work platforms (MEWPs) and ladders, their components, accessories, characteristics, applications, and operation.
- Demonstrate knowledge of procedures to use and maintain MEWPs and ladders.
- Demonstrate knowledge of training, certification and regulatory requirements pertaining to using and maintaining MEWPs and ladders.

Duration: 18 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to using access equipment.
2. Identify types of access equipment, their components and accessories, and describe their characteristics and applications.
 - i. MEWPS
 - ii. ladders
 - iii. scaffolding
 - iv. swing stages
 - v. boatswain chair
 - vi. angel wing work platform
3. Interpret information pertaining to access equipment found in manufacturers' specifications.
4. Identify training, certification and regulatory requirements pertaining to using and maintaining access equipment.
5. Describe operating principles of access equipment.
6. Describe procedures to inspect, identify and remove damaged, worn or unsafe access equipment and their accessories from service.
7. Describe safety procedures to erect ladders.
8. Describe procedures pertaining to the use of access equipment.
 - i. position
 - ii. erect

- iii. level
- iv. plumb
- v. secure
- vi. maintain
- vii. store

Practical Requirements:

1. Place and remove a ladder.

IR1050 Material Handling

Learning Outcomes:

- Demonstrate knowledge of material handling equipment, their components, characteristics, applications and operation.
- Demonstrate knowledge of procedures to use and maintain material handling equipment.
- Demonstrate knowledge of training, certification and regulatory requirements pertaining to using and maintaining material handling equipment.

Duration: 12 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to using material handling equipment.
2. Interpret information pertaining to material handling equipment found in manufacturers' specifications.
3. Identify training, certification and regulatory requirements pertaining to using and maintaining material handling equipment.
4. Identify types of material handling equipment, their components and describe their characteristics and applications.
 - i. equipment
 - forklifts
 - telehandlers
 - pallet jacks
 - gantry cranes
 - spider cranes
 - ii. components
 - winches
 - clamps
 - motivation booms (stinger)
 - fork extensions
 - personnel platforms
 - spreader beams
5. Describe operating principles of material handling equipment.

6. Describe procedures to inspect, identify and remove damaged, worn or unsafe material handling equipment from service.
7. Describe procedures to position, use, store and maintain material handling equipment.

Practical Requirements:

None

IR1060 Welding

Learning Outcomes:

- Demonstrate knowledge of welding equipment, their components, consumables, characteristics, applications and operation.
- Demonstrate knowledge of procedures to use and maintain welding equipment.
- Demonstrate knowledge of training, certification and regulatory requirements related to the use and maintenance of welding equipment.

Duration: 36 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to using and maintaining welding equipment.
2. Interpret information and symbols pertaining to welding found on drawings and specifications.
3. Identify training, certification and regulatory requirements pertaining to using and maintaining welding equipment.
4. Identify types of welding equipment and their components and consumables, and describe their characteristics and applications.
5. Describe operating principles of welding equipment and their components and consumables.
6. Describe welding processes, procedures and techniques.
 - i. shielded metal arc welding (SMAW)
 - ii. flux core arc welding (FCAW)
 - iii. gas metal arc welding (GMAW)
 - iv. gas tungsten arc welding (GTAW)
7. Describe possible welding discontinuities and defects.
8. Describe procedures to maintain welding equipment.
9. Describe procedures to identify and remove damaged, worn or unsafe welding equipment and components from service.

10. Describe procedures to test, inspect, maintain and store welding equipment and their components and consumables.

Practical Requirements:

None

IR1070 Mechanical Cutting

Learning Outcomes:

- Demonstrate knowledge of mechanical cutting equipment, their components, characteristics, applications and operation.
- Demonstrate knowledge of procedures to use and maintain mechanical cutting equipment and their components.
- Demonstrate knowledge of training, certification and regulatory requirements to use and maintain mechanical cutting equipment.

Duration: 6 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to using and maintaining mechanical cutting equipment and their components.
2. Interpret information pertaining to mechanical cutting equipment and their components found in specifications.
3. Identify training, certification and regulatory requirements pertaining to using and maintaining mechanical cutting equipment.
4. Identify types of mechanical cutting equipment and components and describe their characteristics and applications.
 - i. equipment
 - power shears
 - gas and battery powered quick-cut saws
 - angle grinders (zip cuts)
 - reciprocating saws
 - portable band saws
 - ii. components
 - blades
 - guards
 - handles
 - cords
5. Describe operating principles of mechanical cutting equipment.
6. Describe procedures to inspect, identify and remove damaged, worn or unsafe mechanical cutting equipment and components from service.

7. Describe procedures to maintain, store and secure mechanical cutting equipment and components.

Practical Requirements:

None

IR1080 Thermal Cutting

Learning Outcomes:

- Demonstrate knowledge of thermal cutting equipment, their components, consumables, characteristics, applications and operation.
- Demonstrate knowledge of procedures to use and maintain thermal cutting equipment and their components.
- Demonstrate knowledge of training, certification and regulatory requirements to use and maintain thermal cutting equipment.

Duration: 12 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to using and maintaining thermal cutting equipment and their components and consumables.
2. Interpret information pertaining to thermal cutting equipment, and their components and consumables found in drawings and specifications.
3. Identify training, certification and regulatory requirements pertaining to using and maintaining thermal cutting equipment.
4. Identify types of thermal cutting equipment, components and consumables and describe their characteristics and applications.
 - i. equipment
 - oxy-fuel
 - plasma
 - ii. components
 - blades
 - work clamps
 - torches
 - compressed gas cylinders
 - compressed air
 - air lines
 - hoses
 - regulators
 - check valves
 - torch tips
 - iii. consumables
 - compressed gases
 - contact tips

5. Describe operating principles of thermal cutting equipment.
6. Describe procedures to inspect, identify and remove damaged, worn or unsafe thermal cutting equipment and components from service.
7. Describe procedures to maintain, store and secure thermal cutting equipment, components and consumables.

