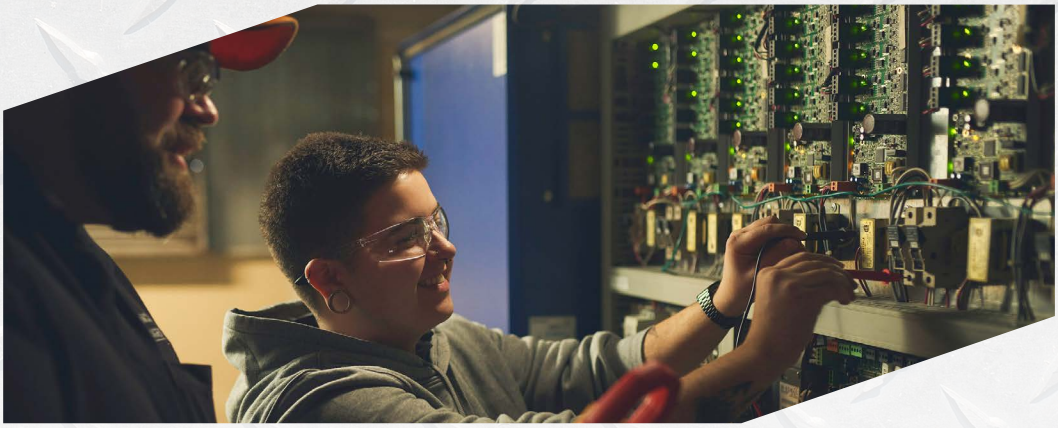
Curriculum Standard Plan of Training

Mobile Crane Operator

March 2022



Newfoundland & Labrador

PLAN OF TRAINING

Mobile Crane Operator

April 2022

Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Immigration, Population Growth and Skills
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 2022 edition of the Red Seal Occupational Standard (RSOS) for the Mobile Crane Operator trade. It describes the curriculum content for the Mobile Crane Operator apprenticeship 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.

Contact Information

Department of Education and Early Childhood Development
Apprenticeship and Trades Certification Division
Tel: 709-729-2729 / 1-877-771-3737
Email: app@gov.nl.ca
Web: www.gov.nl.ca/atcd

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A. RSOS Comparison Table

2022 RSOS Tasks		2022 Plan of Training	
Task 1 – Performs safety-related functions			
1.01	Maintains a safe work environment	MB1101	Mobile Crane Operation Safety
1.02	Uses personal protective equipment (PPE) and safety equipment.	MB1101	Mobile Crane Operation Safety
1.03	Uses documentation.	MB1130	Mobile Crane Operations
		MB1101	Mobile Crane Operation Safety
Task 2 –Organizes work.			
2.01	Communicates with others.	MB1130	Mobile Crane Operations
2.02	Uses mentoring techniques	MB1080	Mentoring
Task 3 – Determines load weights.			
3.01	Identifies the weight.	MB1130 MB1261	Mobile Crane Operations Rigging for Mobile Crane Operators
3.02	Calculates weight.		
Task 4 – Calculates crane capacity.			
4.01	Determines radius and crane configuration.	MB1130	Mobile Crane Operations
4.02	Interprets load charts.	MB1130	Mobile Crane Operations
		MB1261	Rigging for Mobile Crane Operators
Task 5 – Performs rigging calculations.			
5.01	Performs sling angle calculations.	MB1261	Rigging for Mobile Crane Operators
5.02	Performs working load limit (WLL) calculations.		
Task 6 – Performs pre-operational checks and regular inspections.			
6.01	Inspects engine systems.	MB1111 MB1130 MB1140 MB1150	Mobile Crane Maintenance Mobile Crane Operations Mobile Lattice Boom Cranes Mobile Hydraulic Boom Cranes
6.02	Inspects air systems.		
6.03	Inspects electrical systems.		
6.04	Inspects hydraulic systems.		
6.05	Inspects chassis/car body and running gear components.		
6.06	Inspects outriggers and counterweights.		
6.07	Inspects boom components and attachments.		
6.08	Inspects hoisting systems.		
Task 7 – Performs continual checks.			
7.01	Checks operating controls.	MB1101	Mobile Crane Operation Safety
7.02	Inspects monitoring and warning systems.	MB1101	Mobile Crane Operation Safety
7.03	Monitors running lines, hoist ropes and standing ropes.	MB1261	Rigging for Mobile Crane Operators

