NL Curriculum Standard

Plan of Training

Ironworker (Generalist)

Government of Newfoundland and Labrador
Department of Immigration, Population Growth and Skills
Apprenticeship and Trades Certification Division

November 2016

PLAN OF TRAINING

Ironworker

NOVEMBER 2016

Newfoundland Labrador

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

Date: Nov 17, 2016

Preface

This curriculum standard is aligned with the 2015 National Occupational Analysis (NOA) for the Ironworker (Generalist) trade. It describes the curriculum content for the Ironworker (Generalist) 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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Document Status	Date Distributed	Mandatory Implementation Date	Comments
Final	November 2016	November 2016	Aligned with national harmonization sequencing
Final	2020		Updated formatting for accessibility

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NOA 2015 Tasks		2016 POT	
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		RK2243	Machinery and Equipment II
		RK2311	Ornamental Ironwork
		RK2272	Miscellaneous Ironwork

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.	**IPG No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
RK1101	IRW-100	Safety	12	None
RK1125	IRW-115	Blue Print Reading for Ironworkers	42	None
RK1152	IRW-125	Oxy-fuel Cutting	12	RK1101
RK1221	IRW-160	Plasma Arc Cutting	12	RK1101
RK1162	IRW-130	Introduction to Welding	24	RK1101
RK1231	IRW-140	Rigging for Ironworkers	42	RK1101
RK1295	IRS-205	Construction Cranes	42	RK1231
RK1251	IRW-150	Structural Components I	12	RK1101 RK1125
RK1261	IRS-215	1-Structural Steel Erection and Dismantling I	24	RK1101 RK1125
RK1281	IRR-230	Pre-Stressed/Post Tensioning Systems I	24	RK1231
RK1291	IRW-155	Reinforcing I	30	RK1231
RK2232	IRW-135	Access Equipment	24	None
Total			300	

REQUIRED WORK EXPERIENCE

Level 2				
Course No.	**IPG No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
RK2203	IRS-300	Electric Overhead Travelling Cranes	6	Level 1
RK2182	IRS-310	Pre-Cast Concrete Erection and Dismantling I	12	
RK2272	IRS-320	Miscellaneous Ironwork	48	
RK2321	IRR-225	Reinforcing II	42	
RK2340	IRW-110	Blueprint Reading 3 (Rebar)	30	
RK2390	IRW-150	Structural Components II	12	
RK2370	IRS-215	Structural Steel Erection and Dismantling II	54	
RK2253	IRS-305	Pre-Engineered Structures I	12	
RK2242	IRS-315	Machinery and Equipment I	12	
RK2350	IRR-230	Pre-Stressed/Post Tensioning Systems II	12	
Total			240	

REQUIRED WORK EXPERIENCE

Level 3				
Course No.	**IPG No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
RK2311	IRS-325	Ornamental Ironwork	24	Level 2
RK2300	IRS-200	Welding II	45	
RK2265	IRS-305	Pre-Engineered Structures II	15	
RK2291	-	Curtain Walls	30	
RK2243	IRS-315	Machinery and Equipment II	12	
RK2360	IRR-230	Pre-Stressed/Post Tensioning Systems III	24	
RK2380	IRS-215	Structural Steel Erection and Dismantling III	54	
RK2400	IRW-150	Structural Components III	12	
RK2410	IRS-310	Pre-Cast Concrete Erection and Dismantling II	24	
Total			240	

TOTAL COURSE CREDIT HOURS	780

Level 1

RK1101 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: 12 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.

RK1125 Blueprint Reading for Ironworkers

Learning Outcomes:

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

Duration: 42 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

5. Describe the component parts of steel structures.

6. Define the terminology related to the materials and processes used.

7. Identify basic structural materials and shapes.

8. Identify and interpret the symbols used on blueprints for steel structures.

9. Describe the procedures used to compile a materials take-off.

Practical Requirements:

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

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

3. Match fabricated structural steel for layout prior to erection.

4. Match anchor bolt layout.

5. Compile a materials take-off.

RK1152 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: 12 Hours

Pre-Requisite(s): RK1101

Objectives and Content:

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

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

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

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

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

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

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

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

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

Practical Requirements:

1. Set up and disassemble oxy-fuel 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: 12 Hours

Pre-Requisite(s): RK1101

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.