Practical Requirements:

1. Assemble and disassemble oxy-fuel torch.
2. Cut rebar using oxy-fuel torch.

IR1090 Job Planning

Learning Outcomes:

- Demonstrate knowledge of materials and supplies, their characteristics and applications.
- Demonstrate knowledge of procedures to organize materials and supplies.
- Demonstrate knowledge of regulatory requirements pertaining to storing, handling and transporting of materials and supplies.
- Demonstrate knowledge of planning tasks and procedures.
- Demonstrate knowledge of regulatory requirements pertaining to trade.

Duration: 6 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to unloading and organizing materials and supplies.
2. Identify tools and equipment used to organize materials and supplies, and describe their procedures for use, capabilities and limitations.
3. Identify codes, standards and regulations pertaining to storing, handling and transporting of materials and supplies.
4. Identify materials and supplies, and describe their characteristics, applications, and identification requirements.
5. Identify sources of information relevant to handling materials and supplies.
6. Identify shipping documents and describe their characteristics and applications.
7. Describe information pertaining to materials, supplies and planning found on drawings and specifications.
8. Describe product specific storage and handling principles and considerations.
9. Describe principles and procedures to organize materials and supplies and site preparation.
10. Describe procedures to inspect materials and supplies.
11. Identify elements of a schedule and describe placement sequence.

12. Identify regulatory requirements and responsibilities and describe procedures for recycling and disposing of materials.
13. Identify information gathering and communication techniques, and describe their associated procedures
14. Describe procedures to perform scheduling of materials supplies and equipment
15. Describe procedures to estimate work requirements

Practical Requirements:

None

IR1100 Layout – Foundations and Walls

Learning Outcomes:

- Demonstrate knowledge of procedures to perform layout.
- Demonstrate knowledge of regulatory requirements pertaining to performing layout.

Duration: 30 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify codes, standards and regulations pertaining to performing layout.
2. Interpret information to perform layout found on drawings and specifications.
3. Identify measuring devices and tools used to perform layout and describe their procedures for use.
4. Identify hazards and describe safe work practices pertaining to performing layout.
5. Describe procedures to perform layout.

Practical Requirements:

None

IR1110 Drawings and Documents I

Learning Outcomes:

- Demonstrate knowledge of drawings and drafting techniques, their characteristics and applications.
- Demonstrate knowledge of regulatory requirements pertaining to trade.

Duration: 18 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify codes, standards and regulations pertaining to trade.
2. Identify types of drawings and views and describe their characteristics and applications.
3. Interpret symbols found on drawings and specifications.
4. Identify abbreviations and technical vocabulary.
5. Describe drafting techniques.

Practical Requirements:

None

IR1120 Lift Planning I

Learning Outcomes:

- Demonstrate knowledge of lift planning principles.
- Demonstrate knowledge of regulatory requirements pertaining to rigging, hoisting and positioning.

Duration: 15 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to securing lift areas, rigging, hoisting and positioning.
2. Identify codes, standards and regulations pertaining to rigging, hoisting and positioning.
3. Identify types of rigging, hoisting and positioning equipment.
 - i. factors for selection
 - ii. characteristics
 - iii. tag information
 - iv. applications
 - v. procedures for use
4. Identify ropes, knots and splices and describe their characteristics.
 - i. wire
 - ii. natural fibre
 - iii. synthetic
5. Identify properties requiring consideration when a load is to be lifted.
6. Identify types of lifts and describe their characteristics and applications.
7. Identify and describe communication methods and delegation of responsibilities during rigging, hoisting and positioning.
8. Describe procedures to secure lift area.
 - i. Identify swing zone
 - ii. inspect area surrounding lift
 - iii. perform walk-through

Practical Requirements:

None

IR1130 Rigging, Hoisting and Positioning I

Learning Outcomes:

- Demonstrate knowledge of rigging, hoisting and positioning equipment, their applications, characteristics and procedures for use.
- Demonstrate knowledge of procedures to assemble, attach, use and remove rigging, hoisting and positioning equipment and components.

Duration: 15 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards, and describe safe work practices pertaining to assembling, attaching, using, removing and disassembling rigging, hoisting and positioning equipment and components.
2. Identify codes, standards and regulations pertaining to rigging, hoisting and positioning.
3. Identify tools and equipment used to assemble, attach, use, remove and disassemble rigging, hoisting and positioning equipment and components, and describe their procedures for use.
4. Identify various slings, sling arrangements and hitches, and describe their characteristics.
5. Describe requirements and specifications involved in rigging operations.
6. Describe function of various hitches and configurations.
7. Describe types and parts of hoisting and positioning equipment.
8. Identify removal criteria for damaged rigging, hoisting and positioning equipment.
9. Describe procedures and sequence of inspection of rigging, hoisting and positioning equipment.
10. Identify types of knots, bends and hitches, and describe their characteristics.

11. Identify rolling and positioning equipment.
12. Identify bracing methods.
 - i. guy wires
 - ii. false work
 - iii. temporary supports
 - iv. adjustable brace poles
 - v. lashing
13. Identify equipment used to temporarily suspend loads.
 - i. chain fall
 - ii. come-along
 - iii. manual cable puller (grip hoist)
 - iv. strong backs
 - v. dunnage
 - vi. cribbing
 - vii. turn buckles

Practical Requirements:

None

IS1140 Introduction to Cranes

Learning Outcomes:

- Demonstrate knowledge of telescopic boom cranes, their components, characteristics, applications and operation.
- Demonstrate knowledge of tools and equipment used during crane operations.