2022 RSOS Tasks		2022 Plan of Training	
7.04	Monitors gauges and warning systems.	MB1150	Mobile Hydraulic Boom Cranes
7.05	Monitors support base	MB1101	Mobile Crane Operation Safety
Task 8 – Performs minor crane maintenance.			
8.01	Changes oil and filter.	MB1111	Mobile Crane Maintenance
8.02	Greases crane.	MB1111	Mobile Crane Maintenance
8.03	Lubricates wire ropes.	MB1261	Rigging for Mobile Crane Operators
8.04	Makes minor adjustments and replacements.	MB1111	Mobile Crane Maintenance
		MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1150	Mobile Hydraulic Boom Cranes
Task 9 – Inspects and maintains slings and hardware.			
9.01	Lubricates slings and hardware.	MB1261	Rigging for Mobile Crane Operators
9.02	Identifies deficiencies in slings and hardware.		
9.03	Disposes of damaged slings and hardware.		
9.04	Stores slings and hardware.		
Task 10 –Follows rigging procedures.			
10.01	Selects required rigging.	MB1130	Mobile Crane Operations
		MB1261	Rigging for Mobile Crane Operators
10.02	Rigs loads.	MB1130	Mobile Crane Operations
		MB1261	Rigging for Mobile Crane Operators
10.03	Monitors rigging.	MB1261	Rigging for Mobile Crane Operators
Task 11 –Performs pre-lift planning.			
11.01	Participates in routine, engineered and specialty lift planning.	MB1130	Mobile Crane Operations
		MB1261	Rigging for Mobile Crane Operators
11.02	Evaluates risks and hazards.	MB1101	Mobile Crane Operation Safety
		MB1130	Mobile Crane Operations
Task 12 – Sets up crane.			
12.01	Performs final site inspection.	MB1101	Mobile Crane Operation Safety
		MB1130	Mobile Crane Operations
12.02	Positions crane.	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1150	Mobile Hydraulic Boom Cranes
12.03	Completes setup.	MB1140	Mobile Lattice Boom Cranes
		MB1150	Mobile Hydraulic Boom Cranes
Task 13 – Loads and unloads components for transport.			
13.01	Loads crane and components.	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1150	Mobile Hydraulic Boom Cranes
13.02	Unloads crane and components	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1150	Mobile Hydraulic Boom Cranes

2022 RSOS Tasks		2022 Plan of Training	
Task 14 – Drives crane on public roadways and job sites.			
14.01	Performs pre-trip planning.	MB1101	Mobile Crane Operation Safety
14.02	Prepares crane for transport.	MB1101	Mobile Crane Operation Safety
		MB1111	Mobile Crane Maintenance
14.03	Drives cranes.	MB1130	Mobile Crane Operations
Task 15 – Assembles and disassembles lattice boom cranes.			
15.01	Installs tracks on car body (lattice boom).	MB1140	Mobile Lattice Boom Cranes
15.02	Installs superstructure / upperworks (lattice boom).	MB1140	Mobile Lattice Boom Cranes
15.03	Installs outrigger boxes (lattice boom).	MB1140	Mobile Lattice Boom Cranes
		MB1150	Mobile Hydraulic Boom Cranes
15.04	Installs boom base (lattice boom).	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
15.05	Assembles main boom, tip and boom attachments (lattice boom).	MB1041	Shop fundamentals for Mobile Crane Operators
		MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
15.06	Installs counter weights (lattice boom).	MB1041	Shop fundamentals for Mobile Crane Operators
		MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
15.07	Installs hook blocks and overhaul ball (lattice boom).	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
15.08	Removes hook blocks and overhaul ball (lattice boom).	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
15.09	Disassembles main boom, tip and boom attachments (lattice boom).	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
15.10	Removes counter weights (lattice boom).	MB1041	Shop Fundamentals for Mobile Crane Operators
		MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
15.11	Removes boom base (lattice boom).	MB1041	Shop fundamentals for Mobile Crane Operators
		MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
15.12	Removes superstructure / upperworks (lattice boom).	MB1041	Shop fundamentals for Mobile Crane Operators
		MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes

2022 RSOS Tasks		2022 Plan of Training	
		MB1261	Rigging for Mobile Crane Operators
15.13	Removes tracks from car body (lattice boom).	MB1111	Mobile Crane Maintenance
15.14	Removes outrigger boxes (lattice boom).	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
Task 16 – Assembles and disassembles telescopic boom cranes.			
16.01	Installs outrigger boxes (telescopic boom).	MB1150	Mobile Hydraulic Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
16.02	Installs superstructure / upperworks (telescopic boom)	MB1130	Mobile Crane Operations
16.03	Installs main boom (telescopic boom).	MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
16.04	Installs hook blocks and overhaul ball (telescopic boom).	MB1041	Shop fundamentals for Mobile Crane Operators
		MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
16.05	Installs counterweights (telescopic boom).	MB1041	Shop Fundamentals for Mobile Crane Operators
		MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
16.06	Installs jibs and inserts (telescopic boom).	MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
16.07	Removes jibs and inserts (telescopic boom).	MB1041	Shop Fundamentals for Mobile Crane Operators
		MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
		MB1261	Rigging for Mobile Crane Operators
16.08	Removes counterweights (telescopic boom).	MB1130	Mobile Crane Operations
16.09	Removes hook blocks and overhaul ball (telescopic boom).	MB1130	Mobile Crane Operations
16.10	Removes main boom (telescopic boom).	MB1130	Mobile Crane Operations
		MB1261	Rigging for Mobile Crane Operators
16.11	Removes outrigger boxes (telescopic boom).	MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
16.12	Removes superstructure / upperworks (telescopic boom)	MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
Task 17 – Assembles and disassembles specialty equipment and attachments.			
17.01	Assembles specialty equipment and attachments.	MB1075	Specialty Crane Operations

