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# Plan of Training

## MOTOR VEHICLE BODY REPAIRER (METAL AND PAINT)



Government of Newfoundland and Labrador  
Department of Education  
Institutional and Industrial Education Division

September 2009

# PLAN OF TRAINING

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SEPTEMBER 2009



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Approved by:

A handwritten signature in cursive script, appearing to read "Paul Hood".

Chairperson, Provincial Apprenticeship and Certification Board

Date:

Sept 23/09

The Joint Planning Committee (JPC) recognizes this Interprovincial Program Guide as the national curriculum for the occupation of Motor Vehicle Body Repairer.

## **Preface**

This Apprenticeship Standard is based on the 2005 edition of the National Occupational Analysis for the Motor Vehicle Body Repairer trade.

This document describes the curriculum content for the Motor Vehicle Body Repairer apprenticeship training program and outlines each of the technical training units necessary for the completion of apprenticeship.

## **Acknowledgements**

Advisory committees, industry representatives, instructors and apprenticeship staff provided valuable input to the development of this Apprenticeship Curriculum Standard. Without their dedication to quality apprenticeship training, this document could not have been produced.

We offer you a sincere thank you.

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## **A. 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 certain Plan 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 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 particular Plan 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 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.

### 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 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.

### 5.0 Apprenticeship Progression Schedule and Wage Rates

#### 5.1 Progression Schedule

<b>7200 Hour Programs</b>	<b>Requirements for Progression</b>	<b>Progress To</b>
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 (Blocks 5 & 6) <i>if applicable</i> , plus sign-off of workplace skills required for certification totaling a minimum of 7200 hours**	Write Certification Examination

<b>5400 Hour Programs</b>	<b>Requirements for Progression</b>	<b>Progress To</b>
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

<b>4800 Hour Programs</b>	<b>Requirements for Progression</b>	<b>Progress To</b>
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.



<b>Program Duration</b>	<b>Wage Rates</b>		<b>Comments</b>
7200 Hours	1 <sup>st</sup> Year	60%	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.
	2 <sup>nd</sup> Year	70%	
	3 <sup>rd</sup> Year	80%	
	4 <sup>th</sup> Year	90%	
5400 Hours and 4800 Hours	1 <sup>st</sup> Year	60%	
	2 <sup>nd</sup> Year	75%	
	3 <sup>rd</sup> Year	90%	
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 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 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 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. 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 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 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 shall not exceed two apprentices to every one journeyperson employed, with the condition that one of these be a final year apprentice.

## **12.0 Relationship 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 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 regularly attend training programs 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. An apprentice will be required to pay a reinstatement fee. 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 first opportunity to be hired before another is hired.
- 14.6 The employer will permit each apprentice to regularly attend training programs as prescribed by the PACB.
- 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.

## **B. Requirements for Red Seal Certification for Apprentices**

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 program.
3. A combination of training from an approved training program and suitable work experience totalling 7200 hours.

**Or**

A total of 9000 hours of suitable work experience.

4. Completion of a National Red Seal examination, to be set at a place and time determined by the Institutional and Industrial Education Division.
5. Payment of the appropriate examination fee.

### **C. Roles and Responsibilities of Stakeholders in the Apprenticeship Process**

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

#### **The Apprentice:**

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

#### **The Employer:**

- provides high quality work experiences in an environment conducive to learning.
- remunerates apprentices as set out in the Plan of Training or Collective Agreements.
- provides feedback to training institutions, Institutional and Industrial Education 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.

#### 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 Institutional and Industrial Education Division:

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

The Provincial Apprenticeship and Certification Board:

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



## **D. Program Outcomes**

Upon completion of the Apprenticeship Program, apprentices will have the knowledge and skills required to perform the following tasks:

- Task 1        Use Documentation.
- Task 2        Use tools and equipment.
- Task 3        Organize work.
- Task 4        Apply corrosion protection material.
- Task 5        Repair and replace trim.
- Task 6        Perform final check.
- Task 7        Repair structural components.
- Task 8        Replace structural components.
- Task 9        Repair panels.
- Task 10       Replace panels.
- Task 11       Replace structural glass.
- Task 12       Replace non-structural glass.
- Task 13       Repair and replace mechanical components.
- Task 14       Repair and replace electrical components.
- Task 15       Repair and replace interior components.
- Task 16       Replace seat belt restraint systems.
- Task 17       Replace air bag systems.
- Task 18       Prepare surfaces.
- Task 19       Prepare and apply refinishing materials.
- Task 20       Detail exterior.
- Task 21       Detail interior.

## E. Program Structure

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.

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

<b>Entry Level Courses – Block 1</b>			
<b>NL Course No.</b>	<b>Course Name</b>	<b>Hours</b>	<b>Pre-Requisites</b>
TS1510	Occupational Health and Safety	6	None
TS1520	WHMIS	6	None
TS1530	Standard First Aid	14	None
AB1610	Safety	12	None
AB1600	Trade Related Documents	12	None
AB1620	Tools and Equipment	45	AB1610
AB1630	Fasteners and Adhesives	12	AB1610 AB1620
AB1641	Vehicle Construction	16	AB1610
AB1651	Pre/Post-Repair Vehicle Inspection	12	None
AB1660	Metallurgy	30	AB1641
AB1671	Cutting and Heating	30	AB1620
AB1680	Gas Metal Arc Welding (GMAW[MIG])	45	AB1620 AB1671
AB1690	Resistance Spot Welding	15	AB1620 AB1671
AB1701	Metal Working 1 (Mild Steel)	55	AB1660
AB1711	Body Fillers and Abrasives	40	AB1701
AB1721	Corrosion Protection	40	AB1701

<b>Entry Level Courses – Block 1</b>			
<b>NL Course No.</b>	<b>Course Name</b>	<b>Hours</b>	<b>Pre-Requisites</b>
AB1731	Surface Preparation (Cleaning, Stripping and Masking)	70	AB1721
AB1740	Non-Metal Repair	90	AB1711
AB1750	Stationary Glass	30	AB1760
AB1760	Moveable Glass and Hardware	30	AB1790
AB1770	Undercoats	40	AB1721
AB1800	Refinishing 1	60	AB1770
AB1780	Cleaning and Detailing	30	AB1800
AB1790	Upholstery, Trim and Hardware	30	AB1620
AB1811	Batteries	10	AB1610
AP1100	Introduction to Apprenticeship	15	None
*MA1060	Basic Math	60	None
CM2150	Workplace Communications	45	None
MR1220	Customer Service	30	None
SP2330	Quality Assurance/Quality Control	30	None
MC1050	Introduction to Computers	30	None
SD1700	Workplace Skills	30	None
SD1710	Job Search Techniques	15	None
SD1720	Entrepreneurial Awareness	15	None
OT1210	Workplace Exposure	60	AB1630
<b>Total Hours</b>		<b>1110</b>	