Duration: 12 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards, and describe safe work practices pertaining to mobilizing, demobilizing and disassembling cranes and their components.
2. Identify types of cranes and their components and describe their characteristics.
 - i. lattice boom
 - crawler
 - carrier-mounted
 - ii. telescopic
 - mobile cranes
 - boom trucks
 - industrial cranes
 - rough terrain cranes
 - mini-crawler cranes
 - iii. tower
 - luffing jib
 - saddle jib
 - fixed tower
 - rotating
 - mobile
 - iv. derricks
 - stiff leg
 - guy derrick
 - Chicago boom
 - A-frame
 - gin-pole
3. Identify crane components and describe their characteristics.
 - i. jibs
 - ii. pads and mats
 - iii. headache ball
 - iv. block

- v. counterweights
 - vi. outriggers
4. Describe operating principles of cranes and their components.
 5. Identify tools and equipment used in crane operations.

Practical Requirements:

None

IS1150 Introduction to Primary and Secondary Structural Members

Learning Outcomes:

- Demonstrate knowledge of structural members, their components, materials, characteristics and applications.

Duration: 12 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices related to structural steel erection and dismantling.
2. Identify tools and equipment related to structural steel erection and dismantling and describe their procedures for use.
3. Identify structural members, components, materials and fasteners and describe their characteristics and applications.

Practical Requirements:

None

IR1180 Ironworker Math Essentials

Learning Outcomes:

- Demonstrate knowledge of essential numeracy skills.
- Demonstrate knowledge of mathematics as a critical element of the trade environment.
- Demonstrate knowledge of mathematical principles in trade problem solving situations.
- Demonstrate the ability to solve simple mathematical word problems.

Duration: 36 Hours

Pre-Requisite(s): None

Objectives and Content:

Wherever possible, the instructor is expected to use trade specific examples to reinforce the unit objectives.

1. Describe whole number operations.
 - i. read, write, count, round off, add, subtract, multiply and divide whole numbers
2. Describe the application of the order of operations in math problems.
3. Describe fraction and mixed number operations.
 - i. read, write, add, subtract, multiply and divide fractions
4. Describe decimal operations.
 - i. read, write, round off, add, subtract, multiply and divide decimals
5. Describe percent/decimal/fraction conversion and comparison.
 - i. convert between fractions, decimals and percents
6. Identify percentage operations.
 - i. read and write percentages
 - ii. calculate base, rates and percentages
7. Identify ratio and proportion operations.
 - i. use a ratio comparing two quantities with the same units
 - ii. use a proportion comparing two ratios

8. Describe the use of the imperial measurement system in math problems.
 - i. identify units of measurement
 - length
 - mass
 - area
 - volume
 - capacity

9. Describe the use of the metric measurement system in math problems.
 - i. identify units of measurement
 - length
 - mass
 - area
 - volume
 - capacity

10. Identify angles, lines and geometric shapes.
 - i. determine whether an angle is right, acute or obtuse
 - ii. identify parallel, perpendicular, horizontal and vertical lines
 - iii. identify types of triangles, quadrilaterals, and 3-dimensional shapes

11. Describe estimation strategies.
 - i. estimate a linear measure using a referent
 - ii. estimate length, area and volume of objects in metric and imperial systems

12. Describe problem solving that involves linear measurement using instruments such as rulers or tape measures, in the metric and imperial systems.

Practical Requirements:

1. To emphasize or further develop specific knowledge objectives, students will be required to complete practical demonstrations which confirm proper application of mathematical theory to job skills.

MENT700 Mentoring I

Learning Outcomes:

- Demonstrate knowledge of effective communication practices as a learner.
- Demonstrate knowledge of strategies for learning skills in the workplace.

Duration: 6 Hours

Pre-Requisite(s): None

Learning Objectives:

1. Describe the importance of one's own individual experiences.
2. Identify behaviours that demonstrate positive learning experiences.
3. Identify the benefits of workplace mentoring for the apprentice, mentor and employer.
4. Identify the partners involved in apprenticeship training.
5. Describe the shared responsibilities for workplace learning in apprenticeship.
6. Identify different learning needs and strategies to address challenges or barriers in the workplace.
 - i. learning disabilities
 - ii. language
 - iii. underrepresentation
7. Identify the components that create a positive and inclusive workplace culture.
 - i. workplace characteristics
 - ii. individual behaviours
8. Identify various learning styles and determine one's own learning preferences.
9. Explain how learning preferences impact learning new skills.
10. Identify different learning strategies to meet individual learning needs.
11. Describe the importance of adapting to a variety of teaching and learning methods in the workplace.
12. Identify techniques for effective communication as a learner.
 - i. verbal and non-verbal

- ii. active listening
13. Identify and describe personal responsibilities and attitudes that contribute to on-the-job success.
- i. self advocating
 - ii. asking questions
 - iii. accepting constructive feedback
 - iv. working safely
 - v. employing time management techniques and being punctual

Practical Objectives:

None

Level 2

IS2000 Pre-Engineered Metal Buildings

Learning Outcomes:

- Demonstrate knowledge of steel cladding, and building envelope systems and components, their characteristics, applications and operation.
- Demonstrate knowledge of emerging building technologies and practices pertaining to steel cladding and building envelope systems and components.
- Demonstrate knowledge of procedures to install steel cladding and building envelope systems and components.
- Demonstrate knowledge of regulatory requirements pertaining to steel cladding and building envelope systems and components.
- Demonstrate knowledge of training requirements pertaining to steel cladding and building envelope systems and components.