RK1162 Introduction to Welding

Learning Outcomes:

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

Duration: 24 Hours

Pre-Requisite(s): RK1101

Objectives and Content:

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

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

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

4. Identify the procedures for selection and setup of SMAW welding equipment and consumables.

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

6. Identify welding positions and describe their applications.

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

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

Practical Requirements:

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

2. Shut down SMAW welding equipment.

RK1231 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: 42 Hours

Pre-Requisite(s): RK1101

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. Perform temporary lashing of load.
9. Plan and execute a mock lift.

RK1295 Construction Cranes

Learning Outcomes:

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

Duration: 42 Hours

Pre-Requisite(s): RK1231

Objectives and Content:

1. Define terminology associated with hydraulic, conventional and tower cranes.

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

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

4. Identify the considerations for hydraulic, conventional and tower 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

5. Describe the procedures used to assemble and set-up hydraulic, conventional and tower cranes.

6. Describe the procedures used to disassemble hydraulic, conventional and tower cranes, their components, accessories and attachments.

7. Describe the procedures used to prepare hydraulic, conventional and tower cranes for transport.

Practical Requirements:

None.

RK1251 Structural Components I

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: 12 Hours

Pre-Requisite(s): RK1101, RK1125

Objectives and Content:

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

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

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

4. Identify types of structures and describe their characteristics.

Practical Requirements:

None.

RK1261 Structural Steel Erection and Dismantling I

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: 24 Hours

Pre-Requisite(s): RK1101, RK1125

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.

Practical Requirements:

1. Develop a work site plan.

RK1281 Pre-Stressed/Post-Tensioning Systems I

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.

Duration: 24 Hours

Pre-Requisite(s): RK1231

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

Practical Requirements:

None.

RK1291 Reinforcing I

Learning Outcomes:

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

Duration: 30 Hours

Pre-Requisite(s): RK1231

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

Practical Requirements:

None.

RK2232 Access Equipment

Learning Outcomes:

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

Duration: 24 Hours

Pre-Requisite(s): None

Objectives and Content:

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

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

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

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

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

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

Practical Requirements:

1. Operate a power elevated working platform.

Level 2

RK2203 Electric Overhead Travelling Cranes

Learning Outcomes:

- Demonstrate knowledge of electric overhead travelling (EOT) cranes, their components and accessories.
- Demonstrate knowledge of the procedures to assemble and install EOT cranes.

Duration: 6 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Define terminology associated with EOT cranes.

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

3. Identify hazards and describe safe work practices pertaining to EOT cranes and EOT crane operations.
   i. bus bar

4. Identify EOT crane components, accessories and attachments and describe their characteristics and applications.
   i. crane rails
   ii. end trucks
   iii. wheels
   iv. bridge girders
   v. hoist and trolleys
   vi. crane stop
   vii. load blocks
   viii. cab
   ix. bus bar

5. Identify types of EOT controls and describe their characteristics and applications.
   i. cab operated
   ii. remote operated
   iii. pendant

6. Describe the procedures used to assemble and install EOT cranes.

Practical Requirements:

None.

RK2390 Structural Components II

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: 12 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

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

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

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

4. Identify types of structures and describe their characteristics.

5. 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

6. 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

Practical Requirements:

None.

RK2350 Pre-Stressed/Post-Tensioning Systems II

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: 12 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. 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

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

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

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

5. 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

Practical Requirements:

None.

RK2182 Pre-Cast Concrete Erection and Dismantling I

Learning Outcomes:

- Demonstrate knowledge of pre-cast concrete members and their components.
- Demonstrate knowledge of the procedures used to erect pre-cast concrete.
- Demonstrate knowledge of the procedures to dismantle pre-cast concrete.

Duration: 12 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Define terminology associated with pre-cast concrete erection and dismantling.

