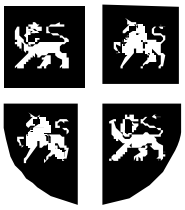

PROVINCIAL PLAN OF TRAINING

FOR THE

BOOM TRUCK OPERATOR

OCCUPATION

Document Status	Date Distributed	Mandatory Implementation Date	Comments
Original Version	September 2005		
Approved by PACB	**June 2006**	**June 2006**	

Preface

This Provincial Plan of Training describes the curriculum content for the Boom Truck Operator apprenticeship training program and outlines each of the courses necessary for completion of apprenticeship.

Acknowledgment

Advisory committees, industry representatives, instructors and apprenticeship staff provided valuable input into the development of this Provincial Plan of Training. Their dedication to quality apprenticeship will benefit institutional training for apprentices in this trade.

Apprenticeship Plan of Training Evaluation Form

Thank you for your interest in the development and revision of this Plan of Training. Upon review of this document, please record your feedback in relation to the following items:

- course division and organization
- relevancy of the content
- errors or omissions
- other suggestions for improvement and consideration

Overall comments are to be entered on this evaluation form and specific changes are to be entered directly on the document in the relevant area(s). When all feedback has been recorded, return this evaluation form along with the revised Plan of Training to the Apprenticeship Office noted at the bottom of the page.

(PLEASE PRINT)

Trade: Boom Truck Operator

Full Name: _____

Type of Position: (Trade Practitioner, Instructor, etc.): _____

Company: _____

Address: _____

Telephone: _____

Comments: (Use a separate sheet of paper if necessary)

_____

_____

_____

_____

_____

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_____

Return Evaluation Form and Plan of Training to:

Manager, Industrial Training
Division of Institutional and Industrial Education
Department of Education
P.O. Box 8700
St. John's, NL
A1B 4J6

Table of Contents

NOTE: Entrance Requirements- All entrants must have a valid Class 5 License for a minimum of 6 months prior to the commencement of this training program.

CONDITIONS GOVERNING APPRENTICESHIP TRAINING

1.0 GENERAL

The following general conditions will apply to all apprenticeship training programs approved by the Provincial Apprenticeship and Certification Board in accordance with the Apprenticeship Training and Certification Act. Where an occupation requires additional conditions, these will be noted in the specific plan of training for that occupation. In no case should there be a conflict between these conditions and the additional requirements specified in certain plans of training.

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 this 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 particular plans of training. Mature students, at the discretion of the Director of Institutional and Industrial Education, 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 Institutional and Industrial Education, credit towards the apprenticeship program may be awarded to an apprentice for previous work experience and/or training as validated through prior learning assessment.

2.4 A Registration for Apprenticeship form must be duly completed.

3.0 PROBATIONARY PERIOD

The probationary period for each memorandum of understanding will be six months. Within that period the memorandum may be terminated by either party upon giving the other party and the Provincial Apprenticeship and Certification Board one week notice in writing.

4.0 TERMINATION OF A MEMORANDUM OF UNDERSTANDING

After the probationary period referred to in Section 3.0 herein, the memorandum of understanding may be terminated by the Board by mutual consent of the parties thereto or cancelled by the Board for proper and sufficient cause in the opinion of the Board.

5.0 APPRENTICESHIP PROGRESSION SCHEDULE AND WAGE RATES

5.1 Progression Schedule

7200 Hour Programs	**Requirements for Progression**	**Progress To**
First Year Apprentice	Completion of entry level (Block 1) courses, plus relevant work experience totaling a minimum of 1800 hours *	Second Year
Second Year Apprentice	Completion of advanced level (Block 2) courses, plus relevant work experience totaling a minimum of 3600 hours	Third Year
Third Year Apprentice	Completion of advanced level (Block 3) courses, plus relevant work experience totaling a minimum of 5400 hours	Fourth Year
Fourth Year Apprentice	Completion of advanced level (Block 4) courses and (Block 5) *if applicable,* plus sign-off of workplace skills required for certification totaling a minimum of 7200 hours**	Write Certification Examination

5400 Hour Programs	**Requirements for Progression**	**Progress To**
First Year Apprentice	Completion of entry level (Block 1) courses, plus relevant work experience totaling a minimum of 1800 hours *	Second Year
Second Year Apprentice	Completion of advanced level (Block 2) courses, plus relevant work experience totaling a minimum of 3600 hours	Third Year
Third Year Apprentice	Completion of advanced level (Block 3) courses, plus sign-off of workplace skills required for certification totaling a minimum of 5400 hours	Write Certification Examination
4800 Hour Programs	**Requirements for Progression**	**Progress To**
First Year Apprentice	Completion of entry level courses (Block 1) courses, plus relevant work experience totaling a minimum of 1600 hours *	Second Year
Second Year Apprentice	Completion of advanced level (Block 2) courses, plus relevant work experience totaling a minimum of 3200 hours	Third Year
Third Year Apprentice	Completion of advanced level (Block 3) courses, plus sign-off of workplace skills required for certification totaling a minimum of 4800 hours	Write Certification Examination

* All direct entry apprentices must meet the **Requirements for Progression** either through Prior Learning Assessment and Recognition or course completion before advancing to the next year.

** Apprentices in a 7200 hour program which incorporates more than four blocks of training are considered fourth year apprentices pending completion of 100% course credits and workplace skills requirements.

5.2 For the duration of each Apprenticeship Training Period, the apprentice, who is not covered by a collective agreement, shall be paid a progressively increased schedule of wages which shall not be less than:

Program Duration	Wage Rates		Comments
7200 Hours	1st Year	55%	These wage rates are percentages of the prevailing journeyperson's wage rate in the place of employment of the apprentice. No apprentice shall be paid less than the wage rate established by the Labour Standards Act (1988), as now in force or as hereafter amended, or by other Order, as amended from time to time replacing the first mentioned Order.
	2nd Year	65%	
	3rd Year	75%	
	4th Year	90%	
5400 Hours and 4800 Hours	1st Year	55%	
	2nd Year	70%	
	3rd Year	85%	
4000 Hours			(Hairstylist Program) - The apprentice shall be paid no less than the minimum wage for hours worked and a commission agreed upon between the apprentice and the employer.

6.0 TOOLS

Apprentices shall be required to obtain hand tools as and when specified by the Board.

7.0 PERIODIC EXAMINATIONS AND EVALUATION

7.1 Every apprentice shall submit to such occupational tests and examinations as the Board shall direct. If after such occupational tests and examinations the apprentice is found to be making unsatisfactory progress, his/her rate of wage shall not be advanced as provided in Section 5 until his/her progress is satisfactory to the Director of Institutional and Industrial Education 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 Board 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. At the discretion of the instructor, the summative mark may be for completion of a theory examination or a combination of the theory examination and an assigned practical project.

8.0 GRANTING OF CERTIFICATES OF APPRENTICESHIP

Upon the successful completion of apprenticeship, the Board 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 Institutional and Industrial Education shall provide copies of the Registration for Apprenticeship form to all signatories to the document.

11.0 RATIO OF APPRENTICES TO JOURNEYPERSONS

The ratio of Apprentices to Journeypersons normally shall not exceed one apprentice to every one journeyperson employed. Exceptions for specific occupations may occur with the approval of the Provincial Apprenticeship and Certification Board.

12.0 RELATIONSHIP OF THE PLAN OF TRAINING TO A COLLECTIVE BARGAINING AGREEMENT

Collective agreements take precedence over the conditions outlined in the plan of training.

13.0 AMENDMENTS TO A PLAN OF APPRENTICESHIP TRAINING

A plan of training may be amended at any time by the Provincial Apprenticeship and Certification Board.

14.0 EMPLOYMENT, RE-EMPLOYMENT AND TRAINING REQUIREMENTS

14.1 The plan of training requires Apprentices to attend regularly their place of employment.

14.2 The plan of training requires Apprentices to regularly attend training programs for that occupation as prescribed by The Provincial Apprenticeship and Certification Board.