2022 RSOS Tasks		2022 Plan of Training	
17.02	Disassembles specialty equipment and attachments.	MB1075	Specialty Crane Operations
Task 18 – Performs common craning operations.			
18.01	Configures electronic operational aids.	MB1111	Mobile Crane Maintenance
		MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1150	Mobile Hydraulic Boom Cranes
18.02	Mobilizes crane on jobsite.	MB1111	Mobile Crane Maintenance
		MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
		MB1150	Mobile Hydraulic Boom Cranes
Task 19 – Operates friction drive lattice boom cranes.			
19.01	Operates friction drive crawler-mounted lattice boom cranes.	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
19.02	Operates friction drive truck-mounted lattice boom cranes.	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
Task 20 – Operates hydraulic drive lattice boom cranes.			
20.01	Operates hydraulic drive crawler-mounted lattice boom cranes.	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
20.02	Operates hydraulic drive truck-mounted lattice boom cranes.	MB1130	Mobile Crane Operations
		MB1140	Mobile Lattice Boom Cranes
Task 21 – Telescopic boom cranes.			
21.01	Operates crawler-mounted telescopic cranes.	MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
21.02	Operates rubber tire-mounted telescopic cranes.	MB1130	Mobile Crane Operations
		MB1150	Mobile Hydraulic Boom Cranes
Task 22 – Specialty craning operations.			
22.01	Operates crane with pile driver.	MB1130 MB1075	Mobile Crane Operations Specialty Crane Operations
22.02	Performs duty cycle operations.		
22.03	Operates cranes on floating platforms.		
22.04	Performs multi-crane lifts.		
22.05	Uses personnel hoisting equipment.		
Task 23 – Crane (Secure).			
23.01	Secures crane for short term.	MB1130	Mobile Crane Operations
23.02	Secures crane for long term.	MB1130	Mobile Crane Operations

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 can be determined by the educational agency, as long as pre-requisite conditions are satisfied.

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

LEVEL 1			
Course No.	**Course Name**	**Hours**	**Pre-Requisite(s)**
MB1101	Mobile Crane Operation Safety	75	None
MB1041	Shop Fundamentals for Mobile Crane Operators	60	None
MB1130	Mobile Crane Operations	60	MB1101
MB1065	Crane Systems	6	None
MB1261	Rigging for Mobile Crane Operators	60	None
MB1140	Mobile Lattice Boom Cranes	60	MB1130
MB1150	Mobile Hydraulic Boom Cranes	60	None
MB1070	Mobile Crane Maintenance	45	None
AM1341	Hoisting Math Fundamentals	42	None[1]
MB1075	Speciality Crane Operations	6	MB1130 MB1140 MB1150
MB1080	Mentoring	4	None
Total Hours		478	

Notes:

1. A Direct Entry apprentice is not required to complete AM1101-Math Essentials.

2. All entrants must have a valid Class 5 License for a minimum of 6 months prior to the commencement of this training program**.**

3. Use of a simulator by an educational institution in place of actual seat time on a piece of equipment requires prior approval by the Department. Requests for simulator use will be reviewed by the Provincial Trade Advisory Committee (PTAC) to ensure it meets audio / visual / sensory feedback quality. The PTAC will review the simulator specifications and its application in delivering POT content to determine how many hours could be credited towards practical seat time for an individual piece of equipment. This may involve on-site evaluation by one or more members representing the PTAC.

   Use of simulators as a supplemental instruction tool, without hour credit, is unlimited and does not require approval by the Department or PTAC.

4. For instruction, the following maximum student/instructor ratios apply:

   In the yard, instruction and demonstration..... 8/1
   On the road, in the vehicle..... 3/1
   In the yard, in the vehicle..... 3/1

MB1101 Mobile Crane Operation Safety

Learning Outcomes:

- Demonstrate knowledge of various codes and regulations required for the safe operation of Mobile Cranes.
- Demonstrate knowledge of good safety practices in boom truck operations.
- Obtain the following certificates:
  - Professional Driver Improvement
  - Transportation of Dangerous Goods
  - Powerline Hazards
  - Traffic Control and Flagging

Duration: 75 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Personal Protective Equipment.
   i. identify the compulsory personnel protective equipment required for Boom Truck Operators and state its purpose
   ii. state the minimum or C.S.A. codes for compulsory safety gear
   iii. explain when safety items should be replaced

2. Warning signs, symbols and danger tags.
   i. locate and identify, using operator's manual or the actual machine, any warning tag or warning symbol
   ii. correctly match symbols to corresponding meanings
   iii. state the steps to follow when a warning tag or symbol is discovered or when an operator is required to attach a warning tag or symbol to a machine

3. Mount and dismount equipment.
   i. identify, from diagrams or from the actual machine, all safety grab-irons, handrails, steps, and foot-pegs used when mounting or dismounting equipment

4. Safe clearance in work areas.
   i. state the minimum safe operating clearance for the overhead, sides, forward and rearward clearance of obstacles
   ii. state the conditions for determining equipment operating clearances on the job

5. Dangerous operating situations.
   i. identify factors that lead to dangerous operating situations:
      - physiological (body)
      - psychological (mental)
      - mechanical failures
      - meteorological (weather)
      - terrestrial (land) conditions
   ii. identify operational malpractice and poor habits that lead to accidents

