Pre-Employment Plan of Training

Ironworker

November 2016

Newfoundland & Labrador

PLAN OF TRAINING

Ironworker

NOVEMBER 2016

Government of Newfoundland and Labrador
Department of Advanced Education, Skills and Labour
Apprenticeship and Trades Certification Division

Approved by:

Chairperson, Provincial Apprenticeship and Certification Board

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Preface

This curriculum standard is aligned with the 2016 Level 1 Newfoundland & Labrador Curriculum Standard (NLCS) and the 2015 National Occupational Analysis (NOA) and National Harmonization sequencing and levels for the Ironworker (Generalist) trade. It describes the curriculum content for the Ironworker (Generalist) Pre-employment training program.

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We offer a sincere thank you.

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A. NOA Comparison Chart

A National Occupational Analysis (NOA) comparison chart is located in the Newfoundland and Labrador Curriculum Standard (NLCS).

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 as documented on an official transcript.

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

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

A Pre-employment student who becomes an apprentice will also be required to complete Levels 2 & 3 in the Newfoundland and Labrador Curriculum Standard.

Pre-Employment				
Course No.	**IPG No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
TS1510	-	Occupational Health and Safety	6	None
TS1520	-	WHMIS	6	None
TS1530	-	Standard First Aid	14	None
LA1100	-	Confined Space Awareness	6	None
RK1100	IRW-100	Safety	30	None
RK1110	IRW-105	Tools and Equipment	60	RK1100
RK1120	IRW-115	Blue Print Reading 1 (Principles)	30	None
RK1130	IRW-110	Blue Print Reading 2 (Structural)	60	RK1120
RK1151	IRW-125	Oxy-fuel Cutting	30	RK1110
RK1161	IRW-130	Introduction to Welding	45	RK1110
RK1220	IRW-160	Plasma Arc Cutting	15	RK1110
RK1230	IRW-140	Rigging for Ironworkers	90	RK1110
RK1240	IRW-145	Introduction to Cranes	12	RK1230
RK1200	IRS-205	Conventional and Hydraulic Cranes	60	RK1230
RK1250	IRW-150	Structural Components	45	RK1110 RK1130 RK1200 RK1270

Pre-Employment				
Course No.	**IPG No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
RK1260	IRS-215	Structural Steel Erection and Dismantling	180	RK1120 RK1130 RK1200 RK1250
RK1270	IRS-120	Work Planning	30	RK1110 RK1120 RK1200
RK1280	IRR-230	Pre-Stressed/Post Tensioning Systems	45	RK1230
RK1290	IRW-155	Reinforcing for Ironworkers	60	RK1230 RK1270
RK2190	IRS-210	Tower Cranes	30	RK1200
RK2231	IRW-135	Access Equipment	60	RK1110
AM1000	-	Introduction to Essential Skills	9	None
AM1101	-	Math Essentials	42	None
AM1351	-	Ironworker Math Fundamentals	42	AM1101
CM2161	-	Communication Essentials	36	None
SD1761	-	Workplace Essentials	24	None
MC1062	-	Computer Essentials	15	None
AP1102	-	Introduction to Apprenticeship	12	None
Total			1094	

***A student who can meet the mathematics requirement through an ACUPLACER® test may be exempted from AM1101-Math Essentials. Please check with your training institution.**

Pre-Employment

TS1510 Occupational Health and Safety

Learning Outcomes:

- Demonstrate knowledge of interpreting the Occupational Health and Safety Act, laws and regulations.
- Demonstrate knowledge of understanding the designated responsibilities within the laws and regulations such as the right to refuse dangerous work; and the importance of reporting accidents.
- Demonstrate knowledge of how to prevent accidents and illnesses.
- Demonstrate knowledge of how to improve health and safety conditions in the
- workplace.

Duration: 6 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Interpret the Occupational Health and Safety Act laws and regulations.
   i. explain the scope of the act
      - application of the Act
      - Federal/Provincial jurisdictions
      - Canada Labour Code
      - rules and regulations
      - private home application
      - conformity of the Crown by the Act

2. Explain responsibilities under the Act and Regulations.
   i. duties of employer, owner, contractors, sub-contractors, employees, and suppliers

3. Explain the purpose of joint health and safety committees.
   i. formation of committee
   ii. functions of committee
   iii. legislated rights
   iv. health and safety representation
   v. reporting endangerment to health
   vi. appropriate remedial action
   vii. investigation of endangerment
   viii. committee recommendation
   ix. employer’s responsibility in taking remedial action

4. Examine right to refuse dangerous work.
   i. reasonable grounds for refusal
   ii. reporting endangerment to health
   iii. appropriate remedial action
   iv. investigation of endangerment
   v. committee recommendation
   vi. employer's responsibility to take appropriate remedial action
   vii. action taken when employee does not have reasonable grounds for refusing dangerous work
   viii. employee's rights
   ix. assigning another employee to perform duties
   x. temporary reassignment of employee to perform other duties
   xi. collective agreement influences
   xii. wages and benefits

5. State examples of work situations where one might refuse work.

6. Describe discriminatory action.
   i. definition
   ii. filing a complaint procedure
   iii. allocated period of time a complaint can be filed with the Commission
   iv. duties of an arbitrator under the Labour Relations Act
   v. order in writing inclusion
   vi. report to commission allocated period of time to request arbitrator to deal with the matter of the request
   vii. notice of application
   viii. failure to comply with the terms of an order
   ix. order filed in the court

7. Explain duties of commission officers.
   i. powers and duties of officers
   ii. procedure for examinations and inspections
   iii. orders given by officers orally or in writing
   iv. specifications of an order given by an officer to owner of the place of employment, employer, contractor, sub-contractor, employee, or supplier
   v. service of an order
   vi. prohibition of persons towards an officer in the exercise of his/her power or duties
   vii. rescinding of an order
   viii. posting a copy of the order
   ix. illegal removal of an order

8. Interpret appeals of others.
   i. allocated period of time for appeal of an order
   ii. person who may appeal order

iii. action taken by commission when person involved does not comply with the order
iv. enforcement of the order
v. notice of application
vi. rules of court

9. Explain the process for reporting of accidents.
   i. application of act
   ii. report procedure
   iii. reporting notification of injury
   iv. reporting accidental explosion or exposure
   v. posting of act and regulations

Practical Requirements:

1. Conduct an interview with someone in your occupation on two or more aspects of the act and report results.

2. Conduct a safety inspection of shop area.

TS1520 Workplace Hazardous Materials Information System (WHMIS)

Learning Outcomes:

- Demonstrate knowledge of Interpreting and applying the Workplace Hazardous Materials Information System (WHMIS) Regulation under the Occupational Health and Safety Act.