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 M.O.U.'s reinstated by the Provincial Apprenticeship and Certification Board 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 registering as a Trade Qualifier.

14.5 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 opportunity to be re-employed before another is hired.

14.6 The employer will permit each apprentice to attend regularly training programs as prescribed by the Provincial Apprenticeship and Certification Board.

14.7 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 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 within 30 days of the decision.

REQUIREMENTS FOR PROVINCIAL CERTIFICATION

1. Evidence that the required work experiences outlined in this plan of training have been obtained. This evidence must be in a format that clearly outlines 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 program.

3. A combination of training from an approved training program and suitable work experience totalling 2400 hours

   OR

   A total of 4000 hours of suitable work experience in the occupation accompanied by sign-off of required work competencies.

4. Completion of a Provincial Journeyperson examination, to be set at a place and time determined by the Industrial Training Division.

5. Payment of the appropriate examination fee.

NOTE: The tonnage limitation for equipment to classified as Boom truck is 15 tons. Machines with lifting capacities beyond 15 tons are, for the purposes of training and certification, deemed to be Mobile Cranes.

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 captures, in a broad sense, these roles and the responsibilities that result from them.

The Apprentice

- to complete all required technical training courses as approved by the Provincial Apprenticeship and Certification Board.
- to find appropriate employment.
- to complete all required work experiences in combination with the required hours.
- to ensure that the work experiences are well documented.
- to approach apprenticeship training with an attitude and commitment that fosters the qualities necessary for a successful career as a qualified journeyperson.
- to obtain the required hand tools as specified by the Board for each period of training of the apprenticeship program.

The Employer

- to provide high quality work experiences in an environment that is conducive to learning.
- to remunerate apprentices as set out in this Plan of Training or Collective Agreements.
- to provide feedback to Training Institutions, Industrial Training Division and Apprentices in an effort to establish a process of continuous quality improvement.
- where appropriate, to release apprentices for the purpose of returning to a training institution to complete the necessary technical courses.
- to ensure that work experiences of the apprentices are documented.

The Training Institution

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

The Industrial Training Division

- to establish and maintain program advisory committees under the direction of the Provincial Apprenticeship and Certification Board.
- to promote apprenticeship training as a viable career option to prospective apprentices and other appropriate persons involved, such as career guidance counsellors, teachers, parents, etc.
- to establish and maintain a protocol with training institutions, employers and other appropriate stakeholders to ensure the quality of apprenticeship training programs.
- to ensure that all apprentices are appropriately registered and records are maintained as required.
- to schedule all necessary technical training periods for apprentices to complete requirements for certification.
- to administer provincial/interprovincial examinations.

The Provincial Apprenticeship and Certification Board

- to set policies to ensure that the provisions of the Apprenticeship Training and Certification Act are implemented.
- to ensure that advisory and examination committees are established and maintained.
- to accredit institutions to deliver apprenticeship training programs.
- to designate occupations for apprenticeship training and/or certification.

Program Outcomes

Upon completion of the Boom Truck Operator Apprenticeship Program, apprentices will have the knowledge and skills as identified:

Task 1	Follows laws and safety regulations
Task 2	Applies first aid
Task 3	Utilizes protective equipment
Task 4	Assesses site hazards
Task 5	Operates equipment safely
Task 6	Operates fire fighting equipment of hoisting equipment
Task 7	Secures boom trucks
Task 8	Communicates with others
Task 9	Completes written communication
Task 10	Performs pre-operational checks
Task 11	Performs continual checks
Task 12	Performs regular interval inspections
Task 13	Performs minor repairs
Task 14	Inspects and maintains wire rope
Task 15	Inspects and maintains slings
Task 16	Inspects and maintains hardware
Task 17	Follows safe rigging procedures
Task 18	Determines load weights
Task 19	Determines rigging requirements
Task 20	Participates in engineered and specialty lift planning
Task 21	Prepares the site
Task 22	Positions the boom truck
Task 23	Sets up boom truck
Task 24	Confirms lift procedures with site personnel
Task 25	Relocates boom truck on site
Task 26	Prepares boom truck for transport

Task 27 Drives boom truck on public and private roadways

Task 28 Performs basic boom truck operations

Task 29 Performs specialty boom truck operations

Program Content

Course No.	Course Name	Hours	Prerequisites	Page No.
TS-1510	Occupational Health & Safety	6		13
TS-1520	WHMIS	6		16
TS-1530	First Aid	14		19
MB-1040	Shop Fundamentals for Boom truck Operators	70		20
MB-1100	Boom truck Operation Safety	65		23
MB-1110	Boom truck Maintenance	55		25
MB-1130	Boom truck Operations	60	MB-1100, MB-1200, MB-1110, MB-1230	28
MB-1200	Hydraulics & Applications to Boom Truck Controls	15	MB-1040	37
MB-1230	Class 3 Driver's Licence for Boom Truck Operators	96	MB-1040	40
MB-1260	Rigging for Boom Truck Operators	30		48
CM-2150	Workplace Communications	45		55
MR-1220	Customer Service	30		57
SP-2330	Quality Assurance/Quality Control	30		59
MC-1050	Introduction to Computers	30		61
SD-1700	Workplace Skills	30		65
SD-1710	Job Search Techniques	15	MC 1050	67
SD-1720	Entrepreneurial Awareness	15		69
Total Hours		**747**		

TS-1510 OCCUPATIONAL HEALTH AND SAFETY

Description:

This course is designed to give participants the knowledge and skills necessary to interpret the Occupational Health and Safety Act, laws and regulations; understand the designated responsibilities within the laws and regulations; the right to refuse dangerous work; and the importance of reporting accidents.

Course Outcomes:

Upon successful completion of this unit, the apprentice will be able to:
– prevent accidents and illnesses
– improve health and safety conditions in the workplace

Theory:

1. Interpret the Occupational Health and Safety Act laws and regulations
   i) Explain the scope of the act
      – Application of the act
      – Federal/Provincial jurisdictions
      – Canada Labour Code
      – Rules and regulations
      – Private home application
      – Conformity of the Crown by the Act

2. Explain responsibilities under the Act & Regulations

   i) Duties of employer, owner, contractors, sub-contractors, employees, and suppliers

3. Explain the purpose of joint health and safety committees

   i) Formation of committee
   ii) Functions of committee
   iii) Legislated rights
   iv) Health and safety representation
   v) Reporting endangerment to health
   vi) Appropriate remedial action
   vii) Investigation of endangerment
   viii) Committee recommendation
   ix) Employer's responsibility in taking remedial action

4. Examine right to refuse dangerous work

   i) Reasonable grounds for refusal
   ii) Reporting endangerment to health
   iii) Appropriate remedial action
   iv) Investigation of endangerment
   v) Committee recommendation
   vi) Employer's responsibility to take appropriate remedial action
   vii) Action taken when employee does not have reasonable grounds for
   viii) Refusing dangerous work
   ix) Employee's rights
   x) Assigning another employee to perform duties
   xi) Temporary reassignment of employee to perform other duties
   xii) Collective agreement influences
   xiii) Wages and benefits

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

6. Describe discriminatory action

   i) Definition
   ii) Filing a complaint procedure
   iii) Allocated period of time a complaint can be filed with the Commission
   iv) Duties of an arbitrator under the Industrial Relations Act
   v) Order in writing inclusion
   vi) Report to commission Allocated period of time to request Arbitrator to deal
   vii) With the matter of the request
   viii) Notice of application
   ix) Failure to comply with the terms of an order
   x) Order filed in the court

7. Explain duties of commission officers

   i) Powers and duties of officers
   ii) Procedure for examinations and inspections
   iii) Orders given by officers orally or in writing
   vi) Specifications of an order given by an officer to owner of the place of employment, employer, contractor, sub-contractor, employee, or supplier
   v) Service of an order
   vi) Prohibition of persons towards an officer in the exercise of his/her power or duties
   vii) Rescinding of an order
   viii) Posting a copy of the order
   ix) Illegal removal of an order

8. Interpret appeals of others

   i) Allocated period of time for appeal of an order
   ii) Person who may appeal order
   iii) Action taken by Commission when person involved does not comply with the order
   iv) Enforcement of the order
   v) Notice of application
   vi) Rules of court

9. Explain the process for reporting of accidents

   i) Application of act
   ii) Report procedure
   iii) Reporting notification of injury
   iv) Reporting accidental explosion or exposure
   v) Posting of act and regulations

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

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

2. Conduct a safety inspection of shop area.

TS-1520 WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

Description:

This course is designed to give participants the knowledge and skills necessary to define WHMIS, examine hazard identification and ingredient disclosure, explain labeling and other forms of warning, and introduce material safety data sheets (MSDS).