<b>Required Work Experience</b>
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<b>Block 2</b>			
<b>NL Course No.</b>	<b>Course Name</b>	<b>Hours</b>	<b>Pre-Requisites</b>
AB2710	Electronic Fundamentals	75	AB1811
AB2700	Metal Working 2 (Aluminum)	45	AB1660
AB2720	Position Arc Welding (GMAW)	30	AB1620 AB1671
AB2730	Restraints Systems	30	AB2710 AB1811
AB2740	Structural Components	60	AB1641 AB1660
<b>Total Hours</b>		<b>240</b>	

**Required Work Experience**

<b>Block 3</b>			
<b>NL Course No.</b>	<b>Course Name</b>	<b>Hours</b>	<b>Pre-Requisites</b>
AB2811	Non-Structural Components	60	AB1641 AB1660
AB2821	Electrical and Electronic Repairs	60	AB2710
AB2800	Refinishing 2	75	AB2710
AB2830	Damage Analysis of Conventional Frames And Unitized Bodies	45	AB2740
<b>Total Hours</b>		<b>240</b>	

**Required Work Experience**

<b>Block 4</b>			
<b>NL Course No.</b>	<b>Course Name</b>	<b>Hours</b>	<b>Pre-Requisites</b>
AB2901	Mechanical Systems and Componets	68	Entry level completed
SV1110	Ozone Depletion	7	None
AB2910	Steering Suspension and Braking Systems	75	AB2901
AB2920	Unitized Body Repairs	30	AB2830
AB2930	Conventional Frame Repair	30	AB2830
AB2940	Damage Analysis and Estimating Costs	30	Entry level completed
<b>Total Hours</b>		<b>240</b>	

<b>Total Course Credit Hours</b>	<b>1830</b>
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**\*A student who can meet the Mathematics requirement through an ACUPLACER® test may be exempted from Mathematics 1060. Please check with your training institution.**

## **Entry Level – Block 1**

### **TS1510 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.

**Pre-requisites:** None

#### **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.

#### **Objectives and Content:**

1. Interpret the Occupational Health and Safety Act laws and regulations.
  - i. Explain the scope of the act
    - application of the Act
    - Federal/Provincial jurisdictions
    - Canada Labour Code
    - rules and regulations
    - private home application
    - conformity of the Crown by the Act
2. Explain responsibilities under the Act and Regulations.
  - i. duties of employer, owner, contractors, sub-contractors, employees, and suppliers

3. Explain the purpose of joint health and safety committees.
  - i. formation of committee
  - ii. functions of committee
  - iii. legislated rights
  - iv. health and safety representation
  - v. reporting endangerment to health
  - vi. appropriate remedial action
  - vii. investigation of endangerment
  - viii. committee recommendation
  - ix. employer's responsibility in taking remedial action
  
4. Examine right to refuse dangerous work.
  - i. reasonable grounds for refusal
  - ii. reporting endangerment to health
  - iii. appropriate remedial action
  - iv. investigation of endangerment
  - v. committee recommendation
  - vi. employer's responsibility to take appropriate remedial action
  - vii. action taken when employee does not have reasonable grounds for refusing dangerous work
  - viii. employee's rights
  - ix. assigning another employee to perform duties
  - x. temporary reassignment of employee to perform other duties
  - xi. collective agreement influences
  - xii. wages and benefits
  
5. State examples of work situations where one might refuse work.
  
6. Describe discriminatory action.
  - i. definition
  - ii. filing a complaint procedure
  - iii. allocated period of time a complaint can be filed with the Commission
  - iv. duties of an arbitrator under the Labour Relations Act
  - v. order in writing inclusion
  - vi. report to commission allocated period of time to request arbitrator to deal with the matter of the request
  - vii. notice of application
  - viii. failure to comply with the terms of an order
  - ix. order filed in the court

7. Explain duties of commission officers.
  - i. powers and duties of officers
  - ii. procedure for examinations and inspections
  - iii. orders given by officers orally or in writing
  - iv. specifications of an order given by an officer to owner of the place of employment, employer, contractor, sub-contractor, employee, or supplier
  - v. service of an order
  - vi. prohibition of persons towards an officer in the exercise of his/her power or duties
  - vii. rescinding of an order
  - viii. posting a copy of the order
  - ix. illegal removal of an order
  
8. Interpret appeals of others.
  - i. allocated period of time for appeal of an order
  - ii. person who may appeal order
  - iii. action taken by commission when person involved does not comply with the order
  - iv. enforcement of the order
  - v. notice of application
  - vi. rules of court
  
9. Explain the process for reporting of accidents.
  - i. application of act
  - ii. report procedure
  - iii. reporting notification of injury
  - iv. reporting accidental explosion or exposure
  - v. posting of act and regulations

**Practical:**

1. Conduct an interview with someone in your occupation on two or more aspects of the act and report results.
  
2. Conduct a safety inspection of shop area.



## **TS1520 Workplace Hazardous Materials Information System (WHMIS)**

### **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).

**Pre-requisites:** None

### **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 and 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 from the application of WHMIS legislation
    - consumer products
    - explosives
    - cosmetics, drugs, foods and devices
    - pest control products
    - radioactive prescribed substances
    - wood or products made of wood
    - manufactured articles
    - tobacco or products of tobacco
    - hazardous wastes
    - products handled or transported pursuant to the Transportation of Dangerous Goods (TDG) Act
  - v. comparison of classification systems - whmis and tdg
  - vi. general comparison of classification categories
  - vii. detailed comparison of classified criteria
- 3. Explain labeling and other forms of warning.
  - i. definition of a WHMIS label
    - supplier label
    - workplace label
    - other means of identification
  - ii. responsibility for labels
    - supplier responsibility
    - employer responsibility
    - worker responsibility
  - iii. introduce label content, design and location
    - supplier labels
    - workplace labels
    - other means of identification
- 4. Introduce material safety data sheets (MSDS).
  - i. definition of a material safety data sheet
  - ii. purpose of the data sheet
  - iii. responsibility for the production and availability of data sheets
    - supplier responsibility

- employer responsibility
- workers responsibility

**Practical:**

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

## **TS1530 Standard 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 or Canadian Red Cross** Standard First Aid Certificate course.

**Pre-requisites:** None

## **AB1610 Safety**

### **Outcomes:**

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

- Demonstrate knowledge of types of safety equipment.
- Demonstrate knowledge of the applications and procedures for use of safety equipment.
- Demonstrate knowledge of safe work practices.
- Demonstrate knowledge of regulations pertaining to safety.

**Pre-requisites:** None

### **Objectives and Content:**

1. Identify types of personal protective equipment (PPE) and describe their applications.
  - i. clothing
  - ii. equipment
2. Describe the care and maintenance of personal protective equipment.
3. Identify workplace hazards and describe safe work practices and equipment.
  - i. shop/facility
  - ii. environmental
4. Identify and describe workplace safety and health regulations.
  - i. federal
  - ii. provincial/territorial
  - iii. municipal (awareness of)

**Practical:**

1. Conduct safety inspection of shop including fire exits, identifying location and expiry dates of fire extinguishers, MSDS sheets, eye wash stations.
2. Demonstrate proper care of Personal protective equipment.
3. Demonstrate knowledge of signage used in the shop.