Duration: 6 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Define WHMIS safety.
   - i. rational and key elements
   - ii. history and development of whmis
   - iii. whmis legislation
   - iv. whmis implementation program
   - v. definitions of legal and technical terms

2. Examine hazard identification and ingredient disclosure.
   - i. prohibited, restricted and controlled products
   - ii. classification and the application of whmis information requirements
   - iii. responsibilities for classification
     - the supplier
     - the employer
     - the worker – Classification: rules and criteria
     - information on classification
     - classes, divisions and subdivision in WHMIS
     - general rules for classification
       - class A – compressed gases
       - class B – flammable and combustible materials
       - class C – oxidizing material
       - class D – poisonous and infectious material
       - class E – corrosive material
       - class F – dangerously reactive material
   - iv. products excluded from the application of WHMIS legislation
     - consumer products
     - explosives
     - cosmetics, drugs, foods and devices
     - pest control products
     - radioactive prescribed substances
     - wood or products made of wood

- manufactured articles
- tobacco or products of tobacco
- hazardous wastes
- products handled or transported pursuant to the Transportation of
- Dangerous Goods (TDG) Act

v. comparison of classification systems – WHMIS and TDG
vi. general comparison of classification categories
vii. detailed comparison of classified criteria

3. Explain labeling and other forms of warning.
   i. definition of a WHMIS label
      - supplier label
      - workplace label
      - other means of identification
   ii. responsibility for labels
      - supplier responsibility
      - employer responsibility
      - worker responsibility
   iii. introduce label content, design and location
      - supplier labels
      - workplace labels
      - other means of identification

4. Introduce material safety data sheets (MSDS).
   i. definition of a material safety data sheet
   ii. purpose of the data sheet
   iii. responsibility for the production and availability of data sheets
      - supplier responsibility
      - employer responsibility
      - workers responsibility

Practical Requirements:

1. Locate WHMIS label and interpret the information displayed.

2. Locate a MSDS sheet for a product used in the workplace and determine what personal protective equipment and other precautions are required when handling this product.

TS1530 Standard First Aid

Learning Outcomes:

- Demonstrate knowledge of recognizing situations requiring emergency action.
- Demonstrate knowledge of making appropriate decisions concerning first aid.

Complete a **St. John Ambulance or Canadian Red Cross** Standard First Aid Certificate course.

Duration: 14 Hours

Pre-Requisite(s): None

LA1100 Confined Space Awareness

Learning Outcomes:

- Demonstrate knowledge of procedures to prepare a confined space for entry.
- Demonstrate knowledge of procedures to enter a confined space safely.
- Demonstrate knowledge of confined space rescue techniques.

Duration: 6 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Recognize confined space hazards.
   i. define a confined space
   ii. identify types of hazards in confined spaces

2. Identify proper controls for confined space entries.
   i. list steps to protect yourself from confined space hazards
   ii. define an entry permit
   iii. list information included on a confined space entry permit
   iv. explain what action must be taken if a permit expires before work is completed

3. Prepare for confined space entry.
   i. state the first step in entry preparation
   ii. list examples of proper entry preparation
   iii. list types of personal protective equipment used in confined spaces

4. Determine testing techniques for confined spaces.
   i. list the necessary steps of air testing
   ii. state the correct order for testing gases

5. Identify confined space entry procedures.
   i. identify the attendants responsibilities
   ii. identify the area where the attendant should be stationed
   iii. identify the entrant's responsibilities

6. Explain confined space rescue techniques.
   i. list three types of confined space rescues
   ii. explain non-entry rescue
   iii. list the requirements of an on-site rescue team

Practical Requirements:

None.

RK1100 Safety

Learning Outcomes:

- Demonstrate knowledge of safety equipment, their applications, maintenance and procedures for use.
- Demonstrate knowledge of safe work practices.
- Demonstrate knowledge of regulatory requirements pertaining to safety.

Duration: 30 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify types of personal protective equipment (PPE) and clothing and describe their applications and limitations.

2. Describe the procedures used to care for and maintain PPE.

3. Identify hazards and describe safe work practices.
   - i. personal
   - ii. workplace
     - lockout / tag out
     - confined space awareness
     - trenches and excavations
     - fire
     - heights (fall arrest and protection)
     - marine
   - iii. environmental

4. Identify and describe workplace safety and health regulations.
   - i. federal
     - Workplace Hazardous Material Information System (WHMIS)
   - ii. provincial/territorial
     - occupational health and safety
     - training and certification requirements
   - iii. worksite specific requirements

Practical Requirements:

None.

RK1110 Tools and Equipment

Learning Outcomes:

- Demonstrate knowledge of tools and equipment, their applications, maintenance and procedures for use.

Duration: 60 Hours

Pre-Requisite(s): RK1100

Objectives and Content:

1. Identify types of hand tools and describe their applications and procedures for use.

2. Describe the procedures used to inspect, maintain and store hand tools.

3. Identify types of power tools and describe their applications and procedures for use
   i. electric
   ii. hydraulic
   iii. pneumatic
   iv. gas

4. Describe the procedures used to inspect, maintain and store power tools.

5. Identify types of measuring and layout tools and equipment and describe their applications and procedures for use.

6. Describe the procedures used to inspect, maintain and store measuring and layout tools and equipment.

7. Identify types of leveling and alignment instruments and describe their applications and procedures for use.

8. Describe the procedures used to inspect, maintain and store leveling and alignment instruments.
9. Identify types of powder actuated equipment and describe their applications.
   i. certification requirements

Practical Requirements:

1. Cope and heat-bend angle-iron.
2. Lay out framework.
3. Select and use hand tools.
4. Select and use power tools.

RK1120 Blueprint Reading 1 (Principles)

Learning Outcomes:

- Demonstrate knowledge of drawings and their applications.
- Demonstrate knowledge of the procedures to interpret and extract information from drawings.

Duration: 30 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Define terminology associated with drawings.