Course Outcomes:

Upon successful completion of this course, the apprentice will be able to:

– interpret and apply the Workplace Hazardous Materials Information System (WHMIS) Regulation under the Occupational Health & Safety Act.

Required Knowledge and Skills:

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

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

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

v) Comparison of classification systems - WHMIS and TDG
vi) General comparison of classification categories
vii) Detailed comparison of classified criteria

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

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

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

1. Locate WHMIS label and interpret the information displayed.

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

Suggested Resources:

1. WHMIS Regulation
2. Sample MSDS sheets

TS-1530 FIRST AID

Description:

This course is designed to give the apprentice the ability to recognize situations requiring emergency action and to make appropriate decisions concerning first aid.

Complete a **St. John Ambulance** Standard First Aid Certificate course.

MB-1040 SHOP FUNDAMENTALS FOR BOOM TRUCK OPERATORS

Course Outcomes:

Upon completion of this course the student will be able to:
– identify various shop tools and equipment and their applications.
– identify and apply safety regulations in the operation and maintenance of shop tools.
– to use shop tools in a safe and competent manner.

Course Objectives & 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 implement 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. Cutting tools
   i) identify, maintain and use punches, chisels, files and saws
   ii) explain the sharpening technique for sharpening chisels, drills and drill bits
   iii) describe how to maintain and store cutting tools
   vi) describe the method used to cut bolts.

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

4. Power tools
   i) describe the procedure to operate various portable power tools
   ii) explain the procedure for operating power cleaning equipment

5. Drills
   i) describe the procedure to operate power drilling equipment: hammer and

portable drill
ii) identify cutting fluids and explain how they are selected
iii) explain the procedure to drill and ream holes
iv) explain how to maintain drilling equipment

6. Cutting metals and wood (power)

i) describe the procedure to operate power saws, power chain saws, powered friction cut-off equipment and shears
ii) explain how to maintain metal cutting power tools
iii) identify various abrasives and explain their uses.

7. Grinders
i) describe portable and stationary grinders and explain their use
ii) identify grinding wheels
iii) identify grinding discs
iv) identify grinder dressers
v) identify rotary wire brushes and their uses.

8. Grinding procedures
i) explain how to Install grinding wheel disc and brush
ii) explain how to adjust tool rest
iii) identify procedure for dressing a grinding wheel.
iv) describe the procedure to operate stationary and portable grinders
v) explain how to maintain grinding equipment

9. Compressed air systems
i) identify types of compressors
ii) describe the procedure for using and maintaining compressors
iii) identify components of air controller
iv) describe the procedures to operate and maintain air controller
v) describe the procedures to operate and maintain pneumatic hoses

10. Shop equipment
i) identify the following equipment, their use and how they are maintained: jacks, shop cranes, chain hoists, steam cleaners, and solvent cleaning tanks

11. Hand tools
i) identify the following hand tools, their use and how they are maintained: pliers, screwdrivers, wrenches, clamps, vices, levels and measuring devices.

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

1. Use and maintain personnel protective equipment.

2. Complete a shop safety inspection

3. Implement exhaust control procedures in a shop

4. Use and maintain various cutting tools: punches, chisels, files and saws to cut metals and woods.

5. Use various fasteners : rivets, nails, screws bolts, nuts, washers, masonry anchors and shields.

6. Demonstrate the use and maintenance of power saws, chain saws, powered cutting equipment, friction cut-off equipment and powered shears.

7. Demonstrate the use of grinders.

8. Demonstrate use and maintenance of compressed air systems.

9. Demonstrate the use and maintenance of shop equipment: jacks, shop cranes, chain hoists, steam cleaners and solvent tanks.

10. Demonstrate the use of the following hand tools: pliers, screwdrivers, wrenches, clamps, vices, levels, and measuring tools.

11. Demonstrate the use of power drills.

12. Demonstrate the ability to clean vehicles using water pressure and a steam jenny.

MB-1100 BOOM TRUCK OPERATION SAFETY

Course Outcomes:

Upon completion of this course the student will be able to:

- demonstrate the skills and knowledge required for the safe operation of boom trucks with respect to various codes and regulations
- practice safety in Boom Truck operations
- obtain the following certificates:

Professional Driver's Improvement Course
Transportation of Dangerous Goods
Powerline Hazards Course
Air Brake Endorsement
Flagpersons certificate

Course Objectives & Content:

1. Personnel Protective Equipment
   i) identify the compulsory personnel protective equipment required for Boom Truck operators and state their purpose.
   ii) state the minimum or C.S.A. codes for compulsory safety gear.
   iii) explain when the 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 at least 2 steps to follow if you either discover a warning tag or symbol, or are 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 which should be considered in 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) and 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 Dept. of Forest Resources and Lands 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:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

1. Demonstrate how to clean and inspect safety gear

2. Demonstrate how to adjust and fasten fall arrest equipment (seat belts & safety harnesses)

3. Mount/dismount equipment

4. Demonstrate the use of fire extinguisher

MB-1110 BOOM TRUCK MAINTENANCE

Course Outcomes:

Upon completion of this course, students will be able to:
- demonstrate the skills and knowledge required for inspecting and maintaining boom trucks with respect to various codes and regulations
- practice safety when maintaining boom trucks
- demonstrate an awareness of conservation and environmental issues when maintaining boom trucks.

Objectives & Content:

1. Service manuals
   - i) identify the various sections of service manuals: maintenance, servicing and lubrication procedures
   - ii) demonstrate interpreting 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) select correct greases, load grease gun and grease a machine
     - a. identify the performance of grease under extreme load and heat
     - b. state the functions of engine oil
     - c. identify the various additives used in engine oil and the advantages and disadvantages of each.
   - iv) identify the characteristics of gear lubricants
     - d. define the Engine Service Classification as presented by the American Petroleum Institute (A.P.I.)

4. Boom truck log book
   - i) locate and state the purpose of the service meter.
   - ii) complete a sample boom truck log book

5. Servicing and charging batteries
   - i) identify the rules pertaining to the care and maintenance of batteries
   - ii) explain the procedure to clean and service a battery
   - iii) explain how to measure battery electrolyte with a hydrometer
   - iv) explain how to connect a charger to battery terminals

6. Maintaining fuel systems
   - i) identify the components of a fuel system using a diagram
   - ii) explain how to prime a fuel system
   - iii) state the procedure used to service a fuel system
   - vi) state the procedure to follow in refueling a machine
   - v) state the precautions to be followed during refueling

7. Maintaining cooling systems
   - i) identify the components of the cooling system
   - ii) select a coolant for a given machine
   - iii) explain the process used to test anti-freeze solution
   - iv) explain the importance of and ways to maintain a cooling system by checking for plugged radiator core or bent fan blades

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

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

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

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

1. Demonstrate finding and following a maintenance procedure.

2. Assist in changing lubricating oils 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. Assist in priming and servicing a fuel system
   i) drain water from tank and sediment bowl
   ii) change fuel filters
   iii) change a water separator