## **AB1600 Trade Related Documents**

### **Outcomes:**

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

- Demonstrate knowledge of trade documents.
- Demonstrate knowledge of preparing and interpreting trade documents.
- Demonstrate knowledge of ordering and organizing parts and materials.

**Pre-requisites:** None

### **Objectives and content:**

1. Identify sources of related information.
2. Identify and interpret information found on the vehicle.
  - i. VIN
  - ii. paint code
3. Identify types of documents and describe the procedures used to interpret them.
  - i. Material Safety Data Sheets
  - ii. manuals and bulletins
  - iii. work orders
  - iv. estimates
4. Describe the procedures used to prepare documentation.
5. Describe procedures for ordering parts and materials.
6. Describe procedures for organizing/storing parts and materials.

### **Practical:**

1. Retrieve vehicle identification number and all other necessary information as specified by the Instructor for a specific job.

## **SV1110 Ozone Depletion**

### **Outcomes:**

Upon successful completion of this unit, the apprentice will be able to write an exam covering the regulation on ozone-depleting substances with a pass of 75%.

**Pre-requisites:** None

### **Objectives and Content:**

1. Describe procedures for handling ozone-depletion substances (refrigerants) used in motor vehicles as per Regulations.
2. Identify the Act relating to ozone-depletion substances regulations.



## **AB1620 Tools And Equipment**

### **Outcomes:**

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

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

**Pre-requisites:** AB1610

### **Objectives and Content:**

1. Identify types of hand tools and describe their applications and procedures for use.
  - i. basic
  - ii. trade specific
2. Identify types of basic measuring equipment and describe their applications and procedures for use.
3. Identify types of specialized measuring equipment and describe their applications.
4. Identify types of testing/diagnostic equipment and describe their applications.
5. Identify types of power tools and describe their applications and procedures for use.
  - i. electric
  - ii. pneumatic
  - iii. hydraulic
6. Identify types of shop equipment and describe their applications.
  - i. cleaning
  - ii. lifting
7. Identify types of welding and cutting equipment and describe their applications.
  - i. electric
  - ii. gas

8. Identify types of straightening equipment and describe their applications.
9. Identify types of refinishing and detailing tools and equipment and describe their applications.
10. Identify and describe care and maintenance procedures relating to tools and equipment.

**Practical:**

1. Demonstrate the use of various hand tools.
2. Demonstrate the use of various measuring equipment.
3. Demonstrate the use of various testing/diagnostic equipment.
4. Demonstrate the use of various power tools.
  - i. electric
  - ii. pneumatic
  - iii. hydraulic
5. Demonstrate the use of shop equipment used for cleaning and lifting.
6. Demonstrate care and maintenance of tools and equipment.

## **AB1630 Fasteners and Adhesives (Theory Only)**

### **Outcomes:**

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

- Demonstrate knowledge of fasteners and adhesives, their applications and safety considerations.

**Pre-requisites:** AB1610, AB1620

### **Objectives and Content:**

1. Identify and describe safety considerations and procedures relating to fasteners and adhesives.
  - i. personal
  - ii. vehicle
2. Identify types of fasteners and describe their applications.
3. Describe the procedures to remove and install fasteners.
4. Identify types of adhesives and describe their applications.
5. Identify the considerations when applying and removing adhesives.
  - i. product specific

## **AB1641 Vehicle Construction (Theory Only)**

### **Outcomes:**

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

- Demonstrate knowledge of vehicle construction.
- Demonstrate knowledge of vehicle components.

**Pre-requisites:** AB1610

### **Objectives and Content:**

1. Identify types of vehicle construction and describe their characteristics.
  - i. conventional frames
  - ii. unitized bodies
  - iii. space frames
2. Identify body sections and describe their components.
3. Identify and describe structural and non-structural components.
  - i. hinges and panel alignment
  - ii. latches and striker plates
4. Identify and describe the types of materials used in vehicle construction.

## **AB1651 Pre and Post-Repair Vehicle Inspection**

### **Outcomes:**

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

- Demonstrate knowledge to perform a visual inspection.
- Demonstrate knowledge of vehicle component operation.

**Pre-requisites:** None

### **Objectives and Content:**

1. Identify and describe the procedures used to perform a visual inspection of the vehicle before and after repairs.
2. Identify and record any damage on the vehicle that is unrelated to the required repair.
3. Identify and record associated damage in the repair area.
4. Identify vehicle components requiring operational checks.
5. Describe the procedures used to perform vehicle component operational checks.
6. Identify the purpose and procedures for conducting a vehicle road test.

### **Practical:**

1. Complete a pre and post-repair vehicle inspection check list.

## **AB1660 Metallurgy**

### **Outcomes:**

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

- Demonstrate knowledge of various metals and their characteristics.
- Demonstrate knowledge of metallurgic principles and their applications to control expansion, contraction and distortion.

**Pre-requisites:** AB1641

### **Objectives and Content:**

1. Define and explain terms associated with metallurgy.
2. Identify types of metals used in vehicle construction.
3. Describe the properties of metals.
4. Identify and describe procedures associated with working metals.
  - i. forming
  - ii. shearing
  - iii. punching
  - iv. drilling
  - v. cutting
  - vi. welding
5. Describe the effects metal working has on metallurgic properties.
  - i. stress
  - ii. contraction
  - iii. expansion
  - iv. distortion
  - v. work hardening
6. Describe the procedures to prevent or correct problems that occur when working metals.

**Practical:**

1. Measure, cut, and form panels as per instructor.

## **AB1671 Cutting and Heating**

### **Outcomes:**

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

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

**Pre-requisites:** AB1620

### **Objectives and Content:**

1. Identify and describe cutting and heating equipment and components.
  - i. oxy-fuel
  - ii. plasma arc
2. Identify the applications for oxy-fuel cutting and heating.
3. Identify the application for plasma arc cutting and heating.
4. Describe safety considerations when using cutting and heating equipment.
  - i. personal
  - ii. shop/facility
  - iii. equipment
  - iv. vehicle
5. Describe the procedures to set-up, maintain, and shut-down oxy-fuel equipment.
6. Describe the procedures to set-up, maintain, and shut-down plasma arc cutting equipment.
7. Describe the procedures used to cut with oxy-fuel equipment.
8. Describe the procedures used to cut with plasma arc cutting equipment.
9. Describe the procedures used to heat with oxy-fuel equipment.



**Practical:**

1. Set-up oxy-fuel equipment.
2. Perform heating using oxy-fuel equipment.
3. Cut mild steel using oxy-fuel equipment.
4. Use plasma arc equipment to cut metal.