Duration: 24 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to installing steel cladding and building envelope systems and components.
2. Identify codes, standards and regulations pertaining to installing steel cladding, and building envelope systems and components.
3. Identify training and certification requirements to install steel cladding and building envelope systems and components.
4. Identify tools and equipment used to install steel cladding, and building envelope systems and components, and describe their procedures for use.
5. Identify steel cladding and roofing and describe their characteristics and applications.
 - i. standing seam roof systems
 - ii. screw-down roof systems
 - iii. sandwich panels
 - iv. composite field-assembled wall systems
 - v. metal decking

6. Identify building envelope systems and components, and describe their characteristics and applications
 - i. flashing
 - drip
 - base
 - J-trim
 - gable
 - low eave
 - gutter
 - downspout
 - closures
 - ridge caps
 - ii. insulation
 - iii. vapour barriers
 - iv. trimmer/base angle
7. Identify sealants and describe their characteristics and applications.
 - i. hot melt
 - ii. tape-grade
 - iii. caulking
8. Identify steel cladding and building envelope systems and components technologies that contribute to net zero and carbon neutral commitments.
9. Identify emerging technologies and practices pertaining to steel cladding, and building envelope systems and components, and describe their characteristics and applications.
10. Describe layout procedures.
11. Describe procedures to install steel cladding and building envelope systems and components.
12. Describe procedures to inspect installed steel cladding and building envelope systems and components.
13. Describe procedures to decommission and disassemble steel cladding, and building envelope systems and components.

Practical Requirements:

1. Install a section of a pre-engineered metal building.

IR2110 Drawings and Documents II

Learning Outcomes:

- Demonstrate knowledge of drawings and drafting techniques, their characteristics and applications.
- Demonstrate knowledge of reference material and documentation, their purpose, application and use.
- Demonstrate knowledge of procedures to complete and interpret documentation and written and electronic documents.

Duration: 30 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Identify codes, standards and regulations pertaining to trade.
2. Describe drafting techniques.
3. Identify types and sources of reference material and documentation and describe their purpose and applications.
4. Describe procedures to access, interpret and apply information found in reference material and documentation.
5. Describe procedures to complete documentation and written and electronic documents.

Practical Requirements:

None

IR2120 Lift Planning II

Learning Outcomes:

- Demonstrate knowledge of load requirements.
- Demonstrate knowledge of calculations and related factors to determine properties of load.
- Demonstrate knowledge of regulatory requirements pertaining to rigging, hoisting and positioning.

Duration: 18 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to securing lift areas, rigging, hoisting and positioning.
2. Identify and interpret codes, standards and regulations pertaining to rigging, hoisting and positioning.
3. Interpret information pertaining to rigging, hoisting and positioning found on drawings and engineering specifications.
4. Identify types of rigging, hoisting and positioning equipment.
 - i. factors for selection
 - ii. characteristics
 - iii. tag information
 - iv. applications
 - v. procedures for use
5. Identify ropes, knots and splices and describe their characteristics, construction, grades, applications. formulas, factors and reductions.
 - i. wire
 - ii. natural fibre
 - iii. synthetic
6. Identify properties requiring consideration when a load is to be lifted.
7. Identify formulas, calculations and related factors to determine load weight and centre of gravity.
8. Identify types of lifts and describe their characteristics and applications.

9. Describe effects of sling angle when preparing for rigging, hoisting and positioning operations.
10. Identify elements of crane, sling and attachment charts and tables.
11. Describe procedures to secure lift area.

Practical Requirements:

None

IR2130 Rigging, Hoisting and Positioning II

Learning Outcomes:

- Demonstrate knowledge of rigging, hoisting and positioning equipment, their applications, characteristics and procedures for use.
- Demonstrate knowledge of procedures to assemble, attach, use and remove rigging, hoisting and positioning equipment and components.

Duration: 24 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Identify hazards, and describe safe work practices pertaining to assembling, attaching, using, removing and disassembling rigging, hoisting and positioning equipment and components.
2. Identify codes, standards and regulations pertaining to rigging, hoisting and positioning.
3. Identify various slings, sling arrangements and hitches, and describe their characteristics and applications.
4. Describe requirements and specifications involved in rigging operations.
5. Describe function, advantages and limitations of various hitches and configurations.
6. Describe procedures for placement, assembly, installation, removal and disassembly of rigging, hoisting and positioning equipment and components.
7. Interpret load charts, lift radius and boom length.
8. Describe procedures and sequence of inspection of rigging, hoisting and positioning equipment.
9. Identify types of knots, bends and hitches, and describe their characteristics and applications.
10. Describe procedures to splice wire, natural fibre and synthetic fibre ropes.
 - i. back splice
 - ii. side splice

- iii. short splice
- 11. Identify rolling and positioning equipment, and describe their characteristics, applications and procedures for use.
- 14. Identify attachment points and describe procedures to perform hoisting and positioning operations.
- 12. Describe procedures to determine load orientation.

Practical Requirements:

None

IR1140 Crane Operations – Conventional and Hydraulic

Learning Outcomes:

- Demonstrate knowledge of cranes and equipment, their components, characteristics, applications and operation.
- Demonstrate knowledge of procedures to set up, rig, mobilize and demobilize cranes, equipment and their components.
- Demonstrate knowledge of regulatory requirements pertaining to setting up, rigging, mobilizing and demobilizing cranes, equipment and their components.

Duration: 30 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Identify codes, standards and regulations pertaining to setting up, rigging mobilizing and demobilizing cranes, equipment and components.
2. Identify hazards and describe safe work practices pertaining to setting up, rigging mobilizing and demobilizing cranes, equipment and components.
3. Interpret information pertaining to cranes, equipment and components found in manufacturers' specifications, equipment manuals, load charts, range diagrams and engineered drawings.
4. Identify tools and equipment used to set up, rig mobilize and demobilize cranes, equipment and components and describe their procedures for use.
5. Identify types of cranes, equipment and components and describe their characteristics and applications.
6. Describe operating principles of cranes, equipment and components.
7. Describe procedures to set up, inspect, mobilize and demobilize cranes, equipment and components.

Practical Requirements:

None

IS2150 Primary Structural Steel Members

Learning Outcomes:

- Demonstrate knowledge of falsework, their components and characteristics.
- Demonstrate knowledge of structural members, their components, materials and characteristics.
- Demonstrate knowledge of procedures to erect and remove falsework.
- Demonstrate knowledge of procedures to attach and install structural members.
- Demonstrate knowledge of regulatory requirements pertaining to falsework and structural members.
- Demonstrate knowledge of training requirements pertaining to falsework and structural members.