5. Demonstrate the ability to refuel a machine

6. Demonstrate the ability to service and charge storage battery
   i) follow rules pertaining to the care and maintenance of batteries
   ii) clean and service a battery
   iii) measure battery electrolyte with a hydrometer
   iv) connect a charger to battery terminals

MB-1130 BOOM TRUCK OPERATIONS

Course Outcomes:
Upon completion of this course the student will be able to demonstrate:
– the skills and knowledge required for operating boom trucks with respect to various codes and regulations
– safety practices required in boom truck operation
– demonstrate a knowledge of conservation and environmental issues related to boom truck operations

Objectives & Content:

1. Describe the boom truck operation occupation in terms of
   i) the work of boom truck operator
   ii) the boom truck operator's working conditions
   iii) the boom truck operator apprenticeship program
   iv) the responsibilities of the various parties involved with boom truck operation

2. Describe boom trucks
   i) identify types and uses of boom trucks
   ii) describe various boom truck attachments

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

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

5. Describe the purpose and applications of signalling
   i) identify all hand signals used in boom truck operations
   ii) identify other construction hand signals which may cause confusion for boom truck operation
   iii) interpret signals
   iv) identify audible signals for boom trucks

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

7. Apply load charts for pre-lift planning and hoisting operations
   - i) describe configuration of boom truck 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) define boom angle, boom length, and load radius
   - v) 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 boom truck
   - 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) describe 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, weight of line, and sizing the hook block

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

16. Describe the principles of boom truck operation
   - i) define leverage and stability
   - ii) perform leverage calculations
   - iii) describe changes in boom truck 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 boom truck running and stationary ropes

17. Describe main boom gross capacity for:
i) lattice boom
ii) hydraulic boom
iii) pinned telescopic boom
iv) with jibs and/or boom extension installed for all boom truck 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. Inspect, start and shut-down boom truck carrier
i) describe procedures for starting, moving, and stopping a boom truck carrier
ii) describe inspection procedures for a carrier

23. Transport and operate boom trucks
i) describe the safety pre-cautions for preparing and travelling a boom truck.
ii) identify municipal considerations for travelling boom trucks
iii) define the operator's responsibility to prevent accidents, and the need for safety when travelling and operating boom trucks.
iv) identify manufacturer's recommendations or special precautions regarding travelling of boom trucks to and from job sites
v) determine the maximum allowable ground speed while travelling,

corresponding to the boom trucks that are selected

vi) identify what warning sign(s) if any, must be attached to boom trucks while travelling to and from job sites

vii) clearances required for transporting and operating boom trucks

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

25. Plan for performing a lift
   i) identify and evaluate work to be performed
   ii) describe considerations influencing lifting procedures
   iii) analyse factors influencing equipment selection
   iv) interpret an engineered lift
   v) plan a multiple boom truck lift

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

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

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

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

2. Perform hoisting operations using a hydraulic boom truck.

3. Dismantle a mobile hydraulic boom truck for transport.

MB-1200 HYDRAULICS AND APPLICATIONS TO BOOM TRUCK CONTROL

Course Outcomes:

Upon completion of this course, the student will be able to:
- demonstrate an understanding of the principles of hydraulics systems
- demonstrate the skills and knowledge required for inspecting and maintaining boom truck hydraulic systems.
- practice safety when inspecting and maintaining hydraulic systems.
- demonstrate an awareness of conservation and environmental issues

Objectives & Content:

1. Describe the principles of power transfer through hydraulic systems:
   i) basic principles of hydraulics
   ii) how a hydraulic system works
   iii) open and closed systems
   iv) implications for boom truck hydraulics

2. Describe the transmission engine power through hydraulic power to such function as:
   i) swinging/slewing
   ii) boom/up/down
   iii) boom extension and retraction of hydraulic booms
   iv) hydraulic pumps and motors

3. Describe the construction and operation of a basic hydraulic system.

4. Describe how hydraulic fluid is used in the operation of:
   i) different types of valves
   ii) different types of pumps
      – displacement of pumps
   iii) different types of hydraulic cylinders
      – piston cylinders
      – cylinders on boom trucks

5. Describe the operation of the hydraulic system components listed:
   i) motors
   ii) accumulators
   iii) filters
   iv) reservoirs
   v) monitoring devices

vi) hoses and fittings

vii) adapters
viii) SAE O-rings, flangeheads
ix) seals

6. Describe the qualities required for hydraulic fluids:
   i) properties of fluids

7. Describe the effect of cold weather and contaminants in a system.

8. Describe the maintenance of fluid levels and precautions when checking.

9. Describe relation of electric systems to hydraulic systems.

10. Identify the following components and describe how they are tested.
   i) controls
   ii) basic components
      – solenoids
      – relays
   iii) components and spools

11. Identify hydraulic systems used for all types of boom trucks and boom trucks:
   i) closed centre systems
   ii) open centre systems
   iii) speed-o-matic system (Link Belt)
   iv) hydraulically-powered (lattice boom trucks)
   v) independent systems
   vi) combined systems
   vii) independent clutch
   viii) independent steering
   xi) hydraulic systems (Grove Cranes)
      – boom lift system-hydraulic boom
      – boom extension system
      – swing system
      – hoist system
      – outrigger system
      – hydraulic counter-weight exterior system
   x) lattice boom truck upperworks
      – independent hydraulic system (gantry operation)
      – independent hydraulic system (boom operation)
      – independent hydrostatic drive system

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

1. Perform routine maintenance and inspections for truck hydraulic systems including:
   - i) safety practices on a hydraulic system
   - ii) general safety precautions
   - iii) cleanliness and inspection
   - iv) reservoir inspection
   - v) inspection for leaks
   - vi) leakdown
     - outrigger
     - boom hoist cylinders
     - boom extension cylinders

2. Test and replace defective components: controls, solenoids, relays and spools.

MB-1230 CLASS 3 DRIVER'S LICENSE FOR BOOM TRUCK OPERATORS

Course Outcomes:

Upon successful completion of this course, the student will be able to:
– inspect vehicles and perform maintenance to ensure safe operation
– operate a truck competently and safely
– operate a truck with a load competently and safely

NOTE: Prior Learning Assessment:
It is recommended that prior learning assessment be done with the intent of maximizing the benefits for the students.

Objectives & Content:

1. Warning signs, symbols, and dangerous tags
   i) locate and identify from diagrams or on the actual vehicle any warning tag or warning symbol.
   ii) state any hazard that could develop if a warning sign "DO NOT OPERATE -BRAKE INOPERATIVE" is not heeded.
   iii) state at least two steps to carry out if you either (a) discover a warning tag or symbol, or (b) find it necessary to attach a warning tag or symbol to a vehicle.
   iv) correctly match symbols and warning signs to their corresponding meaning

2. Mounting and dismounting vehicles
   i) explain the primary rule to follow in entering or exiting a cab.
   ii) identify the condition of the steps and handrails, especially in snow or icy weather.

3. Seat belts
   i) state the recommended procedure for adjusting lap and shoulder belts.
   ii) explain how seat belts protect the driver involved in a collision, rollover or run-off-the-road accident.
   iii) state the conditions for exemption from the seat belt regulations.
   iv) outline the conditions for use of seat belts by passengers.

4. The role of the driver in industry
   i) list the qualifications of a good commercial driver.
   ii) identify the number one cause of accidents.
   iii) list the principle causes of accidents
   iv) identify signs of fatigue, the effects of and the corrective action to take if

overtired.

v) state the factors that effect driver and/or corporate image on the road.