## **AB1680 Gas Metal Arc Welding – GMAW (MIG)**

### **Outcomes:**

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

- Demonstrate knowledge of gas metal arc welding equipment, its applications, maintenance and procedures for use.
- Demonstrate knowledge of weld defects, their causes and the procedures to

**Pre-requisites:** AB1620, AB1671

### **Objectives and Content:**

1. Define and explain terminology associated with gas metal arc welding.
2. Describe gas metal arc welding and its applications.
3. Identify safety precautions relating to gas metal arc welding.
  - i. personal
  - ii. equipment
  - iii. vehicle
4. Identify and describe gas metal arc welding equipment and accessories.
5. Describe the procedures to set-up, operate and shut-down gas metal arc welding equipment.
6. Describe the procedures used to maintain and troubleshoot gas metal arc welding equipment.
7. Identify the types of welds performed using gas metal arc welding equipment.
  - i. plug
  - ii. fillet (continuous)
  - iii. stitch
  - iv. tack

8. Describe the procedures used to weld various substrates using the gas metal arc welding process.
  - i. steel
  - ii. aluminum
  
9. Describe the weld defects, their causes and the procedure to prevent and correct them
  - i. correct them

**Practical:**

1. Disassemble and reassemble GMAW welding system.
  
2. Fillet weld flat (GMAW): “t” joint and lap joint in steel and aluminum.
  
3. Fillet weld horizontal (GMAW): “t” joint and lap joint in steel and aluminum.
  
4. Butt weld flat (GMAW): square butt joint and single vee butt joint in steel and aluminum.

## **AB1690 Resistance Spot Welding (RSW)**

### **Outcomes:**

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

- Demonstrate knowledge of resistance spot welding and its applications.

**Pre-requisites:** AB1620, AB1671

### **Objectives and Content:**

1. Describe Resistance Spot Welding (RSW) and Squeeze Type Resistance Spot Welding (STRSW) and their applications.
2. Identify safety precautions relating to resistance spot welding and squeeze type resistance spot welding.
  - i. personal
  - ii. equipment
  - iii. Vehicle

### **Practical:**

1. Perform welds using STRSW equipment.

## **AB1701 Metal Working 1 (Mild Steel)**

### **Outcomes:**

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

- Demonstrate knowledge of metal working procedures for sheet metal repair.

**Pre-requisites:** AB1660

### **Objectives and Content:**

1. Identify the types of automotive sheet metal.
  - i. steel
  - ii. aluminum
2. Identify and describe types of damage to mild steel sheet metal.
  - i. direct
  - ii. indirect
3. Identify considerations when performing metal work on mild steel sheet metal.
  - i. tool selection
  - ii. repair sequence
  - iii. protection of adjacent panels
  - iv. panel preparation
4. Identify the types of panels and their associated repair procedures.
  - i. accessible
    - hammer and dolly
    - shrinking (hot or cold)
  - ii. limited access
    - prybar
    - pick
    - dent puller
    - uni-spotter
5. Describe the methods used to detect surface irregularities.

6. Describe the procedures used to rough out and align damaged mild steel sheet metal.
7. Describe the procedures used to prepare mild steel sheet metal for finishing.

**Practical:**

1. Retrieve information on different types of metals used and where they are located on a vehicle and identify any special procedures to be followed.
2. Unlock and shape metal to contour.
3. Shrink metal.
4. Pick and file metal.

## **AB1711 Body Fillers and Abrasives**

### **Outcomes:**

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

- Demonstrate knowledge of abrasives, their applications, safety considerations and procedures for use.
- Demonstrates knowledge of types of body fillers, their applications, safety considerations and procedures for use.

**Pre-requisites:** AB1701

### **Objectives and Content:**

1. Identify the types of abrasives and describe their characteristics and applications.
2. Describe the procedures and techniques for using abrasives.
3. Identify the types of body fillers and describe their characteristics and applications.
4. Identify safety considerations when working with body fillers and abrasives.
5. Describe the procedures to apply body fillers.
  - i. tools
  - ii. surface preparationn
  - iii. mixing
  - iv. application techniques
6. Describe the procedures for shaping and finishing body fillers.
  - i. grit selection
  - ii. tool selection
  - iii. sanding techniques
  - iv. detect surface irregularities
    - visual
    - guide coat
    - tactile (touch)

**Practical:**

1. Demonstrate techniques for using abrasives.
2. Demonstrate body filler application.
3. Demonstrate the procedures for shaping and finishing body fillers.



## **AB1721 Corrosion Protection**

### **Outcomes:**

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

- Demonstrate understanding of corrosion and its causes.
- Demonstrate knowledge of the effects of corrosion on metal.
- Demonstrate knowledge of types of corrosion protection, their characteristics and application procedures.

**Pre-requisites:** AB1701

### **Objectives and Content:**

1. Identify the types and causes of corrosion.
2. Identify environmental and atmospheric conditions that influence the rate of corrosion.
3. Identify and describe the types of corrosion protection.
  - i. electro-plating
  - ii. undercoats and topcoats
  - iii. anti-corrosion compounds
4. Describe the procedures used to inspect for corrosion related damage.
5. Identify corrosion protection materials used during repair procedures.
  - i. primers
  - ii. sealers
  - iii. anti-corrosion compounds
6. Identify the methods and tools used to restore corrosion protection.
7. Describe the procedures to restore corrosion protection to Original Equipment Manufacturer (OEM) specifications.
  - i. documentation

8. Describe the procedures to restore corrosion protection to electrical components.

**Practical:**

1. Use various types of corrosion protection.
2. Inspect for corrosion related damage.
3. Demonstrate the procedure used to restore corrosion protection to original equipment manufacturers specifications.
4. Demonstrate the procedure used to restore corrosion protection to electrical components.

## **AB1731 Surface Preparation (Cleaning, Stripping and Masking)**

### **Outcomes:**

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

- Demonstrate knowledge of surface cleaning procedures.
- Demonstrate knowledge of surface preparation using abrasives.
- Demonstrate knowledge of stripping equipment and products, their applications, safety precautions and procedures for use.
- Demonstrate knowledge of masking techniques.

**Pre-requisites:** AB1721

### **Objectives and Content:**

1. Describe ideal working conditions for surface preparation.
  - i. personal
  - ii. shop/facility
  - iii. equipment
  - iv. environmental
2. Identify products used to clean surfaces, their applications and procedures for use.
3. Identify substrate types and describe the procedures and considerations for evaluating their condition.
4. Identify topcoats and undercoats and describe the procedures and considerations for evaluating their condition.
5. Identify the methods used to strip topcoats and undercoats, their applications and safety or environmental considerations.
  - i. sanding
  - ii. chemical strippers
  - iii. media blasting
  - iv. mechanical

6. Describe the procedures used to strip paint.
7. Describe the procedures used to prepare surfaces using abrasives.
8. Identify the materials used in masking.
9. Describe the procedures and techniques used to mask surfaces.
10. Describe the procedures and techniques to remove masking from surfaces.

**Practical:**

1. Mark off areas using masking technique.
2. Strip paint using chemicals and blasting equipment.
3. Remove grease and dirt from surfaces to be painted.
4. Prepare paint booth (clean and drain air line system).
5. Sand surfaces using hand and power techniques.

## **AB1740 Non-Metal Repair**

### **Outcomes:**

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

- Demonstrate knowledge of non-metal materials, their applications and associated repair procedures.