Duration: 42 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Identify hazards and describe safe work practices.
 - i. erecting and removing falsework
 - ii. attaching and removing structural members
2. Identify codes, standards and regulations pertaining to falsework and structural steel members.
3. Interpret information pertaining to falsework and structural steel members and their components found on drawings and specifications.
4. Identify tools and equipment and describe their procedures for use.
 - i. erect and remove falsework
 - ii. erect and install structural members
5. Identify falsework and components and describe its characteristics.
6. Identify supports and bracing.
7. Identify capacity and limitations of falsework.
8. Identify structural steel members, components, materials and fasteners and describe their characteristics.
9. Describe procedures to layout, construct, inspect, remove and store falsework.

10. Describe procedures to attach structural steel members and their components.
11. Describe procedures to inspect attached structural steel members, components and fasteners.
12. Describe procedures to test fasteners.
13. Describe procedures to decommission and disassemble structural steel members.

Practical Requirements:

None

IS2160 Conveyors, Machinery and Equipment I

Learning Outcomes:

- Demonstrate knowledge of material handling systems, their components, characteristics and operation.

Duration: 12 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to material handling systems.
2. Identify tools and equipment used on material handling systems and describe their procedures for use.
3. Identify material handling systems and components and describe their characteristics.
4. Identify support steel components used for material handling systems.

Practical Requirements:

None

IS2180 Maintenance and Repair I

Learning Outcomes:

- Demonstrate knowledge of mechanical components that require preventative maintenance, their characteristics, applications and operation.

Duration: 30 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to maintenance and repair.
2. Interpret information pertaining to preventative maintenance found on drawings, manufacturers' specifications and maintenance schedules.
3. Identify tools and equipment used in maintenance and repair and describe their procedures for use.
 - i. diagnosis
 - ii. repair
 - iii. revisioning
 - iv. reinforcing
 - v. replacing of components
 - vi. preventative maintenance
4. Identify mechanical components, and describe their characteristics

Practical Requirements:

None

Level 3

IS3000 Curtain Walls

Learning Outcomes:

- Demonstrate knowledge of curtain walls, window walls and components and their characteristics, applications and operation.
- Demonstrate knowledge of procedures to install curtain walls, window walls and components.
- Demonstrate knowledge of regulations pertaining to installing curtain walls, window walls and components.

Duration: 24 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to installing curtain walls, window walls and components.
2. Identify codes, standards and regulations pertaining to installing curtain walls, window walls and components.
3. Interpret information pertaining to curtain walls, window walls and components found on drawings and specifications.
4. Identify tools and equipment used to install curtain walls, window walls and components and describe their procedures for use.
5. Identify curtain walls, window walls and components and describe their characteristics and applications.
6. Identify sealants and describe their characteristics and applications.
7. Describe layout and glazing procedures.
8. Describe procedures to install curtain walls, window walls and components.
9. Describe procedures to inspect installed curtain walls, window walls and components.
10. Describe procedures to decommission and disassemble curtain walls, window walls and components.

Practical Requirements:

None

IS3010 Ornamental Components and Systems

Learning Outcomes:

- Demonstrate knowledge of ornamental components and systems and their characteristics, applications and operation.
- Demonstrate knowledge of procedures to install ornamental components and systems.
- Demonstrate knowledge of regulations pertaining to installing ornamental components and systems.

Duration: 24 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to installing ornamental components and systems.
2. Identify codes, standards and regulations pertaining to installing ornamental components and systems.
3. Interpret information pertaining to ornamental components and systems found on drawings and specifications.
4. Identify tools and equipment used to install ornamental components and systems and describe their procedures for use.
5. Identify ornamental components and systems and describe their characteristics and applications.
6. Describe procedures to install ornamental components and systems.
7. Describe procedures to inspect ornamental components and systems.
8. Describe procedures to decommission and disassemble ornamental components and systems.

Practical Requirements:

None

IS3020 Miscellaneous Metals

Learning Outcomes:

- Demonstrate knowledge of miscellaneous components and their characteristics, applications and operation.
- Demonstrate knowledge of procedures to install miscellaneous components.
- Demonstrate knowledge of regulations pertaining to installing miscellaneous components.

Duration: 18 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to installing miscellaneous components.
2. Identify codes, standards and regulations pertaining to installing miscellaneous components.
3. Interpret information pertaining to miscellaneous components found on drawings and specifications.
4. Identify tools and equipment used to install miscellaneous components and describe their procedures for use.
5. Identify miscellaneous components and describe their characteristics and applications.
6. Describe procedures to install miscellaneous components.
7. Describe finishing procedures for miscellaneous components.
8. Describe procedures to inspect miscellaneous components.
9. Describe procedures to decommission and disassemble miscellaneous components.

Practical Requirements:

None

IR2140 Crane Operations- Tower

Learning Outcomes:

- Demonstrate knowledge of tower cranes and equipment, their components, characteristics, applications and operation.
- Demonstrate knowledge of procedures to set up, rig and demobilize tower cranes and equipment and their components.
- Demonstrate knowledge of regulatory requirements pertaining to setting up tower cranes and equipment and their components.

Duration: 18 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify codes, standards and regulations pertaining to setting up, rigging and demobilizing tower cranes, equipment and components.
2. Identify hazards and describe safe work practices pertaining to setting up, rigging and demobilizing tower cranes, equipment and components.
3. Interpret information pertaining to tower cranes, equipment and components found in manufacturers' specifications, equipment manuals, load charts, range diagrams and engineered drawings.
4. Identify tools and equipment used to set up, rig and demobilize tower cranes, equipment and components and describe their procedures for use.
5. Identify types of tower cranes, equipment and components and describe their characteristics and applications.
6. Describe operating principles of tower cranes, equipment and components.
7. Describe procedures to set up, inspect and demobilize tower cranes, equipment and components.