2. Identify types of drawings and describe their applications.
   - i. civil/site/plot
   - ii. architectural
   - iii. mechanical
   - iv. structural
   - v. shop/detail drawings
   - vi. sketches

3. Identify drawing projections and views and describe their applications.
   - i. orthographic
   - ii. oblique
   - iii. isometric
   - iv. section
   - v. auxiliary

4. Interpret and extract information from drawings.
   - i. lines
   - ii. legend
   - iii. symbols and abbreviations
   - iv. title block
   - v. notes and specifications
   - vi. tolerances/allowances
   - vii. bill of materials
   - viii. schedules
   - ix. metric and imperial dimensioning
   - x. revisions
   - xi. scales

Practical Requirements:

1. Construct an isometric, orthographic and multi-view drawing.

2. Take dimensions using:
   i. architects' scale rule
   ii. mathematical calculations from construction blueprints

RK1130 Blueprint Reading 2 (Structural)

Learning Outcomes:

- Demonstrate knowledge of drawings and their applications.

Duration: 60 Hours

Pre-Requisite(s): RK1120

Objectives and Content:

1. Describe the component parts of steel structures.
2. Define the terminology related to the materials and processes used.
3. Identify basic structural materials and shapes.
4. Identify and interpret the symbols used on blueprints for steel structures.
5. Describe the procedures used to compile a materials take-off.

Practical Requirements:

1. Match fabricated structural steel for layout prior to erection.
2. Match anchor bolt layout.
3. Compile a materials take-off.

RK1151 Oxy-fuel Cutting

Learning Outcomes:

- Demonstrate knowledge of oxy-fuel equipment and accessories.
- Demonstrate knowledge of the procedures used to cut with oxy-fuel equipment.

Duration: 30 Hours

Pre-Requisite(s): RK1110

Objectives and Content:

1. Define terminology associated with oxy-fuel cutting.

2. Identify hazards and describe safe work practices pertaining to oxy-fuel cutting.
   i. personal
   ii. shop/facility
   iii. equipment
   iv. ventilation
   v. storage/handling

3. Identify and interpret codes and regulations pertaining to oxy-fuel equipment.

4. Identify oxy-fuel equipment and accessories and describe their applications.

5. Identify types of fuels and gases used in oxy-fuel cutting operations and describe their characteristics and applications.

6. Identify types of cutting flames and describe their application and the procedures for flame adjustment.
   i. oxidizing
   ii. carburizing
   iii. neutral

7. Describe the procedures used to set-up, adjust and shut-down oxy-fuel equipment.

8. Describe the procedures used to inspect, maintain and store oxy-fuel equipment.

9. Describe the procedures used to cut materials using oxy-fuel equipment.

10. Identify common cutting faults and describe the procedures to prevent and correct them.

Practical Requirements:

1. Set up oxy-fuel equipment.

2. Perform free hand, track and straight edge oxy-fuel cutting.

3. Shut down and disassemble oxy-fuel equipment.

RK1161 Introduction to Welding

Learning Outcomes:

- Demonstrate knowledge of Shielded Metal Arc Welding (SMAW) equipment and accessories.
- Demonstrate knowledge of SMAW welding processes.

Duration: 45 Hours

Pre-Requisite(s): RK1110

Objectives and Content:

1. Define terminology associated with SMAW welding.

2. Interpret information pertaining to SMAW welding found on drawings.
   i. symbols
   ii. abbreviations

3. Identify hazards and describe safe work practices pertaining to SMAW welding.
   i. personal
   ii. shop/facility
   iii. equipment
   iv. ventilation
   v. storage/handling

4. Identify codes and standards pertaining to welding.
   i. Canadian Welding Bureau (CWB)

5. Identify the SMAW welding processes and describe their characteristics and basic applications.

6. Identify SMAW welding equipment, consumables and accessories and describe their application.

7. Describe the procedures used to set-up and adjust SMAW welding equipment.

8. Describe the procedures used to inspect and maintain SMAW welding equipment.

9. Identify types of welds performed using SMAW welding equipment.

10. Identify welding positions and describe their applications.

11. Describe the procedures used to weld using SMAW welding equipment.

12. Identify common weld faults and describe the procedures to prevent and correct them.

Practical Requirements:

1. Set up equipment and perform a plate weld using the SMAW process.

2. Shut down SMAW welding equipment

RK1220 Plasma Arc Cutting

Learning Outcomes:

- Demonstrate knowledge of plasma arc cutting equipment and accessories.
- Demonstrate knowledge of procedures used to cut with plasma arc cutting equipment.

Duration: 15 Hours

Pre-Requisite(s): RK1110

Objectives and Content:

1. Define terminology associated with plasma arc cutting.

2. Identify hazards and describe safe work practices pertaining to plasma arc cutting.
   i. personal
   ii. shop/facility
   iii. equipment
   iv. ventilation
   v. storage/handling

3. Describe the plasma arc cutting process and its applications.

4. Identify plasma arc cutting equipment and accessories and describe their applications.

5. Describe the procedures used to set-up, adjust and shut-down plasma arc cutting equipment.

6. Describe the procedures used to inspect, maintain and store plasma arc cutting equipment.

7. Describe the procedures used to cut using plasma arc cutting equipment.
   i. free hand
   ii. straight edge

8. Identify common cutting faults and describe the procedures used to prevent and correct them.

Practical Requirements:

1. Set up plasma arc cutting equipment.

2. Perform free hand and straight edge plasma arc cutting.

3. Shut down and disassemble plasma arc cutting equipment.

RK1230 Rigging for Ironworkers

Learning Outcomes:

- Demonstrate knowledge of hoisting, lifting and rigging equipment, their applications, limitations and procedures for use.
- Demonstrate knowledge of the procedures used to perform hoisting and lifting operations.
- Demonstrate knowledge of calculations required when performing hoisting and lifting operations.

Duration: 90 Hours

Pre-Requisite(s): RK1110

Objectives and Content:

1. Define terminology associated with hoisting, lifting and rigging.

2. Identify hazards and describe safe work practices pertaining to hoisting, lifting and rigging.

3. Identify codes and regulations pertaining to hoisting, lifting and rigging.

4. Identify types of rigging equipment and accessories and describe their limitations, applications and procedures for use.

5. Perform calculations pertaining to rigging equipment.
   i. safe working loads
   ii. breaking strength

6. Identify types of hoisting and lifting equipment and accessories and describe their applications and procedures for use.