**Pre-requisites:** AB1711

### **Objectives and Content:**

1. Identify non-metal materials and describe their characteristics and applications.
  - i. plastics
  - ii. fiberglass
  - iii. composites
  - iv. sheet molded compounds (SMC)
2. Identify products and material used in non-metal repair.
  - i. ISO codes
3. Describe the procedures used for non-metal repairs of:
  - i. plastics
  - ii. fiberglass
  - iii. composites
  - iv. sheet molded compounds (SMC)
4. Identify plastic welding equipment and the associated set-up and shut-down procedures.

**Practical:**

1. Perform plastic welding and bonding procedures.
2. Repair and fill fiberglass panels.
3. Repair polyplastic compounds.
4. Fill damaged area with plastic filler.

## **AB1750 Stationary Glass**

### **Outcomes:**

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

- Demonstrate knowledge of the types of stationary glass, its characteristics and importance to vehicle structure.
- Demonstrate knowledge of the procedures to replace stationary glass to industry standards.

**Pre-requisites:** AB1760

### **Objectives and Content:**

1. Identify the types of stationary glass and describe their characteristics.
2. Describe stationary glass and its importance to the vehicle structure/integrity.
3. Describe the procedures to determine if stationary glass can be repaired or if replacement is necessary.
4. Identify the fastening methods for stationary glass and describe the associated components.
  - i. mechanical
  - ii. gasket mounted
  - iii. bonded
5. Identify components and accessories associated with stationary glass.
6. Identify tools and equipment used in stationary glass replacement and their procedures for use.
7. Describe materials used for stationary glass replacement, their characteristics and procedures for use.

8. Describe the procedures and precautions for removal and installation of stationary glass and its related components.
9. Describe the procedures used to detect and repair leaks around stationary glass.

**Practical:**

1. Perform fastening methods for stationary glass.
2. Perform checks to detect and repair leaks around stationary glass.



## **AB1760 Moveable Glass and Hardware**

### **Outcomes:**

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

- Demonstrate knowledge of types of moveable glass and their characteristics.
- Demonstrate knowledge of hardware and attachments associated with moveable glass.
- Demonstrate knowledge of procedures to replace moveable glass and repair or replace its associated hardware and attachments.

**Pre-requisites:** AB1790

### **Objectives and Content:**

1. Identify the types of moveable glass and describe their characteristics.
2. Describe moveable glass related hardware.
  - i. motors
  - ii. regulators
  - iii. channels
3. Identify the fastening methods for moveable glass and describe the associated components.
  - i. mechanical
  - ii. pressure
  - iii. bonded
4. Describe the procedures and considerations for inspecting moveable glass and its associated hardware.
5. Describe the procedures used to remove and install moveable glass.
6. Describe the procedures used to detect and repair leaks.
7. Describe the procedures used to service and adjust moveable glass.

**Practical:**

1. Replace fixed glass (rubber mounted).
2. Replace fixed glass (adhesive mounted).
3. Install moveable glass.
4. Service and adjust moveable glass.
5. Perform checks for wind noise and water leaks.

## **AB1770 Undercoats**

### **Outcomes:**

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

- Demonstrate knowledge of undercoats, their applications, safety considerations and procedures for use.
- Demonstrate knowledge of undercoat materials, their characteristics and mixing procedures.
- Demonstrate knowledge of types of equipment used in applying undercoats, their set-up, maintenance and procedures for use.

**Pre-requisites:** AB1721

### **Objectives and Content:**

1. Identify types of undercoats and describe their characteristics and applications.
2. Describe safety considerations and requirements relating to undercoats.
  - i. personal
  - ii. shop/facility
  - iii. environment
3. Identify equipment used in applying undercoats.

### **Practical:**

1. Set-up, adjust, and maintain equipment used in applying undercoats.
2. Demonstrate the procedures used to prepare substrate prior to applying undercoats.
3. Demonstrate the procedures for mixing undercoats.
4. Demonstrate undercoat application techniques and procedures.

5. Demonstrate procedure to prevent and correct undercoat defects.
6. Demonstrate how to prepare undercoats for topcoat.

## **AB1800 Refinishing 1**

### **Outcomes:**

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

- Demonstrate knowledge of refinishing materials and their characteristics.
- Demonstrate knowledge of refinishing equipment, its applications, maintenance and procedures for use.

**Pre-requisites:** AB1770

### **Objectives and Content:**

1. Describe safety considerations relating to refinishing.
  - i. personal
  - ii. shop/facility
  - iii. environment
2. Describe the surface preparation procedures for refinishing.
3. Identify refinishing equipment and its applications.
4. Describe the procedures used to set-up, operate, adjust, and maintain refinishing equipment.
5. Identify types of single-stage finishes and describe their characteristics.
6. Identify the types of basecoat/clearcoat finishes and describe their characteristics.

**Practical:**

1. Prepare surface for refinishing and blending.
2. Set-up, operate, adjust, and maintain refinishing equipment.
3. Apply single-stage finishes.
4. Apply basecoat/clearcoat finishes.

## **AB1780 Cleaning and Detailing**

### **Outcomes:**

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

- Demonstrate knowledge of cleaning and detailing equipment and products.
- demonstrate knowledge of cleaning and detailing practices and procedures.

**Pre-requisites:** AB1800

### **Objectives and Content:**

1. Identify equipment used in detailing vehicle exterior.
2. Identify equipment used in detailing vehicle interior.
3. Identify products used in vehicle detailing and their related safety considerations.
4. Describe techniques for correcting topcoat defects.
  - i. polishing
  - ii. buffing
5. Describe the procedures to remove overspray.
6. Describe the procedures used to polish vehicle exterior.
7. Describe the procedures used to clean vehicle interior.
8. Describe the procedures used to wash vehicle exterior.

**Practical:**

1. Perform final clean-up for customer delivery:
  - i. remove overspray
  - ii. wash and polish vehicle exterior
  - iii. clean vehicle interior
  
2. Perform water sanding and buffing techniques.



## **AB1790 Upholstery, Trim and Hardware**

### **Outcomes:**

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

- Demonstrate knowledge of types of trim, their applications and characteristics.
- Demonstrate knowledge of procedures to repair and replace upholstery, trim and hardware.
- Demonstrate knowledge of procedures to detect and repair noises and leaks contributed to trim and hardware.

**Pre-requisites:** AB1620

### **Objectives and Content:**

1. Identify and describe exterior trim and hardware.
2. Identify and describe interior upholstery, trim and hardware.
3. Describe fasteners and adhesives used in the installation of upholster, trim and hardware.
4. Describe the procedures used to repair or replace exterior trim.
5. Describe the procedures used to remove and install pin stripes and decals.
6. Describe the procedures used to inspect interior upholstery, trim and hardware for collision related damage.
7. Describe the procedures used to repair or replace interior trim.
8. Describe the procedure used to repair or replace upholstery.
9. Describe the procedures used to detect leaks related to interior and exterior trim and hardware.