6. Enclosed areas.
   i. explain the safety procedures to use when running an engine in an enclosed area
   ii. identify the toxic fumes that are associated with engine exhaust gases
   iii. identify hoses and attachments needed to connect the engine exhaust pipe to a central ventilation system in a maintenance shop
   iv. identify devices used to control exhaust fumes from engines when working in an underground work site

7. Fire prevention.
   i. identify the components of the fire triangle
   ii. identify types of fire extinguishers and explain how they work

8. Environmental concerns and safe practices regarding work site.
   i. state the provincial regulations governing exhaust flame or spark arrestor while operating machinery in the forest
   ii. list overhead/underground services that may be found on federal, provincial, municipal, and private lands
   iii. identify the issues the operator should have knowledge of before actual set-up
   iv. state the importance of containing and reporting spills
   v. state the procedure for containment and reporting spills

Practical Requirements:

1. Clean and inspect safety gear.
2. Adjust and fasten fall arrest equipment (seat belts & safety harnesses).
3. Mount/dismount equipment.
4. Demonstrate the use of a fire extinguisher.

MB1041 Shop Fundamentals for Mobile Crane Operators

Learning Outcomes:

- Demonstrate knowledge of various shop tools and equipment and their applications.
- Demonstrate knowledge of safety regulations in the operation and maintenance of shop tools.
- Demonstrate knowledge of the use of shop tools in a safe and competent manner.
- Demonstrate knowledge of operating oxy-fuel heating and cutting equipment.

Duration: 60 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Shop Safety.
   - i. explain the importance of safe work habits
   - ii. identify the required personal safety equipment for boom truck operators
   - iii. explain the importance of implementing exhaust control procedures
   - iv. explain the effects of excessive noise on hearing
   - v. identify factors that contribute to spontaneous combustion
   - vi. identify potential hazards to personal safety
   - vii. identify unsafe work conditions
   - viii. explain the importance of reporting accidents

2. Fasteners.
   - i. identify fasteners such as rivets, nails, wood screws, sheet metal screws, bolts, nuts, washers, masonry anchors, and shields
   - i. describe specific sizes for each fastener
   - ii. identify sizes of fasteners
   - iii. identify bolt grades
   - iv. identify miscellaneous anchoring devices

3. Describe the procedures to select, safely use, and maintain hand tools.
   - i. screwdrivers
     - standard
     - phillips
     - robertson
     - 5-point star
   - ii. pliers
     - combination
     - gripping
     - cutting
     - vise-grips
     - snap ring
     - needle nose
   - iii. special hose clamp tools
   - iv. wrenches
     - open-end
     - box ends
     - ratcheting box ends
     - special purpose (box)
     - adjustable
     - pipe
     - spanner
     - Hex and multi-spline (metric and imperial)
   - v. sockets and drives (metric and imperial)
     - drive sizes
     - socket points
     - deep sockets
     - flexible sockets
     - drive handles
     - speed handles
     - ratchets
     - universal joints
     - adapters
     - extensions
   - vi. hammers
     - ball peen
     - cross peen
     - plastic tip
     - brass-headed
     - rubber mallets
     - dead blow
     - sledge hammers
     - hammer handles
   - vii. punches
     - starting

- pin
- centre
- aligning

viii. torque wrenches
- types
- sizes
- purpose

ix. torque multiplier wrenches

x. hacksaws wrenches
- types and designs
- blade classification and selection

xi. files wrenches

4. Describe the procedures to select, safely use and maintain power tools.
   i. portable wrenches
   ii. cleaning equipment wrenches
   iii. drilling equipment
   iv. metal cutting
   v. grinders

5. Identify types of compressors.

6. Describe the procedures to select, safely use, and maintain compressors.

7. Describe the procedures to select, safely use, and store shop equipment.
   i. jacks
   ii. shop cranes
   iii. chain hoists
   iv. steam cleaners
   v. solvent cleaning tanks

8. Describe the procedures to select, safely use, and maintain measuring tools.
   i. calipers
   ii. measuring tapes
   iii. wire rope gauges
   iv. sheave gauges
   v. anemometers
   vi. feeler gauges

9. Describe procedures to operate oxy-fuel heating and cutting equipment to industrial safety standards for the removal and/or installation of parts.
   i. follows safety precautions
      - safety apparel
      - storage and handling of welding gases
      - pre-operational inspection

ii. setting up equipment
- cylinders
- gauges
- regulators
- valves-flame arrestor
- torches and tips
- hoses
- testing for leaks

iii. operating the torch
- lighting procedures
- types of flames and effect on materials
- shutting down procedures

10. Describe procedures to perform braze welding using oxy-acetylene equipment.

11. Describe procedures to perform flame cutting with oxy-acetylene equipment.

Practical Requirements:

1. Use and maintain personnel protective equipment.

2. Complete a shop safety inspection.

3. Implement exhaust control procedures in a shop.

4. Use hand tools.

5. Use and maintain various cutting tools.

6. Use various fasteners.

7. Use power tools.

8. Use compressed air systems.

9. Use and store of shop equipment.

MB1130 Mobile Crane Operations

Learning Outcomes:

- Demonstrate knowledge of various codes and regulations required for operating cranes.
- Demonstrate knowledge of good safety practices when operating mobile cranes.
- Demonstrate knowledge of conservation and environmental issues related to crane operations.
- Demonstrate knowledge of new crane technology.
- Demonstrate knowledge of computer assisted safety devices, LMI/Load Indicators and procedures for use.