5. Highway Traffic Act & National Safety Codes
   i) state reasons why the Registrar may refuse to issue a driver's license.
   ii) state the reasons why the Registrar may refuse to register a vehicle.
   iii) state the provincial regulations concerning:
      – parking
      – following other vehicles
      – passing and being passed
      – emergency vehicles
      – signaling
      – safety procedures at railway crossing
      – warning devices
      – school buses

6. Traffic signs and signals
   i) state the purpose of traffic signs
   ii) list the three classifications of traffic signs
   iii) classify signs by colour
   iv) classify signs by shape
   v) interpret the message of a sign from a given symbol
   vi) explain the procedure of operating at signalized intersections as required by the Newfoundland Highway Traffic Act

7. Vehicle regulations
   i) state the conditions for which a special permit is required to operate on a highway.
   ii) outline the conditions for operating vehicles in Newfoundland and Labrador while registered under the laws of another province
   iii) outline the circumstances under which a bond may be required before a special permit is issued.
   iv) state the conditions under which the vehicle regulations are not applicable.
   v) describe the equipment required by any commercial vehicle carrying a load.
      outline the securement requirements for the transportation of :
      – coiled metal
      – miscellaneous metal articles
      – crushed stone
   vi) outline the acceptable standards of:
      – tiedown assemblies
      – hooks and bolts attached to tiedown assembly

8. Licensing & equipment regulations
   - i) outline the provincial regulations as they apply to :
     - tail lamps
     - stop lamps
     - signal lamps
     - clearance lamps
     - identification lamps
     - reflectors
     - hazard lamps
     - marker lamps
     - brakes
     - tires and wheels
     - exhaust systems
     - other equipment

9. Motor Carrier Act & Regulations
   - i) state the information required in an application for a Motor Carrier certificate.
   - ii) list the eight classifications of freight specialty services and give a brief description of each.
   - Iii) outline the information required to prepare a Bill of Lading.
   - iv) list the goods for which a carrier shall not be required to issue a Bill of Lading.
   - v) outline the conditions for which a motor carrier shall not be held liable.
   - vi) define the following terms:
     - interline
     - bill of lading
     - consignee
     - shipper
     - consignor

10. Accident Reporting
    - i) classify a given accident as “preventable” or “non-preventable”.
    - ii) define “Reportable Accidents”.
    - iii) outline the driver’s responsibilities if involved in an accident.

11. List the contents of a “Roadside Warning Kit” for:
    - i) Trans-Canada Highway (Nfld.)
    - ii) super highways

12. State the proper procedure for:
    - i) sending for help
    - ii) assisting the injured.
    - iii) notifying police

iv) completing formal written report for Registrar.

v) fire prevention
vi) cleaning the highway

13. Draw to scale a diagram of a given accident scene, indicating direction of travel, point of impact and relation of traffic lanes, signs and signals.

14. Identify the direct and indirect cost of accidents.

15. State the "Good Samaritan Law" as it applied to assisting injured persons in NL.

16. Complete standard accident report form.

17. Prevention of hydroplaning
    i) list the factors which contribute to hydroplaning.
    ii) explain how the following situations affect vehicle control:
    iii) front wheels locked
    iv) rear wheels locked
    v) all wheels locked
    vi) explain how tire tread and tire pressure contribute to hydroplaning.
    vii) outline the speeds and water depths at which tires of a given inflation, pressure and tread depth will hydroplane.
    viii) state the most dangerous time for hydroplaning during a storm and explain why this time is the most dangerous.
    ix) outline the defensive driving principles to be used by a driver driving on wet road surfaces and surfaces covered with foreign material.

18. Fuel conservation
    i) list factors that should be considered for a vehicle with regard to fuel consumption.
    ii) list the five steps to fuel efficiency in vehicles
    iii) list devices which may be installed in or on diesel engines to improve cold weather operation.
    iv) explain the effect of speed on fuel consumption.
    v) explain "Aerodynamic Drag" and explain what can be done to reduce it.
    vi) explain " Progressive Shifting" and outline the advantages of this procedure.

19. Regulations governing vehicle and cargo insurance
    i) define commonly used insurance terms
    ii) explain the following types of insurance coverage:
        – collision
        – comprehensive
        – accident benefits

iii) list four reasons why the cost of insurance premiums vary.
state the duties of a motor carrier concerning the insurance of goods transported.

iv) outline the action which may be taken by the Registrar against a driver involved in an accident if the driver does not have a Motor Vehicle Liability Insurance card.

20. Drive on highways

i) define highway terminology

ii) list in order the steps for entering a highway.

iii) list in order the steps for entering a super highway.

iv) identify signs of "highway hypnosis" and list ways to maintain alert.

21. Interpret load-security regulations

i) explain the following terms as they apply to the load security regulations.
- tunnage
- tie down assembly
- working load limit
- coil insert

ii) outline the owner operator responsibilities regarding load security.

22. Outline power train operation

i) list the major components of a truck power train.

ii) sate the function of each component.

iii) locate lubrication points of a power train.

iv) match the name of the component with the component on a given diagram.

v) explain the correct method of checking clutch alignment.

vi) explain the operation and purpose of a power divide

23. Maintain suspension systems

i) explain the functions of a suspension system.

ii) outline the damages which may be caused by a suspension which is too heavy.

iii) state the advantages of an air ride suspension.

iv) explain the meaning of spring rate.

v) state the simplest form of interconnection in a double drive layout.

vi) list types of dampers and explain their function.

24. Clean and park vehicle

i) list the steps in cleaning a Class 7 or Class 8 vehicle.

ii) list the tools used to clean these types of vehicles.

iii) list the components of the vehicle which are affected by neglecting to clean the vehicle.

iv) list the reasons why vehicles should be parked on level ground.
v) list the procedures to follow when parking a vehicle for a six-months or more.
vi) demonstrate the ability to:
– park vehicle on level terrain.
– clean vehicle using water pressure;
– clean vehicle using steam jenny;

25. Hydraulic braking systems
i) explain the difference between “static friction” and “kinetic friction” and how they apply to the braking of a vehicle.
ii) explain “coefficient of friction” and how it applies to the braking of a vehicle.
iii) list the parts of a hydraulic brake system and describe the function of each part.
iv) explain how “Power Brakes” work.
v) identify the major parts of a hydraulic brake system.

26. Gauges, controls and components of tandem trucks and describe their function
i) identify all gauges on a tandem truck and describe their function
ii) identify all controls on a tandem truck and describe their function
iii) identify all components on a tandem truck and note any defects and/or necessary repairs.

27. Transmissions and how they function
i) identify the different types of transmissions
ii) state the meaning of the different letter designations on transmissions.
iii) explain the problems that may arise if a transmission is not shifted correctly.
iv) identify the inspection points of a transmission.
v) explain how to synchronize a transmission.
vi) explain where to find a clutch brake and state its purpose.

28. Principles of driving
i) list the factors that effect defensive driving.
ii) list the main parts of a “6-by-6" check.
iii) explain the importance of selecting and driving in the correct gear.
iv) list two important things must be adjusted after entering a cab of a truck.
v) explain and demonstrate the proper position that a driver should have his/her hands placed on the steering wheel.
vi) identify which gear a truck should be in to start and explain why.
vii) identify the five clearances you have to watch continually.
viii) list six adverse driving conditions.
ix) explain the importance of giving the proper signals while driving.

29. Correct procedure for loading
    - i) explain the first step required before proceeding into a yard or loading area
    - ii) explain the role of a " spotter" in the trucking industry.
    - iii) list the major kinds of docks.
    - iv) list the five(5) basic rules to apply while parallel parking, given a diagram.
    - v) list the types of docks that acquire straight backing.
    - vi) explain how a driver should react if the available parking space is on the left side of the vehicle.
    - vii) explain the trucking procedure required for a dog leg dock and a dead end yard of an underground docking complex.

30. Road maps and their legends.
    - i) explain how to find locations on a map.
    - ii) identify types of roads, park locations, airports, hospitals and ferry lines using a map
    - iii) Identify the most practical route between two given points (on a road map) and list all the route numbers to follow.