10. Describe the procedures used to repair leaks related to interior and exterior trim and hardware.
11. Describe the procedures used to locate noises related to interior and exterior trim and hardware.
12. Describe the procedures used to repair noises related to interior and exterior trim and hardware.

**Practical:**

1. Remove and re-install exterior trim.
2. Remove and install pin stripes and decals.
3. Visual inspection of interior upholstery, trim and hardware for collision damage.
4. Remove and re-install interior trim.
5. Remove and re-install upholstery.

## **AB1811 Batteries**

### **Outcomes:**

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

- Demonstrate knowledge of batteries, their operation and associated safety considerations.
- Demonstrate knowledge of procedures to test and charge batteries.
- Demonstrate knowledge of procedures to remove and replace batteries.

**Pre-requisites:** AB1610

### **Objectives and Content:**

1. Identify the types of batteries and describe their purpose, location, construction, operation and
2. Identify safety precautions relating to batteries.
  - i. handling
  - ii. storage
  - iii. disposal
3. Describe the procedures used to test batteries.
4. Describe the procedures used to charge batteries.
5. Describe the procedures used to remove and replace batteries.

### **Practical:**

1. Remove and re-install batteries while maintaining memories.
2. Load test an automotive battery.
3. Charge an automotive battery.
  - i. slow charge
  - ii. fast charge

## **AP1100 Introduction to Apprenticeship**

### **Description:**

This course is designed to give participants the knowledge base and skills necessary to understand and successfully navigate the apprenticeship/red seal program.

### **Course Outcomes:**

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

- Identify the requirements for registering in an Apprenticeship Program.
- Describe the registration process.
- Explain the steps to complete the Apprenticeship Program.
- Articulate the roles of the Apprentice, Journeyperson, Training Institutions, Industry and Governing Bodies in the Apprentice Program.
- Explain the significance of the Red Seal Program.

**Pre-Requisites:** None

### **Objective and Content:**

1. Define Apprenticeship.
  - i. define Apprenticeship and Red Seal Certification
  - ii. discuss the definition of Apprenticeship and Red Seal Certification
  - iii. distinguish between Red Seal and Provincial Certification
2. Explore how Apprenticeship is governed and administered
  - i. explain who is responsible for administrating apprenticeship
    - Department of Education
    - Provincial Apprenticeship and Certification Board
3. Explore the roles and responsibilities of those involved in the apprenticeship process.
  - i. Apprentice
  - ii. Employer/Journeyperson

- iii. Industrial Training Division
    - explain when and where to take the in-class portion of advance training
    - discuss Class Calls
  - iv. Training Institutions
    - Various Delivery Methods
  - v. Provincial Apprenticeship and Certification Board
4. List and explain the steps in the apprenticeship process.
- i. explain the Registration Process
  - ii. describe apprenticeship as an agreement between employee, employer and Provincial Government
  - iii. review a Memorandum of Understanding
  - iv. legal document
  - v. review an Application of Apprenticeship
    - original High School Certificate or equivalent
    - original transcript from the applicants Training Institution
  - vi. describe the roles of Institutional and Industrial Education Division of the Department of Education in Apprenticeship
  - vii. explain the role of the Program Development Officer
    - define probation period
    - discusses what constitutes a cancellation of apprenticeship
    - explain the consequences of an Apprenticeship cancellation
    - discuss the purpose of the Record of Occupational Progress (Log Book)
    - explore how to maintain your log book
      - discuss who is responsible for tracking and signing-off on trade skills
      - explain how and where to record hours worked
      - identify the importance of updating your file with your Program Development Officer
  - viii. differentiate between Provincial and Interprovincial exams
5. Describe the training and education requirements.
- i. discuss the factors affecting on-the-job and in class portions of your training
  - ii. define in school and on the job training
    - review a Plan of Training
    - identify the percentage of on-the-job and in class training time

- current labour market implications on completing an apprenticeship program
6. Explain Plans of Training.
    - i. identify what is included in the Plan of Training
      - entrance requirements
      - duration of in-school and on-the-job training
      - course content
      - entry level or advanced level
    - ii. explain how a Journeyperson Certificate is achieved
      - discuss Certificate of Qualification
      - discuss Certificate of Apprenticeship
      - discuss Red Seal endorsement
  7. Discuss the Red Seal Program.
    - i. define designated trade
    - ii. explore the National Occupational Analysis for your trade
    - iii. explain Interprovincial Standards Red Seal Program and how it works
      - labor mobility
      - qualification recognition
    - iv. discuss the range of careers possible in your chosen trade
  8. Explain apprenticeship progression schedule and wage rates.
    - i. review a Record of Occupational Progress (Log Book)
    - ii. hours per program
    - iii. requirements for progression
    - iv. wage rates per year of apprenticeship
  9. Identify the examinations and evaluation process used in Apprenticeship.
    - i. discuss occupational tests and examinations as directed by the Provincial Apprenticeship and Certification Board
      - Theory
      - Practical
    - ii. explain formal assessment and the pass mark of 70%
  10. Examine some of the financial incentives available to apprentices.
    - i. employment insurance (E.I.) Benefits
    - ii. government sponsored student loans
    - iii. apprenticeship incentive Federal and Provincial

- iv. scholarships
11. Continuing Training outside the Province of Newfoundland and Labrador.
- i. training in other provinces and territories
    - procedure for registration and recognition of hours and skills in other provinces
  - ii. options for Dual Certification
    - transfer of credits
12. Review and define the following terms:
- i. Apprenticeship Program Accreditation
  - ii. Cancellation of Apprenticeship
  - iii. Certificate of Apprenticeship
  - iv. Certificate of Qualification
  - v. Certification Renewal
  - vi. Criteria for Eligibility
  - vii. Journeyperson
  - viii. Practical Examination
  - ix. Prior Learning
  - x. Record of Occupational Progress (Logbook)
  - xi. Red Seal Certification
  - xii. Registered Apprentice
  - xiii. Theoretical Examination
  - xiv. National Occupational Analysis (NOA)
  - xv. Class Call
  - xvi. Dual certification

**Practical:**

1. Review the Provincial Apprenticeship web site: [www.gov.nl.ca/app](http://www.gov.nl.ca/app)
  - i. identify the requirements for registering as an apprentice and the registration process
  - ii. explain the steps to complete an apprenticeship program
  - iii. identify who is responsible for tracking and signing-off on trade skills
  - iv. identify the nearest Industrial Training Office to your community
  - v. identify the current incentives available to apprentices
  
2. Review a plan of training on the Provincial Apprenticeship web site.
  - i. identify the hours for your trade (in-school and on-the-job)
  - ii. explain the roles and responsibilities of the following stakeholders in the apprenticeship process: employer, apprentice, training institution and the Industrial Training Division
  
3. Visit the Red Seal Web site <http://www.red-seal.ca>, review the National Occupational Analyses for your trade.
  - i. review the scope of work for your occupation and identify the industry sectors and job types requiring your trade
  - ii. identify the trends of your trade
  - iii. provide a list of Personal Protective Equipment required for your trade



## **MA1060 Basic Math**

### **Description:**

This course in Basic Math requires knowledge of general mathematical concepts and processes to enable trades persons to function in the institutional setting by developing numeracy skills required for technical courses. This math course should also provide a foundation for experiential learning through knowledge of math relating to on-the-job skills and practices. A detailed course outline is available from Institutional and Industrial Education, Standards and Curriculum Division to training institutions upon request.