7. Describe the procedures used to inspect, maintain and store hoisting, lifting and rigging equipment.

8. Identify types of knots, hitches and bends and describe their applications and the procedures used to tie them.

9. Describe the procedures used to rig material/equipment for hoisting and lifting.

10. Describe the procedures used to ensure the work area is safe for hoisting and lifting.

i. supervision of lift
ii. securing work area
iii. communication

11. Identify and describe procedures used to communicate during hoisting, lifting and rigging operations.
    i. hand signals
    ii. electronic communications
    iii. audible/visual
    iv. relay of signals

12. Calculate sling tension and sling angle when preparing for hoisting and lifting operations.

13. Describe the procedures used to determine the weight and weight distribution of loads.
    i. reference load charts
    ii. determine types of loads
    iii. engineered lifts

14. Identify the factors to consider when selecting rigging equipment.
    i. load characteristics
        - weight
        - size
        - shape
        - center of gravity
    ii. environment

15. Describe the procedures used to perform a lift.
    i. secure work area
    ii. load determination
    iii. selection of rigging hardware
    iv. communication methods
    v. pre-lift checks
    vi. placement of load
    vii. post-lift inspection

Practical Requirements:

1. Rig materials using basic equipment and techniques.

2. Demonstrate placement and use of slings.

3. Inspect, measure and cut wire and fibre ropes.

4. Inspect rigging equipment.

5. Estimate weight of loads and working load limits (WLL).

6. Perform reeving and lacing of blocks.

7. Select and install turnbuckles, thimbles and cable clips.

8. Assemble and operate block and tackle.

9. Perform temporary lashing of load.

10. Plan and execute a mock lift.

RK1240 Introduction to Cranes

Learning Outcomes:

- Demonstrate knowledge of cranes, their applications and limitations.
- Demonstrate knowledge of crane lifting operations.

Duration: 12 Hours

Pre-Requisite(s): RK1230

Objectives and Content:

1. Define terminology associated with cranes and crane lifting operations.

2. Identify hazards and describe safe work practices pertaining to cranes and crane lifting operations.

3. Interpret codes and regulations pertaining to cranes and crane lifting operations.

4. Interpret information pertaining to crane lifting operations found on drawings and specifications.

5. Interpret tables and charts to lift and move loads.
   i. crane limitations
      - tipping/stability failure
      - structural failure

6. Explain the principles of leverage and their application to cranes.

7. Identify types of cranes and describe their components, characteristics and applications.
   i. hydraulic
   ii. conventional
   iii. tower
   iv. electric overhead travelling (EOT)
   v. crawler
   vi. carrier mounted
   vii. rough terrain
   viii. all terrain
   ix. high capacity
   x. knuckle boom
   xi. derrick
   xii. boom truck

8. Identify the considerations for crane assembly/installation on-site.
    i. site hazard assessment
        - overhead power lines
        - underground services
        - obstructions
        - soil/ground conditions
    ii. crane position
        - crane radius/swing area
        - headroom

Practical Requirements:

None.

RK1200 Conventional and Hydraulic Cranes

Learning Outcomes:

- Demonstrate knowledge of hydraulic and conventional cranes, their components and accessories.
- Demonstrate knowledge of the procedures used to erect, set-up and disassemble hydraulic and conventional cranes.

Duration: 60 Hours

Pre-Requisite(s): RK1230

Objectives and Content:

1. Define terminology associated with hydraulic and conventional cranes.

2. Identify and describe the procedures used to communicate during hydraulic and conventional crane operations.
   i. hand signals
   ii. electronic communications
   iii. audible/visual

3. Identify hydraulic crane components, accessories and attachments and describe their characteristics and applications.

4. Identify conventional crane components, accessories and attachments and describe their characteristics and applications.

5. Identify the considerations for hydraulic and conventional crane assembly/installation on-site.
   i. site hazard assessment
      - overhead power lines
      - underground services
      - obstructions
      - soil/ground conditions
      - environmental conditions
   ii. crane position
      - crane radius/swing area
      - quadrants of operation
      - headroom

6. Describe the procedures used to assemble and set-up hydraulic cranes.

7. Describe the procedures used to assemble and set-up conventional cranes.

8. Describe the procedures used to disassemble hydraulic cranes, their components, accessories and attachments.

9. Describe the procedures used to disassemble conventional cranes, their components, accessories and attachments.

10. Describe the procedures used to prepare hydraulic cranes for transport.

11. Describe the procedures used to prepare conventional cranes for transport.

Practical Requirements:

None.

RK1250 Structural Components

Learning Outcomes:

- Demonstrate knowledge of structural components, their characteristics and applications.
- Demonstrate knowledge of fastening methods relating to structural steel erection.
- Demonstrate knowledge of falsework, their characteristics and applications.
- Demonstrate knowledge of the procedures used to erect and dismantle falsework.

Duration: 45 Hours

Pre-Requisite(s): RK1110, RK1130, RK1200, RK1270

Objectives and Content:

1. Define terminology associated with structural components.

2. Identify hazards and describe safe work practices pertaining to structural components.

3. Interpret codes, regulations and standards pertaining to structural components.
   i. industry standards
   ii. codes of practice
   iii. government regulations

4. Interpret information pertaining to structural components found on drawings and specifications.

5. Identify types of structures and describe their characteristics.

6. Identify structural steel shapes and describe their designations, characteristics and applications.
   i. I-beam
   ii. H-beam
   iii. wide flange
   iv. welded wide flange
   v. angle
   vi. channel
   vii. tee
   viii. hollow structural steel (HSS)
   ix. miscellaneous shapes

7. Identify types of structural components and their purpose.

i. columns
ii. girders
iii. beams
iv. trusses
v. joists
vi. secondary steel
vii. decking
viii. girts
ix. purlins
x. sag rods
xi. bracing
xii. bridging
xiii. lintels
xiv. pre-cast
xv. glued laminated timber products
xvi. composite

8. Identify fastening methods associated with structural steel and describe their characteristics, applications and limitations.
   i. install fasteners/bolts
   ii. welding

9. Describe the procedures used to install fasteners for securing structural steel members.

10. Identify types of falsework and describe their characteristics and applications.

11. Describe the procedures used to erect and dismantle falsework.

Practical Requirements:

None.

RK1260 Structural Steel Erection and Dismantling

Learning Outcomes:

- Demonstrate knowledge of structural steel members, their characteristics and applications.
- Demonstrate knowledge of the procedures used to erect structural steel members and components.
- Demonstrate knowledge of the procedures used to dismantle and remove structural steel members and components.