Duration: 60 Hours

Pre-Requisites: MB1101

Objectives and Content:

1. Describe the mobile crane operation occupation in terms of the work of a crane operator.
   i. the crane operator's working conditions
   ii. the responsibilities of the various parties involved with crane operation

2. Describe mobile cranes.
   i. identify types and uses of mobile cranes
   ii. describe various mobile crane attachments

3. State the characteristics of hydraulic boom and lattice boom cranes.

4. Explain the principles of leverage associated with crane operation.
   i. leverage and stability
   ii. forward and backward stability factors
   iii. rotation of upperworks (leverage and capacity)
   iv. leverage calculations

5. Describe the purpose and applications of signaling.
   i. identify all hand signals used in crane operations
   ii. identify other construction hand signals which may cause confusion for crane operation
   iii. interpret signals
   iv. identify audible signals for mobile cranes

6. Define quadrants of operation.
   i. define quadrants and sweep area
   ii. explain division of sweep area into quadrants

7. Interpret load charts for pre-lift planning and hoisting operations.
   i. describe configuration of crane bases and booms
   ii. describe quadrants of operation and their effects on load charts
   iii. describe boom lengths and their effects on load charts
   iv. describe effects on values of boom angle, boom length, and load radius for chart listings

8. Define jib and jib offset.
   i. fixed jibs
   ii. luffing jibs

9. State the differences between gross capacity versus net capacity load on a crane.
   i. identify the purpose of range diagrams
   ii. describe how to use range diagrams

10. Describe boom extension types and lengths.
   i. full power telescopic
   ii. pinned telescopic booms

11. State the factors that reduce capacity.
   i. effects of increased load radius
   ii. effects of rapid swing rate
   iii. effects of impact loading and rapid acceleration or deceleration of load
   iv. effects of high wind speeds
   v. duty cycle operations

12. Discuss safety considerations for short-term and long-term shutdowns.

13. Describe structural failure and stability failure.

14. Determine conditions of a load chart.
   i. calculate parts of line
   ii. calculate weight of line
   iii. weight of hook block

15. Determine main boom capacities.
   i. list capacity deductions
   ii. calculate net capacities

16. Describe the principles of crane operation.
    i. define leverage and stability
    ii. perform leverage calculations
    iii. describe changes in crane leverage and capacity during rotation of upperworks
    iv. describe forward and backward stability factors
    v. describe structural failure
    vi. describe wire rope safety factors for crane running and stationary ropes

17. Describe main boom gross capacity for:
    i. lattice boom
    ii. hydraulic boom
    iii. pinned telescopic boom
    iv. jibs and/or boom extension(s) installed for all crane types

18. Determine main boom capacities with jibs or boom extensions installed.
    i. determine the effective weight of jibs and boom extensions
    ii. list capacity deductions
    iii. calculate net capacities

19. Determine jib and boom extension capacities for lattice booms.
    i. determine effective weight of jib
    ii. list capacity deductions
    iii. calculate net jib capacities using each method

20. Determine jib and boom extension capacities for full telescopic booms.
    i. calculate boom extension capacities
    ii. calculate jib capacities
    iii. calculate boom extension and jib combination capacities

21. Determine jib and boom extension capacities for pinned telescopic booms.
    i. calculate boom extension capacities
    ii. calculate jib capacities
    iii. calculate boom extension and jib combination capacities

22. Describe inspection procedures for a crane carrier.

23. Describe the procedures for starting, moving, and proper shut down of a crane carrier.

24. Describe the procedures to transport and operate cranes.
    i. safety pre-cautions for preparing and travelling mobile cranes
    ii. identify municipal considerations for travelling cranes
    iii. define the operator's responsibility to prevent accidents, and the need for safety when travelling and operating mobile cranes

iv. identify manufacturer's recommendations or special precautions regarding travelling of cranes to and from job sites
v. determine the maximum allowable ground speed while travelling, corresponding to the cranes that are selected
vi. identify what warning sign(s) if any, must be attached to cranes while travelling to and from job sites
vii. determine clearances required for transporting and operating cranes

25. Describe conditions which prohibit crane operation.
    i. identify machine configurations that do not meet specifications
    ii. describe improper use of outriggers
    iii. state the importance of the crane being level and the potential danger of instability
    iv. describe crane leveling procedures
    v. describe ground conditions and blocking procedures
    vi. identify what weather and atmospheric conditions that can restrict crane operation
    vii. describe eccentric reeving

26. Plan for performing a lift.
    i. identify and evaluate work to be performed
    ii. describe considerations influencing lifting procedures
    iii. analyze factors influencing equipment selection
    iv. interpret an engineered lift
    v. plan a multiple crane lift

27. Identify and describe new model cranes.
    i. range of capacities available
    ii. range of boom lengths available
    iii. manufacturers
    iv. advantages/disadvantages

28. Describe the upper structure characteristics of new model cranes.
    i. boom technology
    ii. telescoping and pinning systems
    iii. heavy lift attachments

Practical Requirements:

1. Prepare and perform a multi-crane lift.
    i. receive and respond to signals in an actual crane operation

2. Inspect, start-up and shut down a crane carrier.

MB1065 Crane Systems

Learning Outcomes:

- Demonstrate knowledge of engines and drive systems, mechanical systems and hydraulic systems, their purpose and operation.
- Demonstrate knowledge of engines and drive systems, mechanical systems and hydraulic systems components, their characteristics and applications.
- Demonstrate knowledge of the procedures used to inspect, maintain and troubleshoot engines and drive systems, mechanical systems and hydraulic systems.