### **Course Outcomes:**

- To develop numeracy skills and knowledge required for institutional and on-the-job learning.
- To develop the capability to apply mathematical concepts in the performance of trade practices.
- To develop an appreciation for mathematics as a critical element of the learning environment.
- To use mathematical principles accurately for the purposes of problem solving, job and materials estimation, measurement, calculation, system conversion, diagram interpretation and scale conversions, formulae calculations, and geometric applications.

**Pre-Requisites:** None

### **Course Objectives (Knowledge):**

1. Define and calculate using whole number operations.
2. Define and demonstrate use of correct orders of operations.
3. Demonstrate examples of operations with fractions and mixed numbers.
4. Demonstrate examples of operations with decimals.

5. Demonstrate examples of operations with percentages.
6. Employ percent/decimal/fraction conversion and comparison.
7. Define and calculate with ratios and proportions.
8. Use the Imperial Measurement system in relevant trade applications.
9. Use the Metric Measurement system in relevant trade applications.
10. Perform Imperial/Metric conversions.
11. Define and demonstrate the formulation of variables.
12. Demonstrate and define the various properties of angles and make relevant calculations.

**Major Tasks/Sub-tasks (Skills):**

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

## **CM2150 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.

**Pre-Requisites:** None

### **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 and 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
  
2. 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
  
3. Examine types of presentations.
  - i. review and discuss components of an effective presentation
  - ii. review and discuss delivery techniques
  - iii. review and discuss preparation and use of audio/visual aids
  - iv. discuss and participate in confidence building exercises used to prepare for giving presentations
  
4. 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 and 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.

## **MR1220 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.

**Pre-Requisites:** None

### **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 and challenges they may present
  - v. describe customer loyalty
  - vi. examine barriers to quality customer service
2. Explain how to determine customer 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 and 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
  - v. 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 and resolving conflict.
  - i. examine and discuss ways to control feelings
  - ii. examine and discuss ways to interact with an upset customer
  - iii. examine and discuss ways to resolve conflict/customer criticism
  - iv. examine and discuss ways to prevent unnecessary conflict with customers

**Practical:**

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

## **SP2330 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.

**Pre-Requisites:** None

### **Objectives and 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 quality assurance system such as ISO, CSA,
  - iii. WHMIS, Sanitation Safety Code (SSC)
  - iv. explain the purpose of the quality assurance manual
  - v. 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

## **MC1050 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.

**Pre-Requisites:** None

### **Objectives and 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. create folders
  - ii. maximize and minimize a window
  - iii. describe windows task bar
6. Describe Keyboards.
- i. identify and locate alphabetic and numeric keys
  - ii. identify and locate function key and 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 and 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 and 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 and 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. passwords
  - ii. accessing accounts
  - iii. viruses and how they can be avoided
  - iv. identity theft and ways to protect personal information
  
  - v. demonstrate how to view directory structure and folder content
  - vi. organize files and folders
  - vii. copy, delete, and move files and folders
  
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 and print a spread sheet.
6. Post a document on-line.

## **SD1700 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

**Pre-Requisites:** None

### **Objectives and Content:**

1. Meetings.
  - i. identify and 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  
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 and 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.

## **SD1710 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.

**Pre-Requisites:** None

### **Objectives and 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 and Certification website.

## **SD1720 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.

**Pre-Requisites:** None

### **Objectives and Content:**

1. Explore Self-Employment: An alternative to employment.
  - i. identify the advantages and disadvantages of a self-employment vs. regular employment
  - ii. differentiate between an entrepreneur and a small business owner
  - iii. evaluate present ideas about business people
2. Identify and discuss various types of business ownership.
  - i. explore the characteristics 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

4. Review the Entrepreneurial Process.
  - i. explain the entrepreneurial process
  - ii. describe the purpose of a business plan

## **Block 2**

### **AB2710 Electronic Fundamentals**

#### **Outcomes:**

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

- Demonstrate knowledge of electrical theory and its application.
- Demonstrate knowledge of equipment and procedures used to test electrical and electronic components.
- Demonstrate knowledge of safety precautions relating to electrical and electronic components.
- Demonstrate knowledge of electrical schematics, their applications and interpretation.

**Pre-requisites:** AB1811

#### **Objectives and Content:**

1. Describe the basic electrical theory.
2. Identify and define trade related terminology associated with electrical and electronic components.
3. Identify and describe safety precautions relating to electrical and electronic components.
4. Identify and describe basic electrical and electronic components and their operation.
5. Identify instruments used to test electrical and electronic circuits and components and their procedures for use.

6. Identify and describe electrical schematics and their use in the trade.
7. Describe the procedures used to interpret electrical schematics in the repair of electrical systems and electronic components.
  - i. original equipment manufacturer (OEM) recommendations
8. Describe the procedures used to test electrical and electronic circuits and components.

**Practical:**

1. Interpret an electrical schematic.
2. Demonstrate the use of Multi-meters.
3. Use OHMS law to calculate values in a parallel series circuit.

## **AB2700 Metal Working 2 (Aluminum)**

### **Outcomes:**

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

- Demonstrate knowledge of metal working procedures for aluminum sheet metal repair.

**Pre-requisites:** AB1660

### **Objectives and Content:**

1. Identify and describe types of damage to aluminum sheet metal.
  - i. direct
  - ii. indirect
2. Identify considerations when performing metal work on aluminum sheet metal.
  - i. tool selection
  - ii. repair sequence
  - iii. protection of adjacent panels
  - iv. panel preparation
3. Identify the types of panels and their associated repair procedures.
  - i. accessible
    - hammer and dolly
    - shrinking (hot or cold)
  - ii. limited access
    - prybar
    - pick
    - dent puller
4. Describe the procedures used to rough out and align damaged aluminum sheet metal.
5. Describe the procedures used to prepare aluminum sheet metal for finishing.



**Practical:**

1. Unlock and shape metal to contour.
2. Prepare aluminum sheet metal for finishing.

## **AB2720 Postion Arc Welding (GMAW)**

### **Description:**

The GMAW course requires the use of safety equipment; GMAW equipment and accessories for welding light metals (110 volt MIG welder), and materials and supplies. It involves setting up GMAW equipment, preparing and welding the joint, shutting down the equipment and testing the weld. It includes information on types of welding machines, types of shielding gas, power supplies, types of wire, codes and standards, welding techniques, methods of transfer and GMAW parameters.

**Pre-requisites:** AB1620, AB1671

### **Course Outcomes:**

- To develop the skills and knowledge required for welding light metal structures with respect to various codes and standards.
- To practice safety in potentially harmful situations.