Duration: 180 Hours

Pre-Requisite(s): RK1120, RK1130, RK1200, RK1250

Objectives and Content:

1. Define terminology associated with structural steel erection and dismantling.

2. Identify hazards and describe safe work practices pertaining to structural steel erection and dismantling.
   i. temporary bracing
   ii. environmental conditions
   iii. sequence

3. Interpret codes, regulations and standards pertaining to structural steel erection and dismantling.
   i. industry standards
   ii. codes of practice
   iii. government regulations

4. Interpret information pertaining to structural steel erection and dismantling found on drawings and specifications.

5. Identify tools and equipment relating to structural steel erection and dismantling and describe their applications and procedures for use.
   i. erection
   ii. aligning
   iii. fastening
   iv. inspecting
   v. revision/fabrication

6. Identify structural steel members and describe their characteristics and applications.
   i. columns

ii. girders
iii. beams
iv. trusses
v. joists
vi. decking
vii. girts
viii. purlins
ix. sag rods
x. bracing
xi. bridging
xii. lintels

7. Describe the procedures used to erect and install structural steel members.

8. Describe the procedures used to level, plumb and align structural steel members.

9. Describe the procedures used to inspect erected structural steel to ensure conformity to standards.
   i. visual
   ii. mechanical

10. Describe the procedures used to repair and replace structural steel members and components.

11. Describe the procedures used to dismantle and remove structural steel members and components.

Practical Requirements:

1. Develop a work site plan.

2. Erect and secure structural steel members.

3. Plumb, align and secure steel structures.

4. Test and inspect steel structures.

5. Dismantle structural steel.

RK1270 Work Planning

Learning Outcomes:

- Demonstrate knowledge of the procedures used to plan and organize work tasks and handle work materials.

Duration: 30 Hours

Pre-Requisite(s): RK1110, RK1120, RK1200

Objectives and Content:

1. Identify sources of information relevant to work task planning.
   i. documentation
   ii. drawings
   iii. related professionals
   iv. clients

2. Describe the procedures used to plan work tasks.
   i. scheduling
   ii. material/equipment selection
   iii. weight calculation
   iv. bar place order/sequence

3. Describe the procedures used to organize and store tools, equipment, materials and supplies on-site.
   i. select location for material lay down
   ii. offload/unload and sort materials and supplies

Practical Requirements:

1. Set up and use site equipment.

RK1280 Pre-Stressed/Post-Tensioning Systems

Learning Outcomes:

- Demonstrate knowledge of pre-stressed/post-tensioning systems and their components.
- Demonstrate knowledge of the procedures used to place pre-stressed/post-tensioning systems.
- Demonstrate knowledge of the procedures used to stress post-tensioning systems.

Duration: 45 Hours

Pre-Requisite(s): RK1230

Objectives and Content:

1. Define terminology associated with pre-stressed/post-tensioning systems.
   i. pre-stressed
   ii. post-tensioning
   iii. pre-tensioning

2. Explain the purpose and effects of pre-stressed/post-tensioning on structures.

3. Identify types of pre-stressed/post-tensioning systems and describe their characteristics and applications.
   i. bonded
      - strand
      - wire
      - bar
   ii. unbonded
      - strand
      - wire
      - bar

4. Identify pre-stressed/post-tensioning materials, components and accessories and describe their characteristics and applications.
   i. tendons
   ii. bursting steel
   iii. anchoring devices
   iv. conduits
   v. supports
   vi. grout
   vii. connectors

5. Identify hazards and describe safe work practices pertaining to pre-stressing/post-tensioning.

6. Interpret codes and regulations pertaining to pre-stressing/post-tensioning.

7. Interpret information pertaining to pre-stressing/post-tensioning found on drawings and specifications.

8. Identify tools and equipment relating to pre-stressing/post-tensioning and describe their applications.
   i. layout tools and equipment
   ii. stressing equipment
      - single strand jacks
      - multi-strand jacks
      - pumps
      - gauges
   iii. grouting equipment
      - mixer
      - storage hopper
      - screen
      - pump
      - pressure gauges
      - hoses
   iv. prepping equipment
      - stapler
      - pocket formers
      - wedge seating tool
      - sheath
      - stripper
   v. finishing equipment
      - pocket shear
      - plasma cutter
      - oxy-fuel torch

9. Describe the procedures used to set-up, operate and dismantle pre-stressing/post-tensioning equipment.

10. Describe the procedures used to inspect, maintain and store pre-stressing/post-tensioning equipment.

11. Describe the procedures used to place pre-stressed/post-tensioning systems.
   i. layout profile
   ii. place tendons and accessories
   iii. install bursting steel and anchorage
   iv. connect tendons to anchors
   v. protect exposed tendons

12. Describe the procedures used to stress tendons.
    i. tension tendons
    ii. short tail tendon stressing
    iii. document elongation and gauge pressure
    iv. de-pressurize and remove equipment

13. Explain the de-stressing process and its associated requirements and hazards.
    i. requirements
        - engineered procedures and specifications
        - restricted work zone access
    ii. hazards
        - danger zones
        - structural failure
        - equipment failure

14. Describe procedures used to finish tendons.
    i. bonded
    ii. unbonded

15. Describe the procedures used to grout tendons in bonded systems.
    i. verifying post-tensioning duct system
    ii. batching and mixing grout
    iii. testing grout
    iv. injecting grout
    v. releasing trapped air
    vi. post-grouting inspection
    vii. sealing of grout inlets and outlets

Practical Requirements:

None.

RK1290 Reinforcing for Ironworkers

Learning Outcomes:

- Demonstrate knowledge of reinforcing materials and accessories.
- Demonstrate knowledge of the procedures to prepare for reinforcing concrete.

Duration: 60 Hours

Pre-Requisite(s): RK1230, RK1270

Objectives and Content:

1. Explain the purpose of reinforcing concrete.

2. Define terminology associated with reinforced concrete.

3. Explain the forces and stresses associated with reinforced concrete.
   i. compression
   ii. tension
   iii. shear
   iv. live and dead loads

4. Identify hazards and describe safe work practices pertaining to reinforcing.
   i. fall arrest and protection
   ii. dowel protection
   iii. work positioning (belly hook)
   iv. repetitive strain injuries
   v. proper packing/carrying techniques

5. Interpret codes and regulations pertaining to reinforcing.

6. Interpret information pertaining to reinforcing found on drawings and specifications.

7. Identify standards and identification systems relating to reinforcing steel.
   i. grades and diameters
   ii. mill standards
   iii. Concrete Reinforcing Steel Institute (CRSI)
   iv. colour codes and tags

Practical Requirements:

1. Tie reinforcing steel.

RK2190 Tower Cranes

Learning Outcomes:

- Demonstrate knowledge of tower cranes, their components and accessories.
- Demonstrate knowledge of the procedures used to erect, set-up and disassemble tower cranes.