Duration: 6

Pre-Requisite(s): None

Objectives and Content:

1. Define terminology associated with engines and drive systems, mechanical systems and hydraulic systems.

2. Identify hazards and describe safe work practices pertaining to engines and drive systems, mechanical systems and hydraulic systems and their components.
   i. lockout/tagout
   ii. de-energize

3. Interpret codes, standards and regulations pertaining to engines and drive systems, mechanical systems and hydraulic systems.

4. Identify tools and equipment relating to engines and drive systems, mechanical systems and hydraulic systems and their components and describe their applications and procedures for use.

5. Identify types of engine and drive systems and describe their purpose and operation.
   i. gas
   ii. diesel
   iii. propane
   iv. automatic
   v. manual
   vi. hydraulic
   vii. mechanical
   viii. electrical

6. Identify types of mechanical systems and describe their purpose and operation.
   i. air
   ii. electrical
   iii. monitoring and warning
   iv. steering
   v. hoisting
      - hydraulic
      - friction
   vi. travel systems
   vii. outriggers
   viii. travel brakes

7. Identify types of hydraulic systems and describe their purpose and operation.
   i. closed centre
   ii. open centre

8. Identify hydraulic system components and describe their characteristics and applications.
   i. hoses
   ii. pumps
   iii. motors
   iv. filters
   v. tanks
   vi. cylinders
   vii. valves

9. Explain the power transfer principles of hydraulic systems.

10. Identify engines and drive systems, mechanical systems and hydraulic systems components and describe their characteristics and applications.

11. Describe the procedures used to troubleshoot engines and drive systems, mechanical systems and hydraulic systems and their components.

Practical Requirements:

None.

MB1261 Rigging for Mobile Crane Operators

Learning Outcomes:

- Demonstrate knowledge of the procedures to use safety harnesses.
- Demonstrate knowledge of the procedures to perform rigging operations.

Course Duration: 60 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Describe the responsibilities of riggers.

2. Identify and describe the composition of wire rope.
   i. wire
   ii. strand
   iii. core (fibre or wire or strand)

3. Interpret and describe rope lay.
   i. regular
   ii. lang
   iii. right and left
   iv. alternate
   v. herringbone or twin strand
   vi. specialty ropes

4. Identify specialty ropes and how/where they are used including limitations.

5. Describe and interpret sizes, grades and construction of all types of rigging and hoisting ropes.

6. Identify and compare preformed versus non-preformed types of ropes.

7. Identify and describe the fatigue and abrasion resistance of wire ropes.

8. Identify safety factors for:
   i. rigging slings (IWRC and anti-rotation)
   ii. running ropes
   iii. standing ropes
   iv. hoisting personnel

9. Calculate safe working loads.

10. Identify the classification group.

11. Identify and describe uses for non-rotation and rotating resistant ropes.

12. Describe proper installation procedures for all types of wire rope.

13. Explain the importance of lubricating and cleaning wire ropes.

14. Identify end fittings and connections and explain how they are installed.

15. Identify the minimum rope wraps on a drum that is to be maintained.

16. Identify grades of chain including.
    i. strength
    ii. inspection
    iii. care and use of

17. Describe reeving.

18. Determine the parts of line required for rigging.

19. Describe the effect of winch diameter.
    i. multi-layer (wire rope)
    ii. line speed versus torque

20. Compare the SWL of rope versus line pull.

21. Describe the effect of sheave friction during a lift.

22. Identify the mechanical advantage of reeving.

23. Describe wire block reeving methods.
    i. lacing
    ii. square or angle
    iii. skip

24. Identify and describe types and configurations for slings.
    i. wire rope
    ii. synthetic web
    iii. jacketed round synthetic
    iv. metal mesh
    v. chain
    vi. sling configurations
    vii. single vertical hitch

viii. bridle hitch
ix. single and double basket hitch
x. double wrap basket hitch
xi. single and double choker hitch
xii. double wrap choker hitch
xiii. endless slings or grommet
xiv. braided
xv. sling angles
xvi. safe working loads

25. Read and interpret manufacturer identification tags.

26. Describe rigging precautions when using synthetic and specialty slings.

27. Explain the importance of removing frayed, cut, damaged and worn equipment from service.

28. Describe rigging procedures and perform rigging calculations.

29. Determine load weights.

30. Determine the centre of gravity for various loads.

31. Determine tensions on sling legs.

32. Identify the hand signals used for hoisting operations.

Practical Requirements:

1. Plan rigging operations.

2. Calculate safe working loads and sling angles.

3. Calculate loads on equalizer beams.

4. Demonstrate proper signaling for hoisting procedures.

5. Demonstrate installation of multiple parts of line.
   i. lacing
   ii. reeving (square or angle/skip)

6. Demonstrate proper installation and procedures for all types of wire rope.

7. Inspect, use, handle and maintain wire rope.

i. lubrication
ii. cleaning

8. Install wire rope wedge socket end termination.

9. Demonstrate the use of:
   i. drums and winches
   ii. sheaves
   iii. hooks
   iv. rings, links and swivels
   v. shackles
   vi. eye bolts and lugs
   vii. turnbuckles
   viii. come-a-long and chain hoist
   ix. spreader and equalizer beams
   x. crane blocks
   xi. wire rope blocks
   xii. snatch block
   xiii. block and tackle
   xiv. wire rope clips

10. Assemble rigging in a safe and efficient manner.

11. Select appropriate rigging hardware for a given job.

12. Perform maintenance and properly store rigging.

13. Demonstrate proper rigging procedures and calculations.

14. Plan and demonstrate various rigging operations.

MB1140 Mobile Lattice Boom Cranes

Learning Outcomes:

- Demonstrate knowledge of various codes and regulations required for the operation of mobile lattice boom cranes.
- Demonstrate knowledge of good safety practices in mobile lattice boom crane operations.
- Demonstrate knowledge of conservation and environmental issues.

Course Duration: 60 Hours

Pre-Requisite(s): MB1130

Objectives and Content:

1. Identify major parts and components of a mobile lattice boom crane.
   i. frame components, gauges, controls, and systems
   ii. power train systems and components
   iii. wheels and tires
   iv. track frame and car body components
   v. travel systems and components
   vi. crane upper-works components
   vii. upper-works mounting and swing systems
   viii. upper-works power train

2. Describe the inspection procedures for crane upper-works.

3. Describe how to start up and shut-down crane upper works.

4. Describe the procedure to assemble a lattice boom crane.

5. Explain the pre-operational inspection required after crane assembly.

6. Crane set-up.
   i. interpret manufacturer's specifications
   ii. state the precautions to take when moving a crane with an erected boom to working position
   iii. identify typical environmental and conservation issues that should be considered when moving and setting up a crane

7. Hoisting operations.
   i. identify boom and jib configurations
   ii. describe reeving and lacing patterns for load blocks

iii. describe placement and hoisting procedures
iv. describe hoisting procedures for pick and carry

8. Crane maintenance.
   i. describe superstructure swing and travel systems maintenance procedures
   ii. describe hoist group clutch and brake maintenance

9. Describe the procedure used to dismantle a mobile lattice boom crane for transport.

10. Describe the procedure for assembling and disassembling equipment attachments.
    i. offset jibs
    ii. jib extensions

Practical Requirements:

1. Perform routine crane maintenance and adjustments on a lattice boom crawler crane.

2. Inspect, start, move, cycle and shut-down a crawler crane.

3. Inspect, start, cycle, shut-down a crane carrier.

4. Inspect, start and shut-down crane upper works.

5. Assemble and erect crane to working position.
   i. assemble a lattice boom crawler crane
   ii. perform pre-operational inspection after crane assembly

6. Assemble and disassemble specialty equipment and attachments.
   i. offset jobs
   ii. jib extensions

7. Maneuver and set up crane on site.
   i. move crane with an erected boom to working position
   ii. determine and note any potential damage to environment in set-up

8. Perform hoisting operations.

9. Dismantle and prepare a crane for transport.

MB1150 Mobile Hydraulic Boom Cranes

Learning Outcomes:

- Demonstrate knowledge of various codes and regulations required for operating hydraulic boom cranes.
- Demonstrate knowledge of the procedures for preparing a mobile hydraulic crane for transport.
- Demonstrate knowledge of conservation and environmental issues.
- Demonstrate knowledge of new crane technology.

Duration: 60 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify major parts and components of a mobile hydraulic crane.
   i. identify frame components, gauges, controls, and systems
   ii. identify power train systems and components
   iii. identify wheels and tires

2. Identify the steps required to inspect crane upper-works.

3. Describe the procedures for preparing a mobile hydraulic crane for transport.

4. Describe the procedure for start and shut-down crane upper-works.

5. Explain the importance of noting any potential damage to the environment prior to set-up and operation.

6. Describe the procedures to assemble a mobile hydraulic boom crane, boom inserts, and extensions.

7. Describe the pre-operational boom inspection after crane assembly.

8. Describe hoisting operations using a hydraulic boom crane.
   i. procedures for pick and carry
   ii. procedures and unique considerations when operating a boom-truck

9. Describe the procedures to disassemble a mobile hydraulic boom crane, boom inserts, and extensions.

Practical Requirements:

1. Assemble a hydraulic boom crane and perform a pre-operational inspection.

2. Start and shut-down crane upper works.

3. Perform hoisting operations using a hydraulic boom crane.

4. Dismantle a mobile hydraulic crane for transport.

MB1070 Mobile Crane Maintenance

Learning Outcomes:

- Demonstrate knowledge of various codes and regulations required for inspecting and maintaining mobile cranes.
- Demonstrate knowledge of good safety practices when maintaining mobile cranes.
- Demonstrate knowledge of conservation and environmental issues when maintaining mobile cranes.