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

1. Given an inspection sheet, perform vehicle safety inspection.

2. Demonstrate the four steps for entering or exiting a truck cab.

3. Demonstrate the ability to operate and maintain seat belts.

4. Perform pre-trip inspections & complete basic maintenance on vehicle
    - i) complete the inspection using the check-list an operators guide book. perform minor maintenance, servicing the topping up of various fluids, oils and liquids as required.

5. Start-up and shut-down, correctly and safely, a diesel powered vehicle in accordance with the Operator's Guide and/or Start-up checklist.

6. Observe truck driving.....30 hours

7. Drive Truck .....30 hours
   - i) put vehicle in motion.
   - ii) select and shift gears.
   - iii) co-ordinate the use of the clutch and accelerator.
   - iv) handle the steering wheel.
   - v) regulate speed with brakes.
   - vi) regulate speed with transmission
   - vii) use signals in the correct manner
   - viii) operate in reverse, with mirrors and when view is obstructed
   - ix) drive a truck displaying smooth shifting and steering
   - x) demonstrate the ability to shift the 3 different types of transmissions – 10 Speed; 13 Direct; 13 Overdrive.
   - xi) demonstrate the ability to successfully complete the following obstacles:
     - right angled turn
     - offset alley
     - alley dock
     - 30m alley
     - overhead

8. Drive truck with a load .....6 hours
   - i) position truck at location
   - ii) haul material to dump site.
   - iii) observe traffic patterns and driving speed for road conditions.
   - iv) observe overhead obstructions.
   - v) park vehicle on level terrain
   - vi) perform the proper parking procedures for parking between two trucks at a dock entering from left and/or right.

Student/Instructor Ratio for practical:

On the road, in the vehicle 3/1

In the yard, in the vehicle 3/1

In the yard instruction & demonstration 6/1

In the classroom 25/1

MB-1260 RIGGING FOR BOOM TRUCK OPERATORS

Course Outcomes:

Upon completion of this course, the student will be able to :
– use safety harnesses
– perform rigging operations

Objectives and Content:

1 Describe the responsibilities of riggers

2 Describe proper use of safety harnesses and lanyards

3 Identify and describe the composition of wire rope:
- i) wire
- ii) strand
- iii) core (fibre or wire or strand)

4 Interpret and describe rope lay:
- i) regular lay
- ii) lang lay
- iii) right lay and left lay
- iv) alternate lay
- v) herringbone or twin strand lay
- vi) speciality ropes

5. Identify speciality ropes and how/where they are used including limitations.

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

7. Identify and compare preformed vs non-preformed types of ropes.

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

9. Identify safety factors for:
- i) rigging slings
- ii) running ropes
- iii) standing ropes

10. Calculate safe working loads
11. Identify the classification group:
- i) strand classification

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

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

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

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

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

17. Identify grades of chain including:
    i) strength
    ii) inspection
    iii) care and use of

18. Describe and define reeving.

19. Determine the parts of line required.

20. Describe the effect of winch diameter for:
    i) multi layer (wire rope)
    ii) line speed vs torque

21. Determine sheave loads

22. Determine the SWL of rope vs line pull.

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

24. Identify the mechanical advantage of reeving.

25. Describe wire block reeving methods:
    i) lacing
    ii) square or angle reeving
    iii) skip reeving

26. Identify and describe types and configurations for slings including:
    i) wire rope slings
    ii) nylon web slings
    iii) polyester and Kevlar
    iv) metal mesh slings
    v) chain slings
    vi) sling configurations
    vii) single vertical hitch

viii) bridle hitch
xi) 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 slings
xvi) braided slings
xv) sling angles
xvi) safe working loads

27. Read and interpret supplier, manufacturer and rigging manual.

28. Describe rigging precautions when using nylon and specialty slings.

29. Calculate safe working loads and sling angles.

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

31. Describe rigging procedures and perform rigging calculations.

32. Plan rigging operations.

33. Use the proper methods for determining load weights.

34. Determine the centre of gravity for various loads.

35. Determine tensions on sling legs.

36. Calculate loads on equaliser beams.

37. Identify the hand signals used for hoisting operations.

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

1. Demonstrate proper signalling for hoisting procedures.

2. Demonstrate wire block reeving methods:
i) lacing
ii) square or angle reeving
iii) skip reeving

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

4. Inspect, use and handle and maintain wire rope:
   i) lubrication
   ii) cleaning

5. Install end fittings and connections.

6. Inspect, use and handle and maintain wire rope:
   i) lubrication
   ii) cleaning

7. 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 equaliser beams
   x) spreader and equaliser beams
   xi) truck blocks
   xii) wire rope blocks
   xiii) snatch block
   xvi) tackle blocks

8. Assemble rigging in a safe and efficient manner

9. Select appropriate rigging hardware for a given job

10. Perform maintenance and properly store rigging.

11. Demonstrate proper rigging procedures and calculations.

12. Plan and demonstrate various rigging operations

MB-1300 INTRODUCTION TO NEW BOOM TRUCKS

Course Outcomes:

Upon completion of this course students will be able to:
– identify & describe various types of boom trucks and their capacities
– interpret new control technology
– use computer assisted safety devices, LMI/Load Indicators

Objectives and Content:

1. Identify and describe new model boom trucks
   i) boom truck sizes available
   ii) range of capacities available
   iii) range of boom lengths available
   iv) manufacturers
   v) advantages/disadvantages

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

3. Describe chassis characteristics of new model boom trucks
   i) number of axles
   ii) ratio of driven axles to idling axles
   iii) suspensions systems
   iv) general operation

4. Interpret the load rating charts for new model boom trucks.

5. Interpret new terminology and symbols for new model boom trucks.

6. Interpret new control technology:
   i) load moment evaluation computer systems
   ii) ramping valves
   iii) operational consideration

7. Use and apply computer assisted safety devices, LM/load indicators:
   i) central unit
   ii) load transducers or load cells
   iii) boom length and angle
   iv) anti-two block

v) read out (inside cab)

Practical:

Practical skills enhance the apprentices' ability to meet the objectives of this course. The learning objectives outlined below are **mandatory** in Newfoundland.

1. Field trip optional to review and study.

REQUIRED RELATED COURSES

CM-2150 WORKPLACE COMMUNICATIONS

Description:

This course is designed to introduce students to the principles of effective communication including letters, memos, short report writing, oral presentations and interpersonal communications.

Course Outcomes:

Upon completion of the course, students will be able to:
- understand and apply communication skills as outlined in the Employability Skills 2000, Conference Board of Canada
- understand the importance of well-developed writing skills in business and in career development.
- understand the purpose of the various types of business correspondence.
- examine the principles of effective business writing.
- examine the standard formats for letters and memos.
- write effective letters and memos.
- examine the fundamentals of informal reports and the report writing procedure.
- produce and orally present an informal report
- examine effective listening skills and body language in communication

Objectives and Content:

1. Apply rules and principles for writing clear, concise, complete sentences which adhere to the conventions of grammar, punctuation, and mechanics.

2. Explain the rules of subject-verb agreement.

3. Define and describe the major characteristics of an effective paragraph

4. Examine the Value of Business Writing Skills
   i) Describe the importance of effective writing skills in business
   ii) Describe the value of well-developed writing skills to career success as referenced in the Employability Skills

5. Examine Principles of Effective Business Writing
   i) Discuss the rationale and techniques for fostering goodwill in business communication, regardless of the circumstances
   ii) Review the importance of revising and proofreading
   iii) Differentiate between letter and memo applications in the workplace & review samples
   iv) Identify the parts of a business letter and memo
   v) Review the standard formats for business letters and memos
   vi) Examine samples of well-written and poorly written letters and memos
   vii) Examine guidelines for writing sample letters and memos which convey: acknowledgment, routine request, routine response, complaint, refusal, persuasive request and letters of appeal.