Duration: 30 Hours

Pre-Requisite(s): RK1200

Objectives and Content:

1. Define terminology associated with tower cranes.

2. Identify and describe the procedures used to communicate during tower crane operations.
   - i. hand signals
   - ii. electronic communications
   - iii. audible/visual

3. Identify types of tower cranes and describe their characteristics and applications.
   - i. stationary
     - fixed
     - slewing
   - ii. mobile

4. Identify tower crane components, accessories and attachments and describe their characteristics and applications.

5. Identify the considerations for tower crane assembly/installation on-site.
   - i. site hazard assessment
     - overhead power lines
     - obstructions
   - ii. crane position
     - crane radius/swing area

6. Describe the procedures used to erect, set-up and climb/jump tower cranes.

7. Describe the procedures used to disassemble tower cranes, their components, accessories and attachments.

8. Describe the procedures used to prepare tower cranes for transport.

Practical Requirements:

None.

RK2231 Access Equipment

Learning Outcomes:

- Demonstrate knowledge of ladders, scaffolding and aerial work platforms, their applications, limitations and procedures for use.

Duration: 60 Hours

Pre-Requisite(s): RK1110

Objectives and Content:

1. Define terminology associated with ladders, scaffolding and aerial work platforms.

2. Identify hazards and describe safe work practices pertaining to ladders, scaffolding and aerial work platforms.

3. Identify codes and regulations pertaining to ladders, scaffolding and aerial work platforms.

4. Identify types of ladders, scaffolding and aerial work platforms and describe their characteristics and applications.

5. Identify types of work positioning, fall arrest and protection equipment and describe their applications and procedures for use.

6. Describe the procedures used to erect, secure and dismantle ladders and scaffolding.

7. Describe the procedures used to inspect and maintain ladders, scaffolding and aerial work platforms.

Practical Requirements:

1. Erect and dismantle a scaffold using tube and clamp for bracing.

2. View a demonstration of a power elevated working platform and its operation.

AM1000 Introduction to Essential Skills

Learning Outcomes:

- Demonstrate knowledge of the nine nationally recognized essential skills.
- Demonstrate knowledge of the essential skills levels of complexity.
- Demonstrate knowledge of the essential skills required for the learners chosen trade.
- Demonstrate an awareness of essential skills assessments.

Duration: 9 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify and describe the essential skills recognized by the Government of Canada through the Office of Literacy and Essential Skills (OLES).
   i. reading
   ii. document use
   iii. numeracy
   iv. writing
   v. oral communication
   vi. working with others
   vii. thinking
   viii. computer use
   ix. continuous learning

2. Describe the Levels of Complexity measurement assigned to essential skills.

3. Identify the essential skills, along with their complexity level, identified as necessary for the learner's trade.
   i. RSOS / NOA content[1]
   ii. OLES Essential Skills Profiles[2]
   iii. OLES tools and support for apprentices and tradespersons[3]

4. Describe the nature and purpose of essential skills assessment.
   i. self-assessment & formal assessment tools
   ii. indicators of deficiencies
   iii. suggestions for improvement

5. Describe the benefits of essential skills improvement.
   i. confidence at work
   ii. employability
   iii. success in apprenticeship

iv. wage & job advancement

Practical Requirements:

1. Complete an essential skills self-assessment addressing numeracy, document use and reading. The online **Government of Canada Essential Skills Indicator[4]** and **Essential Skills Self-Assessment for the Trades[5]** are to be used unless the instructor provides a similar assessment tool or tools.

2. Participate in a group discussion about the impact of gaps in essential skills that may be revealed by the self-assessments completed, and the value of improving essential skills.

Students are graded complete or incomplete on this practical work, no grade is permitted for self-assessment performance. However, completion of the practical requirements is mandatory for completion of this unit.

Resources:

All footnotes are in the companion document, Resources for Introduction to Essential Skills, which is available online from Apprenticeship and Trades Certification.

AM1101 Math Essentials

Note: It is recommended that AM1101 be delivered in the first semester of the Pre-employment program.

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: 42 Hours

Pre-Requisite(s): None

Objectives and Content:

Wherever possible, the instructor is expected to use trade specific examples to reinforce the course 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. use a protractor to measure angles
   ii. determine whether an angle is right, acute or obtuse
   iii. identify parallel, perpendicular, horizontal and vertical lines
   iv. 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.

AM1351 Ironworker Math Fundamentals

Learning Outcomes:

- Demonstrate knowledge of mathematical concepts in the performance of trade practices.
- Demonstrate knowledge of mathematics as a critical element of the trade environment.
- Solve mathematical word problems
- Demonstration knowledge of mathematical principles for the purposes of problem solving, job and materials estimation, measurement, calculation, system conversion, diagram interpretation and scale conversions, formulae calculations, and geometric applications.

Duration: 42 Hours

Pre-Requisite(s): AM1101

Objectives and Content:

The instructor is required to use trade specific examples to reinforce the course objectives.

1. Describe percent/decimal/fraction conversions and comparisons in trade specific situations.

2. Describe ratios and proportions as they relate to trade specific problems.

3. Describe the use of the Imperial and Metric measurement systems in trade specific applications.

4. Describe Imperial and Metric conversions in trade specific situations.
   i. convert between imperial and metric measurements
   ii. convert to another unit within the same measurement system

5. Describe how to manipulate formulas using cross multiplication, dividing throughout, elimination, and substitution to solve trade specific problems.
   i. right angle triangles
   ii. area
   iii. volume
   iv. perimeter
   v. density

6. Identify calculations involving geometry that are relevant to the trade.
   i. angle calculations

ii. circle calculations

7. Identify math processes used to complete administrative trade tasks.
   i. material estimation
   ii. material costing
   iii. time & labour estimates
   iv. taxes & surcharges
   v. markup & projecting revenue

Practical Requirements:

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

Note: This course is **non-transferable** to other trades programs, and **not eligible for prior learning assessment**. Students completing training in this trade program are required to complete this math course. Apprentice transfers under Provincial / Territorial Mobility agreements may be exempt from this requirement.