Practical Requirements:

None

IS3150 Secondary Structural Steel Members

Learning Outcomes:

- Demonstrate knowledge of falsework, their components, characteristics and applications.
- Demonstrate knowledge of secondary structural members, their components, materials, characteristics and applications.
- Demonstrate knowledge of procedures to erect and remove falsework.
- Demonstrate knowledge of procedures to attach and install secondary structural members.
- Demonstrate knowledge of regulatory requirements pertaining to falsework and secondary structural members.
- Demonstrate knowledge of training requirements pertaining to falsework and secondary structural members.

Duration: 30 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify hazards and describe safe work practices.
 - i. erecting and removing falsework
 - ii. attaching and removing secondary structural members
 - iii. leveling, aligning and plumbing secondary structural members
2. Identify codes, standards and regulations pertaining to falsework and secondary structural members.
3. Interpret information pertaining to falsework and secondary structural members and their components found on drawings and specifications.
4. Identify tools and equipment and describe their procedures for use.
 - i. erect and remove falsework
 - ii. erect and install secondary structural members
 - iii. level, align and plumb secondary structural members
5. Identify training requirements to level, align and plumb secondary structural members.
6. Identify falsework and component applications.
7. Identify supports and bracing applications.

8. Identify secondary structural members, components, materials and fasteners and describe their characteristics and applications.
9. Describe procedures to layout, construct, inspect, remove and store falsework.
10. Describe procedures to attach secondary structural members and their components.
11. Describe procedures to inspect attached secondary structural members, components and fasteners.
12. Describe procedures to level, align and plumb secondary structural members.
13. Identify plumbing and aligning tolerances.
14. Describe procedures to install temporary bracing.
15. Describe procedures to inspect levelled, aligned and plumbed secondary structural members and temporary bracing.
16. Describe procedures to verify accuracy of surveying tools.

Practical Requirements:

None

IS3160 Conveyors, Machinery and Equipment II

Learning Outcomes:

- Demonstrate knowledge of material handling systems, their components, characteristics, applications and operation.
- Demonstrate knowledge of procedures to install and align material handling systems.

Duration: 30 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to installing and aligning material handling systems.
2. Interpret information pertaining to material handling systems and their components found on drawings and specifications.
3. Identify tools and equipment used to install and align material handling systems and describe their procedures for use.
4. Identify material handling systems and components and describe their characteristics and applications.
5. Identify support steel components used for material handling systems.
6. Describe operating principles of material handling systems and their components.
7. Identify alignment specifications and tolerances.
8. Describe procedures to install and align material handling systems.
9. Describe procedures to inspect and test installed and aligned material handling systems.
10. Describe procedures to decommission and disassemble material handling systems.

Practical Requirements:

None

IS3180 Maintenance and Repair II

Learning Outcomes:

- Demonstrate knowledge of mechanical components that require preventative maintenance, their characteristics, applications and operation.
- Demonstrate knowledge of procedures for assessing, repairing, revisioning, reinforcing and replacing components.
- Demonstrate knowledge of procedures to perform preventative maintenance.

Duration: 30 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to maintenance and repair.
2. Interpret information pertaining to preventative maintenance found on drawings, manufacturers' specifications and maintenance schedules.
3. Identify mechanical components, and describe their characteristics, applications and operations.
4. Describe layout techniques.
5. Describe finishing methods and procedures.
6. Describe maintenance techniques.
7. Describe procedures to assess, repair, revision, reinforce and replace components.
8. Describe procedures to inspect components during preventative maintenance.
9. Describe procedures to inspect repaired, revised, reinforced and replaced components.

Practical Requirements:

None

MENT701 Mentoring II

Learning Outcomes:

- Demonstrate knowledge of effective communication practices as a mentor.
- Demonstrate knowledge of strategies for teaching workplace skills.

Duration: 6 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify the different roles played by a workplace mentor.

3. Identify strategies to create a supportive learning environment.

4. Identify techniques for effective communication as a mentor.
 - i. constructive feedback
 - ii. active listening
 - iii. leading meetings and one-on-one sessions

5. Describe the steps in teaching a skill.
 - i. identifying the point of lesson
 - ii. linking the lesson
 - iii. demonstrating the skill
 - iv. providing practice
 - v. giving feedback
 - vi. assessing skill and progress

6. Identify strategies to assist in teaching a skill while meeting individual learning needs.
 - i. principles of instruction
 - ii. coaching skills

7. Explain how to adjust a lesson for various situations.

Practical Requirements:

None

IS3200 Program Review

Learning Outcomes:

- Demonstrate knowledge of the Red Seal Occupational Standard (RSOS) and its relationship to the Red Seal examination.
- Demonstrate knowledge of overall comprehension of the trade in preparation for the Red Seal examination.

Duration: 30 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Define terminology associated with an RSOS.
 - i. major work activities
 - ii. tasks
 - iii. sub-tasks
2. Describe how an RSOS is developed and the link it has with the Red Seal examination.
 - i. development
 - ii. validation
 - iii. level and task weighting
 - iv. examination breakdown (pie-chart)
3. Identify Red Seal products and describe their use for preparing for the Red Seal examination.
 - i. Red Seal website
 - ii. examination preparation guide
 - iii. sample questions
 - iv. examination counselling sheets
4. Describe the relationship between the RSOS and the Plan of Training.
5. Review Common Occupational Skills as identified in the RSOS.
 - i. maintaining safe and healthy workplaces
 - ii. using and maintaining tools and equipment
 - iii. organizing work tasks
 - iv. maintaining continuous learning
 - v. using communication and mentoring techniques