2. Identify hazards and describe safe practices pertaining to pre-cast concrete erection and dismantling.

3. Interpret codes and regulations pertaining to pre-cast concrete erection and dismantling.

4. Interpret information pertaining to pre-cast concrete erection and dismantling found on drawings and specifications.

5. Identify tools and equipment relating to pre-cast concrete erection and dismantling and describe their applications and procedures for use.

Practical Requirements:

1. Develop a work site plan.

RK2272 Miscellaneous Ironwork

Learning Outcomes:

- Demonstrate knowledge of miscellaneous ironwork.
- Demonstrate knowledge of the procedures used to fabricate and install miscellaneous ironwork.

Duration: 48 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Define terminology associated with miscellaneous ironwork.

2. Identify hazards and describe safe work practices pertaining to miscellaneous ironwork.

3. Interpret codes and regulations pertaining to miscellaneous ironwork.

4. Interpret information pertaining to miscellaneous ironwork found on drawings and specifications.

5. Identify tools and equipment relating to miscellaneous ironwork and describe their applications and procedures for use.

6. Identify types of miscellaneous ironwork and describe their components, characteristics and applications.
   i. stairways
   ii. ladders and platforms
   iii. railings
   iv. catwalks
   v. fences

7. Describe the procedures used to fabricate miscellaneous ironwork.
   i. shop
   ii. field

8. Describe the procedures used to install miscellaneous ironwork.
   i. site preparation
   ii. material handling and movement

Practical Requirements:

1. Fabricate and install components.
   i. handrails
   ii. stairways
   iii. door frames
   iv. roof opening

RK2321 Reinforcing II

Learning Outcomes:

- Demonstrate knowledge of the procedures used to fabricate reinforcing material.
- Demonstrate knowledge of the procedures used to install reinforcing material.

Duration: 42 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Interpret standards relating to reinforcing materials fabrication and placing/installation.
   i. Concrete Reinforcing Steel Institute (CRSI)
   ii. American Concrete Institute (ACI)

2. Perform calculations relating to reinforcing concrete.
   i. lengths
   ii. cover
   iii. splices
   iv. weights
   v. quantities
   vi. bar spacing

3. Describe the procedures used to fabricate reinforcing materials.
   i. layout materials
   ii. cut, bend, tie and splice materials

4. Describe the procedures used to assemble reinforced members.

5. Describe the procedures used to install reinforcing materials.
   i. place materials
   ii. secure materials

6. Describe the procedures used to ensure reinforcing materials remain stable during pouring operations.

Practical Requirements:

1. Install, tie and splice rebar in structural components.

2. Cut and bend materials according to specifications.

RK2340 Blueprint Reading 3 - Rebar

Learning Outcomes:

- Demonstrate knowledge of rebar drawings and their use.

Duration: 30 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Define the terminology and symbols related to the materials and processes used with reinforcing steel.
2. List the component parts of reinforced concrete and identify their associated symbols and abbreviations.
3. Identify basic reinforced materials and shapes.
4. Describe the procedures used to compile a materials take-off for reinforcing steel.

Practical Requirements:

1. Compile a materials take-off.

RK2253 Pre-Engineered Structures I

Learning Outcomes:

- Demonstrate knowledge of pre-engineered structures and their components.

Duration: 12 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Define terminology associated with pre-engineered structures.

2. Identify hazards and describe safe work practices pertaining to pre-engineered structures.

3. Interpret codes and regulations pertaining to pre-engineered structures.

4. Interpret information pertaining to pre-engineered structures found on drawings and specifications.

5. Identify tools and equipment relating to pre-engineered structures and describe their applications and procedures for use.

6. Identify types of pre-engineered structures and describe their characteristics and applications.
   i. tapered beam
   ii. single-span rigid frame
   iii. multi-span rigid frame
   iv. single span and continuous trusses
   v. lean-to

Practical Requirements:

None.

RK2370 Structural Steel Erection and Dismantling II

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.

Duration: 54 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

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

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

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

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

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

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.

RK2252 Machinery and Equipment I

Learning Outcomes:

- Demonstrate knowledge of the procedures used to install and remove machinery and equipment.