CM2161 Communication Essentials

Learning Outcomes:

- Demonstrate knowledge of the importance of well-developed writing and oral communication skills in the workplace.
- Demonstrate knowledge of the principles of effective workplace writing.
- Demonstrate knowledge of the purpose of various types of workplace documentation and workplace meetings.
- Demonstrate knowledge of the importance of effective interpersonal skills in the workplace.
- Demonstrate knowledge of effective job search techniques

Duration: 36 Hours

Pre-Requisite(s): None

Objectives and Content:

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

1. Define communications terminology used in the trade.

2. Identify the principles of effective workplace writing.
   i. grammar, punctuation, mechanics
   ii. sentence and paragraph construction
   iii. tone, language, and word choice
   iv. the writing process
      - planning
      - writing
      - editing/revising

3. Identify sources of information used to communicate in the workplace.
   i. regulations
   ii. codes
   iii. OH&S requirements
   iv. prints, drawings and specifications
   v. company and client documentation

4. Identify types and purposes of informal workplace documents.
   i. reports
      - incident
      - process
      - progress

ii. common trade specific forms
iii. primary and secondary methods of information gathering
iv. accuracy and completeness in reports and forms

5. Demonstrate an understanding of interpersonal communications in the workplace.
   i. recognize group dynamics
   ii. contribute information and expertise
   iii. individual learning styles
      - audible
      - visual
      - experiential
      - theoretical
   iv. recognize respectful and open communication
   v. accept and provide feedback
   vi. interpret non-verbal communication cues
      - body language
      - signals

6. Demonstrate an understanding of effective oral communication skills.
   i. listening
      - receiving, understanding, remembering, reflecting, evaluating, paraphrasing, and responding
   ii. speaking
      - using clear and proper words
      - tone, style, and vocabulary
      - brevity
   iii. common workplace oral communication situations
      - introducing self and others
      - telephone conversations
      - tool box/safety talks
      - face-to-face conversations
      - communicating with co-workers, supervisors, clients, and other trades people

7. Identify common practices related to workplace meetings.
   i. meeting formats
   ii. meeting preparation
   iii. agendas and minutes
   iv. roles, responsibilities, and etiquette of meeting participants

8. Identify acceptable workplace use of communication technologies
   i. cell / smart phone etiquette
   ii. voice mail
   iii. e-mail
   iv. texting / messaging through social media

v. teleconferencing / videoconferencing for meetings and interviews
vi. social networking
vii. other emerging technologies

9. Demonstrate an understanding of effective job search techniques
   i. employment trends, opportunities, and sources of employment
   ii. job ads and the importance of fitting qualifications to job requirements
   iii. resumes
      - characteristics of effective resumes
      - types of resumes
      - principles of resume formatting
   iv. effective cover letters
   v. job interview process
      - pre-interview preparation
      - interview conduct
      - post-interview follow up

Practical Requirements:

1. Write a well-developed, coherent, unified paragraph.

2. Complete a trade-related form.

3. Prepare an agenda for a toolbox safety talk.

4. Participate in a simulated oral workplace communication situation.

5. Prepare a resume.

SD1761 Workplace Essentials

Note: It is recommended that SD1761 be delivered in the second half of pre-employment training.

Learning Outcomes:

- Demonstrate a knowledge of workplace requirements in the areas of personal responsibility, unions, workers compensation, workers' rights, and human rights.
- Demonstrate a knowledge of quality customer service.

Duration: 24 Hours

Pre-Requisite(s): None

Objectives and Content:

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

1. Identify personal responsibilities and attitudes that contribute to on-the-job success.
   i. asking questions
   ii. working safely
   iii. accepting constructive feedback
   iv. time management & punctuality
   v. respect for authority
   vi. stewardship of materials, tools and properties

2. Define unions and identify their role in the workplace.
   i. purpose of unions
   ii. common union structure
   iii. unions in this trade

3. Demonstrate an understanding of the Worker's Compensation process.
   i. aims, objectives, and benefits of the Workplace Health, Safety and Compensation Commission
   ii. role of the workers advisor
   iii. internal review process

4. Demonstrate an understanding of worker's rights.
   i. labour standards
   ii. regulations, including:
      - hours of work & overtime
      - termination of employment

- minimum wages & allowable deductions
- statutory holidays, vacation time, and vacation pay

5. Demonstrate an understanding of human rights issues.
   i. awareness of the Human Rights Code and the role of the Human Rights Commission
   ii. categories of discrimination and strategies for prevention
      - direct
      - systemic
      - adverse effect
   iii. types of discrimination
      - race
      - ethnic origin
      - colour
      - religion
      - age
      - gender identify
      - sexual orientation
      - marital status
      - family status
      - disability
      - criminal conviction that has been pardoned
   iv. conduct that constitutes harassment and discrimination
      - objectionable conduct
      - comments or displays made either on a one-time or continuous basis that demeans, belittles, or causes personal humiliation or embarrassment to the recipient
   v. the value of diversity in the workplace
      - culture
      - gender identify
      - sexual orientation

6. Demonstrate an understanding of quality customer service.
   i. importance of quality service
   ii. barriers to quality service
      - physical and physiological
      - cultural
      - technological
   iii. customer needs & common methods for meeting them
   iv. characteristics & importance of a positive attitude
   v. interactions with challenging customers
   vi. addressing complaints and resolve conflict

Practical Requirements:

None

MC1062 Computer Essentials

Course Outcomes:

- Demonstrate knowledge of desktop/laptop and mobile computers and their operation.
- Demonstrate knowledge of word processing and spreadsheet software, internet browsers and their applications.
- Demonstrate knowledge of e-mail applications and procedures.
- Demonstrate an awareness of security issues related to computers.
- Demonstrate an awareness of online learning using computers.

Duration: 15 Hours

Pre-Requisite(s): None

Objectives and Content:

When possible, the instructor is expected to use trade specific examples to reinforce the course objectives.