6. Examine the Fundamentals of Informal Business Reports
   i) Identify the purpose of the informal report
   ii) Identify the parts and formats of an informal report
   iii) Identify methods of information gathering
   iv) Describe the methods of referencing documents
   v) Review the importance of proof reading and editing

7. Examine types of presentations
   i) Review & discuss components of an effective presentation
   ii) Review & discuss delivery techniques
   iii) Review & discuss preparation & use of audio/visual aids
   iv) Discuss & participate in confidence building exercises used to prepare for giving presentations

8. Interpersonal Communications
   i) Examine and apply listening techniques
   ii) Discuss the importance of body language

Practical:

1. Write well-developed, coherent, unified paragraphs which illustrate the following: A variety of sentence arrangements; conciseness and clarity; and adherence to correct and appropriate sentence structure, grammar, punctuation, and mechanics.

2. Write sample letters and memos which convey: acknowledgment, routine request, routine response, complaint, refusal, persuasive request and letters of

appeal.

3. Gather pertinent information, organize information into an appropriate outline & write an informal report with documented resources.
   i) Edit, proofread, and revise the draft to create an effective informal report and present orally using visual aids
   ii) Participate in confidence building exercises

4. Present an effective presentation.

5. Evaluate presentations.

MR-1220 CUSTOMER SERVICE

Description:

This course focuses on the role of providing quality customer service. It is important to have a positive attitude and the necessary skills to effectively listen and interpret customer concerns about a product, resolve customer problems, and determine customer wants and needs. Students will be able to use the skills and knowledge gained in this course to effectively provide a consistently high level of service to the customer.

Course Outcomes:

Upon successful completion of this course, students will be able to:
- define customer service
- explain why service is important
- describe the relationship between “service” and “sales”
- demonstrate an understanding of the importance of a positive attitude
- demonstrate methods of resolving customer complaints

Objectives and Content:

1. Define quality service
   - i) Identify and discuss elements of customer service
   - ii) Explain the difference between Service vs. Sales or Selling
   - iii) Explain why quality service is important
   - iv) Identify the various types of customers & challenges they may present
   - v) Describe customer loyalty
   - vi) Examine barriers to quality Customer Service

2. Explain how to determine customers wants and needs
   - i) Identify customer needs
   - ii) Explain the difference between customer wants and needs
   - iii) Identify ways to ensure repeat business

3. Demonstrate an understanding of the importance of having a positive attitude
   - i) Identify & discuss the characteristics of a positive attitude
   - ii) Explain why it is important to have a positive attitude
   - iii) Explain how a positive attitude can improve a customer’s satisfaction
   - iv) Define perception and explain how perception can alter us and customers

Describe methods of dealing with perception

4. Communicating effectively with customers
   - i) Describe the main elements in the communication process
   - ii) Identify some barriers to effective communication

iii) Explain why body language is important
iv) Define active listening and state why it is important
v) Identify and discuss the steps of the listening process
vi) Identify and discuss questioning techniques

5. Demonstrate using the telephone effectively
   i) Explain why telephone skills are important
   ii) Describe the qualities of a professional telephone interaction

6. Demonstrate an understanding of the importance of asserting oneself
   i) Define assertiveness
   ii) Discuss assertive techniques
   iii) Explain the use of assertiveness when dealing with multiple customers

7. Demonstrate techniques for interacting with challenging customers in addressing complaints & resolving conflict
   i) Examine & discuss ways to control feelings
   ii) Examine & discuss ways to interact with an upset customer
   iii) Examine & discuss ways to resolve conflict/customer criticism
   iv) Examine & discuss ways to prevent unnecessary conflict with customers

Practical:

1. Participate in activities to demonstrate knowledge of the course objectives.

SP-2330 QUALITY ASSURANCE/QUALITY CONTROL

Description:

This course is designed to give students an understanding of the concepts and requirements of QA/QC such as, interpreting standards, controlling the acceptance of raw materials, controlling quality variables and documenting the process. It includes information on quality concepts, codes and standards, documentation, communications, human resources, company structure and policy, teamwork and responsibilities.

Course Outcomes:

Upon completion of this course, students will be able to:
- develop the skills and knowledge required to apply quality assurance/quality control procedures as related to the trade
- develop an awareness of quality principles and processes
- apply quality assurance/quality control procedures in a shop project

Objectives & Content:

1 Describe the reasons for quality assurance and quality plans.

2. Explain the relationship between quality assurance and quality control.

3. Describe quality control procedures as applied to the production and checking of specifications and processes in applicable occupations.

4. Describe quality control procedures as applied to the acceptance and checking of raw materials.

5. Explain the role of communications in a quality environment.

6. Explain why it is important for all employees to understand the structure of the company and its production processes.

7. Explain how human resource effectiveness is maximized in a quality managed organization.

8. Explain the role of company policy in quality management.

9. Explain the purpose of codes and standards in various occupations.

10. Explain the concepts of quality
    i) cost of quality

ii) measurement of quality
iii) elements of quality
iv) elements of the quality audit
v) quality standards
vi) role expectations and responsibilities

11. Explain the structure of quality assurance and quality control
    i) Describe organizational charts
    ii) Identify the elements of a quality assurance system such as ISO, CSA, WHMIS, Sanitation Safety Code (SSC)
    iii) Explain the purpose of the quality assurance manual
    iv) Describe quality assurance procedures

12. Examine quality assurance/quality control documentation
    i) Describe methods of recording reports in industry
    ii) Describe procedures of traceability (manual and computer-based recording)
    iii) Identify needs for quality control procedures

Practical:

1. Apply quality control to a project
    i) Follow QA/QC procedures for drawings, plans and specifications in applicable occupations.
    ii) Calibrate measuring instruments and devices in applicable occupations.
    iii) Interpret required standards
    iv) Follow QA/QC procedures for accepting raw materials
    v) Carry out the project
    vi) Control the quality elements (variables)
    vii) Complete QA/QC reports

MC-1050 INTRODUCTION TO COMPUTERS

Description:

This course is designed to give the student an introduction to computer systems. Particular emphasis is given to word processing, spreadsheet, e-mail and the Internet and security issues.

Course Outcomes:

Upon completion of this course, students will have a basic understanding of:
– computer systems and their operation.
– popular software packages, their applications
– security issues of Computers

Objectives & Content:

1. Identify the major components of microcomputer system hardware and software system.

2. Describe the functions of the microprocessor.
   i) Describe and give examples of I/O DEVICES.
   ii) Describe primary storage (RAM, ROM, Cache).
   iii) Define bit, byte, code and the prefixes k.m. and g.
   iv) Describe secondary storage (diskettes and hard disks, CD ROMS, Zip Drives etc).
   v) Describe how to care for a computer and its accessories.

3. Describe microcomputer software
   i) Define software.
   ii) Describe types of operational and application software
   iii) Define file and give the rules for filenames and file extensions.

4. Describe windows software
   i) Start and quit a Program
   ii) Demonstrate how to use the help function
   iii) Locate a specific file using the **find** function
   iv) Identify system settings:wall paper, screen saver, screen resolution, background
   v) Start a program by using the Run Command
   vi) Shutting down your computer

5. Identify File Management commands
   i) Demonstrate how to view directory structure and folder content

ii) Organize files and folders
iii) Copy, delete, and move files and folders
iv) Create folders
v) Maximize and minimize a window
vi) Describe windows task bar

6. Describe Keyboards
   i) Identify and locate alphabetic and numeric keys
   ii) Identify and locate function key & special keys

7. Describe Word Processing
   i) Describe Windows components
   ii) Menu bar
   iii) Menu indicators
   iv) Document window
   v) The Status bar
   vi) The Help feature
   vii) Insertion point movements

8. Describe the procedure used to development of a document
   i) Enter text
   ii) Change the display

9. Describe the procedure for opening, saving and exiting documents
   i) Saving a document
   ii) Closing a document.
   iii) Starting a new document Window
   iv) Opening a document
   v) Exiting word processor

10. Describe the procedure for editing a Document
    i) Adding new text
    ii) Deleting text
    iii) Using basic format enhancement (split and join paragraphs, insert text)