Duration: 12 Hours

Pre-Requisite(s): Level 1

Objectives and Content:

1. Define terminology associated with machinery and equipment installation and removal.
2. Identify hazards and describe safe work practices pertaining to installation and removal of machinery and equipment.
3. Interpret codes and regulations pertaining to installation and removal of machinery and equipment.
4. Interpret information pertaining to installation and removal of machinery and equipment found on drawings and specifications.

Practical Requirements:

None.

Level 3

RK2310 Ornamental Ironwork

Learning Outcomes:

- Demonstrate knowledge of ornamental ironwork.
- Demonstrate knowledge of the procedures used to fabricate and install ornamental ironwork.

Duration: 24 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Define terminology associated with ornamental ironwork.

2. Identify hazards and describe safe work practices pertaining to ornamental ironwork.

3. Interpret codes and regulations pertaining to ornamental ironwork.

4. Interpret information pertaining to ornamental ironwork found on drawings and specifications.

5. Identify tools and equipment relating to ornamental ironwork and describe their applications and procedures for use.

6. Identify types of ornamental ironwork and describe their components, characteristics and applications.
   i. stairways
   ii. railings
   iii. curtain walls

7. Describe the procedures used to fabricate ornamental ironwork.
   i. shop
   ii. field

8. Describe the procedures used to install ornamental ironwork.
   i. site preparation
   ii. material handling and movement
   iii. layout
   iv. install and secure items

9. Describe the procedures used for finishing ornamental ironwork.
   i. grinding
   ii. painting
   iii. filling procedures
   iv. polishing

10. Describe the procedures used to repair ornamental ironwork.

11. Describe the procedures used to remove ornamental ironwork.

Practical Requirements:

None.

RK2300 Welding II

Learning Outcomes:

- Demonstrate knowledge of welding and gouging equipment and accessories.
- Demonstrate knowledge of welding processes and procedures.

Duration: 45 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Define terminology associated with welding and gouging.

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

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

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

5. Identify welding processes and describe their characteristics and applications.
   i. shielded metal arc welding (SMAW)
   ii. gas metal arc welding (GMAW)
   iii. gas tungsten arc welding (GTAW)
   iv. flux core arc welding (FCAW)
   v. stud welding
   vi. arc-spot welding (ASW)
   vii. submerged arc welding (SAW)

6. Identify welding equipment, consumables and accessories and describe their application.
   i. flux core arc welding (FCAW)
   ii. stud welding

7. Describe the procedures used to set-up and adjust welding equipment.
   i. flux core arc welding (FCAW)
   ii. stud welding

8. Describe the procedures used to inspect, maintain and store welding equipment.
   i. flux core arc welding (FCAW)
   ii. stud welding

9. Identify types of welds and joints performed using welding equipment.

10. Identify welding positions and describe their applications.

11. Describe the procedures used to weld using welding equipment.
   i. flux core arc welding (FCAW)
   ii. stud welding

12. Identify arc-air gouging equipment, consumables and accessories and describe their applications.

13. Describe the procedures used to gouge using arc-air gouging equipment.

Practical Requirements:

1. Set up equipment and perform a plate weld using the flux core arc welding (FCAW) process.

2. Set up equipment and perform arc air gouging.

3. Set up equipment and perform stud welding.

RK2360 Pre-Stressed/Post-Tensioning Systems III

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: 24 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

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

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

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

4. 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

5. 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

6. 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

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

8. 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.

RK2380 Structural Steel Erection and Dismantling III

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: 54 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

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

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

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

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

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

6. 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.

RK2265 Pre-Engineered Structures II

Learning Outcomes:

- Demonstrate knowledge of pre-engineered structures and their components.
- Demonstrate knowledge of the procedures used to erect pre-engineered structures.

Duration: 15 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to pre-engineered structures.

2. Identify types of pre-engineered structures and describe their characteristics and applications.
   i. tapered beam
   ii. single-span rigid frame
   iii. multi-span rigid frame
   iv. single span and continuous trusses
   v. lean-to

3. Identify pre-engineered structure components and describe their characteristics and applications.

4. Describe the procedures used to plan and prepare for erection of pre-engineered structures.

5. Describe the procedures used to erect pre-engineered structures and their components.

Practical Requirements:

None.