6. Review process to perform rigging, hoisting and positioning as identified in the RSOS.
 - i. planning lift
 - ii. rigging, hoisting and positioning load
 - iii. performing post-lift activities
7. Review process to mobilize and demobilize cranes and equipment as identified in the RSOS.
8. Review process to perform erection, assembly and installation as identified in the RSOS.
 - i. primary and secondary structural members
 - ii. ornamental, miscellaneous and steel cladding systems and components
 - iii. conveyers, machinery and equipment
9. Review process to perform maintenance and upgrading as identified in the RSOS.
 - i. decommission, disassemble and remove structural, ornamental, mechanical and miscellaneous components
 - ii. maintain and repair components

Practical Objectives:

None

C. Conditions Governing Apprenticeship Training

1.0 General

The following general conditions apply to all apprenticeship training programs approved by the Provincial Apprenticeship and Certification Board (PACB) in accordance with the Apprenticeship Training and Certification Act (1999). If an occupation requires additional conditions, these will be noted in the specific Plan of Training for the occupation. In no case should there be a conflict between these conditions and the additional requirements specified in a certain Plan of Training. All references to Memorandum of Understanding will also apply to Letter of Understanding (LOU) agreements.

2.0 Entrance Requirements

2.1 Entry into the occupation as an apprentice requires:

Indenturing into the occupation by an employer who agrees to provide the appropriate training and work experiences as outlined in the Plan of Training.

2.2 Notwithstanding the above, each candidate must have successfully completed a high school program or equivalent, and in addition may be required to have completed certain academic subjects as specified in a particular Plan of Training. Mature students, at the discretion of the Director of Apprenticeship and Trades Certification, may be registered. A mature student is defined as one who has reached the age of 19 and who can demonstrate the ability and the interest to complete the requirements for certification.

2.3 At the discretion of the Director of Apprenticeship and Trades Certification, credit toward the apprenticeship program may be awarded to an apprentice for previous work experience and/or training as validated through prior learning assessment.

2.4 An Application for Apprenticeship form must be duly completed along with a Memorandum of Understanding as applicable to be indentured into an Apprenticeship. The Memorandum of Understanding must contain signatures of an authorized employer representative, the apprentice and an official representing the Provincial Apprenticeship and Certification Board to be valid.

2.5 A new Memorandum of Understanding must be completed for each change in an employer during the apprenticeship term.

3.0 Probationary Period

The probationary period for each Memorandum of Understanding will be six months or 900 employment credit hours. Within that period the memorandum may be terminated by either party upon giving the other party and the PACB one week notice in writing.

4.0 Termination of a Memorandum of Understanding

After the probationary period referred to in Section 3.0, the Memorandum of Understanding may be terminated by the PACB by mutual consent of the parties involved or cancelled by the PACB for proper and sufficient cause in the opinion of the PACB, such as that stated in Section 14.

5.0 Apprenticeship Progression Schedule, Wage Rates and Advanced Training Criteria

Progression Schedule

Ironworker (Structural/Ornamental) - 5400 Hours			
Apprenticeship Level and Wages			
Level	Wage Rate	Requirements for Progression to Next Level	Next Level
1 st	60 %	<ul style="list-style-type: none"> ▪ Completion of Level 1 training ▪ Registration as an apprentice ▪ Pass Level 1 exam* ▪ Minimum 1800 hours of combined relevant work experience and training 	2 nd Year
2 nd	75%	<ul style="list-style-type: none"> ▪ Completion of Level 2 training ▪ Pass Level 2 exam* ▪ Minimum 3600 hours of combined relevant work experience and training 	3 rd Year
3 rd	90%	<ul style="list-style-type: none"> ▪ Completion of Level 3 training ▪ Pass Level 3 exam* ▪ Minimum 5400 hours of combined relevant work experience and training ▪ Sign-off of all workplace skills in apprentice logbook ▪ Pass certification exam 	Journeyperson Certification
<p>Wage Rates</p> <ul style="list-style-type: none"> ▪ Rates are percentages of the prevailing journeyperson’s wage rate in the place of employment of the apprentice. ▪ Rates must not be less than the wage rate established by the Labour Standards Act (1990), as now in force or as hereafter amended, or by other order, as amended from time to time replacing the first mentioned order. ▪ Rates must not be less than the wage rate established by any collective agreement which may be in force at the apprentice’s workplace. ▪ Employers are free to pay wage rates above the minimums specified. <p>*Level Exams</p> <ul style="list-style-type: none"> ▪ This program may not currently contain level exams, in which case this requirement will be waived until such time as level exams are available. 			

Ironworker (Structural/Ornamental) - 5400 Hours		
Class Calls (After Apprenticeship Registration)		
Call Level	Requirements for Class Call	Hours Awarded for In-School Training
Direct Entry Level 1	<ul style="list-style-type: none"> ▪ Minimum of 1800 hours of relevant work experience ▪ Prior Learning Assessment (PLA) at designated college (if applicable) 	270
Level 2	<ul style="list-style-type: none"> ▪ Minimum of 3000 hours of relevant work experience and training 	210
Level 3	<ul style="list-style-type: none"> ▪ Minimum of 5200 hours of relevant work experience and training 	210
<p>Class calls at Minimum Hours</p> <ul style="list-style-type: none"> ▪ Class calls may not always occur at the minimum hours indicated. Some variation is permitted to allow for the availability of training resources and apprentices. 		

6.0 Tools

Apprentices shall be required to obtain their own hand tools applicable for the designated occupation of registration or tools as specified by the PACB.

7.0 Periodic Examinations and Evaluation

- 7.1 Every apprentice shall submit to such occupational tests and examinations as the PACB shall direct. If after such occupational tests and examinations the apprentice is found to be making unsatisfactory progress, his/her apprenticeship level and rate of wage shall not be advanced as provided in Section 5 until his/her progress is satisfactory to the Director of Apprenticeship and Trades Certification and his/her date of completion shall be deferred accordingly. Persistent failure to pass required tests shall be a cause for revocation of his/her Memorandum of Understanding.
- 7.2 Upon receipt of reports of accelerated progress of the apprentice, the PACB may shorten the term of apprenticeship and advance the date of completion accordingly.
- 7.3 For each and every course, a formal assessment is required for which 70% is the pass mark. A mark of 70% must be attained in both the theory examination and the practical project assignment, where applicable as documented on an official transcript.
- 7.4 Course credits may be granted through the use of a PACB approved matrix which identifies course equivalencies between designated trades and between current and historical Plans of Training for the same trade.