11. Describe the main Select Features
    i) Identify a selection
    ii) Moving a selection
    iii) Copying a selection
    iv) Deleting a selection
    v) Saving a selection

12. Explain how to change Layout Format
    i) Changing layout format: (margins, spacing, alignment, paragraph indent, tabs, line spacing, page numbering)

13. Explain how to change Text Attributes
    i) Changing text attributes: (bold, underline, font, etc.)

14. Describe the Auxiliary Tools
    i) Using Spell Check & Thesaurus

15. Describe Print features
    i) Selecting the Print Feature: (i.e; number of copies and current document)
    ii) Identifying various options in print screen dialogue box

16. Examine & Discuss Electronic Spreadsheet
    i) Spreadsheet Basics
    ii) The Worksheet Window

17. Describe Menus
    i) Menu Bar
    ii) Control menu
    iii) Shortcut menu
    iv) Save, Retrieve form menus

18. Describe the components of a worksheet
    i) Entering constant values and formulas
    ii) Using the Recalculation feature

19. Describe Use ranges
    i) Typing a range for a function
    ii) Pointing to a range for a function
    iii) Selecting a range for toolbar and menu commands

20. Describe how to print a worksheet
    i) Printing to the Screen
    ii) Printing to the Printer
    iii) Printing a selected Range

21. Describe how to edit a worksheet
    i) Replacing cell contents
    ii) Inserting & deleting rows and columns
    iii) Changing cell formats
    iv) Changing cell alignments
    v) Changing column width
    vi) Copying and moving cells

22. State major security issues in using computers
    i) Pass words

ii) Accessing accounts
iii) Viruses and how they can be avoided
iv) Identity theft and ways to protect personal information

23. Describe how to use Electronic Mail
i) E-mail etiquette
ii) E-mail accounts
iii) E-mail messages
iv) E-mail message with attachments
v) E-mail attachments
vi) Print e-mail messages
vii) Deleting e-mail messages

24. Explain the Internet and its uses
i) The World Wide Web(www)
ii) Accessing Web sites
iii) Internet Web Browsers
iv) Internet Search Engines
v) Searching Techniques
vi) Posting documents on-line

Practical:

1. Create a document using Word Processing.

2. Complete word processing exercises to demonstrate proficiency in word processing

3. Prepare and send e-mails with attachments

4. Retrieve documents and e-mail attachments and print copies

5. Develop & print a spread sheet.

6. Post a document on-line

SD-1700 WORKPLACE SKILLS

Description:

This course involves participating in meetings, information on formal meetings, unions, workers' compensation, employment insurance regulations, workers' rights and human rights.

Course Outcomes:

Upon completion of this course, students will be able to:
- Participate in meetings
- Define and discuss basic concepts of:
  - unions
  - workers' compensation
  - employment insurance
  - workers' rights
  - human rights
  - workplace diversity
  - gender sensitivity

Objectives & Content:

1. Meetings
   - i) Identify & discuss meeting format and preparation required for a meeting.
   - ii) Explain the purpose of an agenda.
   - iii) Explain the roles and responsibilities of meeting participants.
   - iv) Explain the purpose of motions and amendments and withdrawals.
   - v) Explain the procedure to delay discussion of motions.
   - vi) Explain the voting process.

2. Unions
   - i) State why unions exist.
   - ii) Give a concise description of the history of Canadian labour.
   - iii) Explain how unions function.
   - iv) Explain labour's structure.
   - v) Describe labour's social objectives.
   - vi) Describe the relationship between Canadian labour and the workers.
   - vii) Describe the involvement of women in unions.

3. Worker's Compensation
   - i) Describe the aims, objectives, benefits and regulations of the Workplace Health, safety and Compensation Commission.
   - ii) Explain the internal review process.

4. Employment Insurance
   - i) Explain employment insurance regulations
   - ii) Describe how to apply for employment insurance.
   - iii) Explain the appeal process.
   - vi) Identify the components of a letter of appeal.

5. Worker's Rights
   - i) Define labour standards.
   - ii) Explain the purpose of the Labour Standards Act.
   - iii) Identify regulations pertaining to:
     - Hours of work
     - Minimum wages
     - Employment of children
     - Vacation pay
   - iv) Explain the purpose of the Occupational Health & Safety Act as it refers to workers' rights

6. Human Rights
   - i) Describe what information cannot be included on an employment application.
   - ii) Describe what information cannot be included in an interview.
   - iii) Examine the Human Rights Code and explain the role of the Human Rights Commission.
   - iv) Define harassment in various forms and identify strategies for prevention.

7. Workplace Diversity
   - i) Define and explore basic concepts and terms related to workplace inclusively including age, race, culture, religion, socio-economic, sexual orientation with an emphasis on gender issues and gender stereotyping.

8. Gender Sensitivity
   - i) Explore gender and stereotyping issues in the workplace by identifying strategies for eliminating gender bias.

Practical:

1. Prepare an agenda.

2. Participate in a meeting.

3. Analyze a documented case of a human rights complaint with special emphasis on the application, time frame, documentation needed, and legal advice available.

SD-1710 JOB SEARCH TECHNIQUES

Description:

This course is designed to give students an introduction to the critical elements of effective job search techniques.

Course Outcomes:

Upon completion of this course, students will be able to:

– Demonstrate effective use of Job Search Techniques

Objectives & Content:

1. Identify and examine employment trends and opportunities

2. Identify sources that can lead to employment

3. Access and review information on the Newfoundland and Labrador Apprenticeship and Certification Web site and the Apprenticeship Employment Gateway

4. Analyze job ads and discuss the importance of fitting qualifications to job requirements

5. Identify and discuss employability skills as outlined by the Conference Board of Canada.

6. Discuss the necessity of fully completing application forms**.**

7. Establish the aim/purpose of a resume

8. Explore characteristics of effective resumes, types of resumes, and principles of resume format .

9. Explore characteristics of an effective cover letter.

10. Identify commonly asked questions in an interview.

11. Explore other employment related correspondence.

12. Explore the job market to identify employability skills expected by an employer.
13. Conduct a self-analysis and compare with general employer expectations.

14. Discuss the value of establishing and maintaining a portfolio.

Practical:

1. Complete sample application forms.

2. Write a resume.

3. Write an effective cover letter.

4. Establish a portfolio.

5. Write out answers to commonly asked questions asked during interviews.

6. Identify three potential employers from the Apprenticeship Employment gateway, Apprenticeship & Certification web site.

SD-1720 ENTREPRENEURIAL AWARENESS

Description:

This course is designed to introduce the student to the field of entrepreneurship, including the characteristics of the entrepreneur, the pros and cons of self-employment, and some of the steps involved in starting your own business.

Course Outcomes:

Upon completion of this course, the student will be able to:

– Identify the various types of business ownership, the advantages and disadvantages of self-employment and identify the characteristics of an entrepreneur.
– State the purpose and identify the main elements of a business plan.

Objectives & Content:

1. Explore Self-Employment: An Alternative to Employment
   i) Identify the advantages and disadvantages of self-employment vs. regular employment
   ii) Differentiate between an entrepreneur and a small business owner
   iii) Evaluate present ideas about being in business

2. Identify and discuss various types of business ownership
   i) Explore the Characteristic of Entrepreneurs
   ii) Identify characteristics common to entrepreneurs
   iii) Compare one's own personal characteristics with those of entrepreneurs.
   iv) Examine one's present ideas about business people

3. Identify Business Opportunities
   i) Distinguish between an opportunity and an idea.
   ii) Examine existing traditional and innovative business ventures
   iii) Identify and summarize the role of various agencies that support business development.
   iv) Identify potential business opportunities.

4. Review the Entrepreneurial Process.
   i) Explain the entrepreneurial process
   ii) Describe the purpose of a business plan
   iii) Identify & discuss the main elements of a business plan

Practical:

1. From a list potential business opportunities prepare a list of elements that would have to be included in a business plan.