Duration: 45 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Service manuals.
   - i. identify the various sections of service manuals
     - maintenance
     - servicing
     - lubrication procedures
   - ii. interpret information in the manual
   - iii. explain the importance of complying with service manuals

2. Ordering parts.
   - i. locate the machine serial number or Vehicle Identification Number (V.I.N.)
   - ii. locate the engine specifications plate and serial number
   - iii. complete a sample order form

3. Lubricants and their purposes.
   - i. locate the various components of the lubrication system and list the servicing period for each
   - ii. identify the various grades of oils to use under various temperature conditions
   - iii. identify correct greases
   - iv. identify the performance of grease under extreme load and heat
   - v. state the functions of engine oil
   - vi. identify the various additives used in engine oil and the advantages and disadvantages of each
   - vii. identify the characteristics of gear lubricants
   - viii. define the Engine Service Classification as presented by the American Petroleum Institute (A.P.I)

4. Crane log book.
   i. locate and state the purpose of the service meter

5. Identify start-up and shut down procedures as prescribed in the service manual.

6. Identify the various attachments available, the purpose and maintenance of each attachment.

7. Describe the maintenance and adjustments required for tracks, tires and wheels.

Practical Requirements:

1. Follow a maintenance procedure.

2. Assist in changing lubricating fuels and filters.
   i. select correct grease
   ii. load a grease gun
   iii. grease a piece of equipment
   iv. assist in changing engine oil and a filter on a piece of equipment
   v. assist in changing transmission fluid and filter on a piece of equipment
   vi. adhere to the regulations pertaining to storage and disposal fluids

3. Affix a warning sign where it can be easily recognized on a piece of equipment.

4. Refuel a machine.

AM1341 Hoisting 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): None[1]

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.

[1] A Direct Entry apprentice is not required to complete AM1101-Math Essentials.

MB1075 Specialty Crane Operations

Learning Outcomes:

- Demonstrate knowledge of specialty crane operations, their characteristics and applications.
- Demonstrate knowledge of the procedures used to perform specialty crane operations.
- Demonstrate knowledge of multi-crane lifts and their applications.
- Demonstrate knowledge of the procedures used for multi-crane lifts.

Duration: 6

Pre-Requisite(s): MB1130, MB1140, MB1150

Objectives and Content:

1. Define terminology associated with specialty crane operations.

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

3. Identify hazards and describe safe work practices pertaining to multi-crane lifts.
   i. communication plans
   ii. load sharing

4. Interpret codes, standards and regulations pertaining to specialty crane operations.

5. Identify tools and equipment relating to specialty crane operations and describe their applications and procedures for use.
   i. spreader bars

6. Interpret charts, drawings and specifications pertaining to specialty crane operations.
   i. manufacturers' specifications
   ii. lift plans
   iii. manufacturers' specifications
   iv. permits
   v. engineering drawings

7. Perform calculations to determine loading on crane during multi-crane lift.

8. Identify crane configurations used in multi-crane lifts and describe their applications.

9. Describe the procedures used to perform multi-crane lifting operations.

10. Identify specialty crane operations and describe their characteristics and applications.
    i. pile-driving and extraction
    ii. clamshell
    iii. dragline
    iv. wrecking ball
    v. barge operations
    vi. magnet
    vii. heavy lift attachments
    viii. tower attachment and luffing jib
    ix. personnel hoisting
    x. drilling attachment
    xi. multi-crane lifts

11. Describe the procedures used to attach equipment to cranes for specialty operations.

12. Describe the procedures used to perform specialty crane operations.

Practical Requirements:

None.

MB1080 Mentoring

Learning Outcomes:

- Demonstrate knowledge of strategies for learning skills in the workplace.

Duration: 4 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Describe the importance of individual experience.

2. Describe the shared responsibilities for workplace learning.

3. Identify one's own learning preferences and how they relate to learning new skills.

4. Recognize the importance of different types of skills in the workplace.

5. Identify and utilize different learning styles.
   i. seeing it
   ii. hearing it
   iii. trying it

6. Identify different roles played by a workplace mentor.

7. Explain the importance of receiving feedback.

Practical Requirements:

None

D. Conditions Governing Apprenticeship Training

1.0 General

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

2.0 Entrance Requirements

2.1 Entry into the occupation as an apprentice requires:

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

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

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

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

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

3.0 Probationary Period

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

4.0 Termination of a Memorandum of Understanding

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

5.0 Apprenticeship Progression Schedule, Wage Rates and Advanced Training Criteria

Progression Schedule

Mobile Crane Operator - 5400 Hours			
APPRENTICESHIP LEVEL AND WAGES			
Level	Wage Rate	Requirements for Progression to Next Level	Next Level
1st	60 %	▪ Completion of Level 1 training ▪ Pass Level 1 exam ▪ Minimum 1800 hours of combined relevant work experience and training	2nd Year
2nd	75%	▪ Minimum 3600 hours of combined relevant work experience and training	3rd Year
3rd	90%	▪ 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.

Mobile Crane Operator **-** 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 1800 hours of relevant work experience	474

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.

E. 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.

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

F. 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 block, 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