8.0 Granting of Certificates of Apprenticeship

Upon the successful completion of apprenticeship, the PACB shall issue a Certificate of Apprenticeship.

9.0 Hours of Work

Any hours employed in the performance of duties related to the designated occupation will be credited towards the completion of the term of apprenticeship. Appropriate documentation of these hours must be provided.

10.0 Copies of the Registration for Apprenticeship

The Director of Apprenticeship and Trades Certification shall provide copies of the Registration for Apprenticeship form to all signatories to the document.

11.0 Ratio of Apprentices to Journeypersons

Under normal practice, the ratio of apprentices to journeypersons shall not exceed two apprentices to every one journeyperson employed. Other ratio arrangements would be determined and approved by the PACB.

12.0 Relationship to a Collective Bargaining Agreement

Where applicable in Section 5 of these conditions, Collective Agreements take precedence.

13.0 Amendments to a Plan of Apprenticeship Training

A Plan of Training may be amended at any time by the PACB.

14.0 Employment, Re-Employment and Training Requirements

- 14.1 The Plan of Training requires apprentices to regularly attend their place of employment.
- 14.2 The Plan of Training requires apprentices to attend training for that occupation as prescribed by the PACB.
- 14.3 Failure to comply with Sections 14.1 and/or 14.2 will result in cancellation of the Memorandum of Understanding. Apprentices may have their MOUs reinstated by the PACB but would be subject to a commitment to complete the entire program as outlined in the General Conditions of Apprenticeship. Permanent cancellation in the said occupation is the result of non-compliance.
- 14.4 Cancellation of the Memorandum of Understanding to challenge journeyperson examinations, if unsuccessful, would require an apprentice to serve a time penalty of two (2) years before reinstatement as an apprentice or qualifying to receive a class call to training as a registered Trade Qualifier. Cancellation must be mutually agreed upon by the employer and the apprentice.

- 14.5 An employer shall ensure that each apprentice is under the direct supervision of an approved journeyman supervisor who is located at the same worksite as the apprentice, and that the apprentice is able to communicate with the journeyman with respect to the task, activity or function that is being supervised.
- 14.6 Under the Plan of Training the employer is required to keep each apprentice employed as long as work is available, and if the apprentice is laid off due to lack of work, to give first opportunity to be hired before another is hired.
- 14.7 The employer will permit each apprentice to attend training programs as prescribed by the PACB.
- 14.8 Apprentices who cannot acquire all the workplace skills at their place of employment will have to be evaluated in a simulated work environment at a PACB authorized training institution and have sign-off done by instructors to meet the requirements for certification.

15.0 Appeals to Decisions Based on Conditions Governing Apprenticeship Training

Persons wishing to appeal any decisions based on the above conditions must do so in writing to the Minister of Education and Early Childhood Development within 30 days of the decision.

D. Requirements for Red Seal Endorsement

1. Evidence the required work experiences outlined in this Plan of Training have been obtained. This evidence must be in a format clearly outlining the experiences and must be signed by an appropriate person or persons attesting that these experiences have been obtained to the level required.
2. Successful completion of all required courses in the program.
3. A combination of training from an approved training program and suitable work experience totaling 5400 hours.

Or

A total of 8100 hours of suitable work experience.

4. Completion of a National Red Seal examination, to be set at a place and time determined by the Apprenticeship and Trades Certification Division.

E. Roles and Responsibilities of Stakeholders in the Apprenticeship Process

The apprenticeship process involves a number of stakeholders playing significant roles in the training of apprentices. This section outlines these roles and the responsibilities resulting from them.

The Apprentice:

- completes all required technical training courses as approved by the PACB.
- finds appropriate employment.
- completes all required work experiences in combination with the required hours.
- ensures work experiences are well documented.
- approaches apprenticeship training with an attitude and commitment that fosters the qualities necessary for a successful career as a qualified journeyman.
- obtains the required hand tools as specified by the PACB for each period of training of the apprenticeship program.

The Employer:

- provides high quality work experiences in an environment conducive to learning.
- remunerates apprentices as set out in the Plan of Training or Collective Agreements.
- provides feedback to training institutions, Apprenticeship and Trades Certification Division and apprentices in an effort to establish a process of continuous quality improvement.
- where appropriate, releases apprentices for the purpose of returning to a training institution to complete the necessary technical courses.
- ensures work experiences of the apprentice are documented.
- ensures a certified journeyman is currently on staff in the same trade area as the apprentice and whose certification is recognized by the NL Department of Education and Early Childhood Development.

The Training Institution:

- provides a high-quality learning environment.
- provides the necessary student support services that will enhance an apprentice's ability to be successful.
- participates with other stakeholders in the continual updating of programs.

The Apprenticeship and Trades Certification Division:

- establishes and maintains program advisory committees under the direction of the PACB.
- promotes apprenticeship training as a viable career option to prospective apprentices and other appropriate persons involved, such as career guidance counsellors, teachers, parents, etc.
- establishes and maintains a protocol with training institutions, employers and other appropriate stakeholders to ensure the quality of apprenticeship training programs.
- ensures all apprentices are appropriately registered and records are maintained as required.
- schedules all necessary technical training periods for apprentices to complete requirements for certification.
- administers provincial and Red Seal examinations.

The Provincial Apprenticeship and Certification Board:

- sets policies to ensure the provisions of the *Apprenticeship and Certification Act (1999)* are implemented.
- ensures advisory and examination committees are established and maintained.
- accredits institutions to deliver apprenticeship training programs.
- designates occupations for apprenticeship training and/or certification.