RK2410 Pre-Cast Concrete Erection and Dismantling II

Learning Outcomes:

- Demonstrate knowledge of pre-cast concrete members and their components.
- Demonstrate knowledge of the procedures used to erect pre-cast concrete.
- Demonstrate knowledge of the procedures to dismantle pre-cast concrete.

Duration: 24 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify hazards and describe safe practices pertaining to pre-cast concrete erection and dismantling.

2. Identify types of pre-cast concrete members and components and describe their characteristics and applications.
   - i. panels
     - horizontal
     - vertical
   - ii. beams
   - iii. joists
   - iv. columns
   - v. single tees
   - vi. twin tees

3. Describe the procedures used to prepare for the erection of pre-cast concrete members and components.
   - i. site preparation
   - ii. equipment set-up
   - iii. determine weight
   - iv. rigging procedures
   - v. material handling
   - vi. layout

4. Describe the procedures used for the erection of pre-cast concrete members and components.
   - i. attaching to support clips
   - ii. aligning, leveling and plumbing
   - iii. fastening
     - welding
     - bolting

iv. grouting

5. Describe the procedures used to finish pre-cast concrete.
   i. removing lugs
   ii. grinding
   iii. painting
   iv. packing
   v. caulking
   vi. installing gaskets
   vii. air sealing
   viii. grouting

6. Describe the procedures used to dismantle and remove pre-cast concrete members.

Practical Requirements:

None.

RK2291 Curtain Walls

Learning Outcomes:

- Demonstrate knowledge of the layout and installation of curtain and window walls.
- Demonstrate knowledge of the procedures used to glaze wall openings.

Duration: 30 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Describe assembly and erection procedures and sequence.
   i. determine lay-down and assembly area
   ii. interpret drawings
   iii. off-load materials
   iv. identify components
   v. select and set up equipment
   vi. select materials
   vii. rig loads
   viii. handle finished materials

2. Describe the procedures used to lay-out curtain walls and window walls.

3. Identify and interpret the information provided by drawings and prints.
   i. structural blueprint
   ii. detail drawings
   iii. plan sequence
   iv. architectural drawings

4. Describe the procedures used to verify location of embedment.

5. Describe the procedures used for installation.
   i. interlock section with standing sections
   ii. align and level assembled sections
   iii. apply back-beading to curtain wall
   iv. verify alignment and secure
   v. install flashing

6. Identify and interpret the information provided by the structural blueprint.

7. Describe lay-out procedures.

8. Describe the procedures used to drill holes.

9. Describe the procedures used to install support clips on structures.

10. Describe the procedures used to fasten wall sections.

11. Describe the procedures used to rig assembled sections.
    i. equipment
    ii. safety
    iii. signals
    iv. sequence

12. Describe the procedures used to install and secure glass and plastic.

13. Describe the procedures used to apply sealer or sealant around glass according to specifications.

Practical Requirements:

None.

RK2400 Structural Components III

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: 12 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

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

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

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

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

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

Practical Requirements:

None.

RK2243 Machinery and Equipment II

Learning Outcomes:

- Demonstrate knowledge of the procedures used to install and remove machinery and equipment.

Duration: 12 Hours

Pre-Requisite(s): Level 2

Objectives and Content:

1. Identify hazards and describe safe work practices pertaining to installation and removal of machinery and equipment.

2. Interpret information pertaining to installation and removal of machinery and equipment found on drawings and specifications.

3. Identify types of machinery and equipment installed and removed by ironworkers and describe their characteristics.
   i. storage tanks
   ii. bins
   iii. hoppers
   iv. conveyors

4. Describe the procedures used to install machinery and equipment.
   i. move/transport
   ii. assemble
   iii. erect
   iv. level
   v. align
   vi. support
   vii. secure

5. Describe the procedures used to remove machinery and equipment.

Practical Requirements:

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 inSection14.

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 Level 1 training ▪ Registration as an apprentice ▪ Pass Level 1 exam* ▪ 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 Immigration, Population Growth and Skills 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 Immigration, Skills and Labour.

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 interprovincial 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.