1. Identify computer types used in the workplace, and the characteristics of each.
   i. desktop/laptop computers
   ii. tablets
   iii. smartphones

2. Identify common desktop and mobile operating systems.
   i. Windows
   ii. Mac OS
   iii. iOS
   iv. Android

3. Describe the use of Windows operating system software.
   i. start and end a program
   ii. use the help function
   iii. use the find function
   iv. maximize and minimize a window
   v. open and scroll through multiple windows
   vi. use the task bar
   vii. adjust desktop settings such as screen savers, screen resolution, and backgrounds
   viii. shut down a computer

4. Identify the skills necessary to perform file management commands.
   i. create folders

ii. copy files and folders
iii. move files and folders
iv. rename files and folders
v. delete files and folders

5. Describe the use of word processing software to create documents.
   i. enter & edit text
   ii. indent and tab text
   iii. change text attributes
      - bold
      - underline
      - font
   iv. change layout format
      - margins
      - alignment
      - line spacing
   v. spell check and proofread
   vi. save, close & reopen a document
   vii. print document

6. Describe the use of spreadsheet software to create documents.
   i. enter data in cells
   ii. format data in cells
   iii. create formulas to add, subtract, multiply and divide
   iv. save, close & reopen a spreadsheet
   v. print spreadsheet

7. Describe the use of the internet in the workplace.
   i. web browsers
   ii. search engines
   iii. security issues
   iv. personal responsibility for internet use at work

8. Describe the role of e-mail.
   i. e-mail etiquette
      - grammar and punctuation
      - privacy issues when sharing and forwarding e-mail
      - work appropriate content
      - awareness of employer policies
   ii. managing e-mail
      - using folders
      - deleting, forwarding, replying
   iii. adding attachments to e-mail
   iv. view e-mail attachments
   v. printing e-mail

9. Describe computer use for online learning.

i. online training
ii. level exams
iii. study guides
iv. practice exams

Practical requirements:

1. Create, save and print a document using word processing software.

2. Create, save and print a document using spreadsheet software.

3. Send and receive an e-mail with an attachment.

AP1102 Introduction to Apprenticeship

Learning Outcomes:

- Demonstrate knowledge of how to become a registered apprentice.
- Demonstrate knowledge of the steps to complete an apprenticeship program.
- Demonstrate knowledge of various stakeholders in the apprenticeship process.
- Demonstrate knowledge of the Red Seal Program.

Duration: 12 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Define terminology associated with apprenticeship.
   i. apprentice
   ii. registered apprentice
   iii. trade qualifier
   iv. journeyperson
   v. certified journeyperson
   vi. Certificate of Apprenticeship
   vii. Certificate of Qualification
   viii. dual certification
   ix. compulsory trades

2. Explain the roles and responsibilities of those involved in the apprenticeship system in Newfoundland and Labrador.
   i. registered apprentice
   ii. training institution
   iii. employer
   iv. journeyperson
   v. mentor
   vi. Department of Jobs, Immigration and Growth
      - Industrial Training section
      - Standards and Curriculum section
   vii. Provincial Trade Advisory Committees (PTAC)
   viii. Provincial Apprenticeship and Certification Board (PACB)

3. Describe the training components of an apprenticeship.
   i. in-school
      - pre-employment / Level 1
      - advanced levels
   ii. workplace experience

4. Explain the steps in the registered apprenticeship process.
   i. meet entrance requirements
      - education
      - employment
      - Recognition of Prior Learning (RPL) - if applicable
   ii. complete the registration process
      - application
      - required documents
   iii. complete the Memorandum of Understanding (MOU)
      - contract responsibilities
      - probation period
      - cancellation
   iv. maintain Record of Occupational Progress (Logbook)
      - sign off skills
      - record hours
      - update Apprenticeship Program Officer (APO) on progress
   v. class calls
      - hour requirements
      - EI eligibility
      - training schedule
   vi. level examinations - if applicable
   vii. progression schedule
      - apprenticeship level
      - wage rates
   viii. certification examinations
      - Provincial
      - Red Seal
        - written
        - practical - if applicable
   ix. certification
      - Certificate of Apprenticeship
      - Certificate of Qualification
      - Provincial journeyperson - Blue Seal
      - Interprovincial journeyperson - Red Seal endorsement (RSE)

5. Identify the Conditions Governing Apprenticeship.

6. Discuss cancellation of apprenticeship.
   i. failure to notify of address change
   ii. extended periods of unemployment
   iii. lack of contact with an APO for an extended period
   iv. failure to respond to class calls
   v. declining of multiple class calls

7. Explain the Red Seal program.
   i. designated Red Seal trades

ii. the Red Seal Occupational Standard (RSOS)
iii. relationship of RSOS to Red Seal examination
iv. national qualification recognition and mobility

8. Identify the current financial incentives available to apprentices.
   i. Federal
   ii. Provincial

9. Explain the Provincial / Territorial Apprentice Mobility Guidelines.
   i. temporary mobility
   ii. permanent mobility

10. Describe Atlantic and National Harmonization initiatives.

Practical Requirements:

1. Use the Provincial Apprenticeship and Trades Certification website at www.gov.nl.ca/atcd
   i. locate, download, and complete the Application for Apprenticeship and Memorandum of Understanding (MOU)
   ii. locate the address of the Industrial Training office closest to this campus
   iii. locate the training schedule and identify the start date of the next class call for this trade
   iv. locate and review the learning resources applicable to this trade
      - Study Guide
      - Exam Preparation Guide
      - Plan of Training

2. Use the Plan of Training applicable to this trade.
   i. locate the hours for the trade
      - total in-school
      - total required for certification
   ii. locate the number of levels
   iii. locate the courses in each level
   iv. locate the hours required for progression to a Level II apprentice and the wage percentage of that level

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 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 Section14.

5.0 Apprenticeship Progression Schedule, Wage Rates and Advanced Training Criteria

Progression Schedule

Ironworker (Generalist) - 5400 Hours			
Apprenticeship Level and Wages			
Level	Wage Rate	Requirements for Progression to Next Level	Next Level
1st	60 %	▪ Completion of Pre-employment training ▪ Registration as an apprentice ▪ Minimum 1800 hours of combined relevant work experience and training	2nd Year
2nd	75%	▪ Completion of Level 2 training ▪ Pass Level 2 exam ▪ Minimum 3600 hours of combined relevant work experience and training	3rd Year
3rd	90%	▪ 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

Wage Rates

- 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.

Level Exams

- 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 (Generalist) - 5400 Hours		
Class Calls (After Apprenticeship Registration)		
Call Level	Requirements for Class Call	Hours Awarded for In-School Training
Direct Entry Level 1	▪ Minimum of 1000 hours of relevant work experience ▪ Prior Learning Assessment (PLA) at designated college (if applicable)	300
Level 2	▪ Minimum of 3000 hours of relevant work experience and training	240
Level 3	▪ Minimum of 5200 hours of relevant work experience and training	240

Class calls at Minimum Hours

- 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 journeyperson supervisor who is located at the same worksite as the apprentice, and that the apprentice is able to communicate with the journeyperson 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 journeyperson.
- 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 journeyperson 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.

Department of Education and Early Childhood Development
Apprenticeship and Trades Certification Division

Newfoundland & Labrador