### **Objectives and Content:**

1. Fillet weld vertical.
2. Fillet weld overhead.
3. Butt weld horizontal.
4. Butt weld vertical.
5. Butt weld overhead.

**Practical:**

1. Fillet weld light metals vertical (GMAW).
  - i. describe the GMAW process used on the vertical position such as work and travel angle, gun manipulation, defects commonly encountered and effects of welding variables
  - ii. run stringer beads in vertical position on m.s.
  - iii. weld in vertical position
    - “T” joint
    - lap joint
  
2. Fillet weld light metals overhead (GMAW).
  - i. describe the overhead position, the necessary position, the necessary safety, positioning of the joint, common defects encountered, gun manipulation, effects of welding variables on weld characteristics
  - ii. run stringer beads on overhead position
  - iii. weld in the overhead position
    - “T” joint
    - lap joint
  
3. Butt weld light metals horizontal (GMAW).
  - i. describe horizontal butt welds, joint design, joint fit up, common defects, work and travel angles, gun manipulation, welding variables and characteristics
  - ii. weld butt joint
    - square butt joint
    - singles “V” joint
  - iii. perform guided bend test
  
4. Butt weld light vertical (GMAW).
  - i. describe the vertical position butt weld joint design and fit up, common defects, work and travel angles, gun manipulation, effects of weld in vertical position
    - square butt
    - single vee
  - ii. perform guided bend test

5. Butt weld light metals overhead (GMAW).
  - i. describe the butt weld in the overhead position, joint design and fit up, common defects, work and travel angles, gun manipulation, effects of welding variables and characteristics
  - ii. weld butt joint
    - square butt joint
    - single “v” joint
  - iii. perform guided bend test

## **AB2730 Restraint Systems**

### **Outcomes:**

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

- Demonstrate knowledge of types of restraint systems, their components and operation.
- Demonstrate knowledge of procedures to replace restraint systems.
- Demonstrate knowledge of safety considerations relating to restraint systems.

**Pre-requisites:** AB2710, AB1811

### **Objectives and Content:**

1. Identify the types of restraint systems and their components and operation.
  - i. active
  - ii. passive
2. Identify and interpret documentation relating to servicing restraint systems.
  - i. service manuals
  - ii. original equipment manufacturer (OEM) recommendations
3. Identify safety considerations relating to restraint systems and their components.
  - i. handling
  - ii. storage
  - iii. disposal
4. Describe the procedures used to remove seat belt restraint systems and their components.
5. Describe the procedures used to inspect seat belt restraint systems and their components.
6. Describe the procedures used to install seat belt restraint systems and their components.

7. Describe the procedures used to remove air bags and their related components.
8. Describe the procedures used to install air bags and their related components.
9. Describe the procedures used to perform operation check of restraint systems.

**Practical:**

1. Inspect seat belts.
2. Locate and identify Safety Restraint Systems (SRS).
3. Locate and retrieve restraint related codes.
4. Remove and re-install air bags.

## **AB2740 Structural Components**

### **Outcomes:**

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

- Demonstrate knowledge of the procedures to repair and replace structural components.
- Demonstrate knowledge of procedures to adjust and align structural components.

**Pre-requisites:** AB1641, AB1660

### **Objectives and Content:**

1. Identify and describe structural components.
2. Identify and explain safety considerations when repairing or replacing structural components.
3. Describe the procedures used to inspect structural components for:
  - i. corrosion
  - ii. collision
4. Identify and describe tools and measuring equipment used to repair or replace structural components.
5. Describe the procedures used to repair structural components.
  - i. original equipment manufacturer (OEM) recommendations
  - ii. industry standards
6. Describe the procedures used to remove and re-install structural components.
7. Describe the procedures used to replace structural components.
  - i. full replacement
  - ii. sectioning
8. Describe the procedures used to adjust and align structural components.

**Practical:**

1. Inspect structural components for corrosion and collision.
2. Use tools and equipment to repair and replace structural components.
3. Repair structural components.
4. Remove and re-install structural components.
5. Adjust and align structural components.



### **Block 3**

#### **AB2811 Non-Structural Components**

##### **Outcomes:**

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

- Demonstrate knowledge of non-structural component repair and replacement procedures.
- Demonstrate knowledge of procedures to align and adjust non-structural components.

**Pre-requisites:** AB1641, AB1660

##### **Objectives and Content:**

1. Identify and describe non-structural components.
2. Identify and describe safety consideration when repairing or replacing non-structural components.
3. Describe the procedures used to inspect non-structural components.
  - i. corrosion
  - ii. collision
4. Identify and describe tools and equipment used to repair or replace non-structural components.
5. Describe the procedures used to repair non-structural components.
  - i. original equipment manufacturer (OEM) recommendations
  - ii. industry standards
6. Describe the procedures used to remove and re-install non-structural components.

7. Describe the procedures used to replace non-structural components.
  - i. full replacement
  - ii. sectioning
8. Describe the procedures used to adjust and align non-structural components.

**Practical:**

1. Inspect non-structural components for:
  - i. corrosion
  - ii. collision
2. Use tools and equipment to repair and replace non-structural components.
3. Repair non-structural components.
4. Remove and re-install non-structural components.
5. Adjust and align non-structural components such as doors, hinges, etcetera.

## **AB2821 Electrical and Electronic Repairs**

### **Outcomes:**

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

- Demonstrate knowledge of procedures for diagnosing and determining damage to electrical and electronic systems and components.
- Demonstrate knowledge of procedures to repair and replace electrical and electronic components.

**Pre-requisites:** AB2710

### **Objectives and Content:**

1. Identify electrical systems, electronic systems and accessories.
  - i. vehicle management systems
  - ii. electrical generation and distribution systems
  - iii. lighting systems
2. Identify tools and equipment used in electrical and electronic repairs and adjustments and describe their applications and procedures for use.
3. Identify and describe safety considerations associated with electrical and electronic systems during repairs.
  - i. personal
  - ii. vehicle
4. Describe the procedures to protect electrical and electronic systems during repairs.
5. Describe electrical and electronic damage associated with collisions.
6. Describe the procedures used to diagnose electrical or electronic systems and components.
7. Describe the procedures used to repair, adjust and replace electrical and electronic systems and components.

**Practical:**

1. Align headlights as per manufacturer's specifications.
2. Diagnose and repair a lighting circuit.
3. Diagnose and repair:
  - i. power window circuit
  - ii. power lock circuit
  - iii. horn circuit
  - iv. wiper/washer circuit
  - v. rear defrost circuit

## **AB2800 Refinishing 2**

### **Outcomes:**

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

- Demonstrate knowledge of refinishing materials, their characteristics and mixing procedures.

**Pre-requisites:** AB2710

### **Objectives and Content:**

1. Describe color theory.
2. Describe the procedures used for color matching.
3. Describe the procedures for mixing and applying single stage finishes.
  - i. spot
  - ii. panel
  - iii. complete
4. Describe the procedures for mixing and applying basecoat/clearcoat and tri- coat finishes.
  - i. spot
  - ii. panel
  - iii. complete
5. Describe the procedures used to refinish plastic parts.
  - i. interior
  - ii. exterior
6. Identify topcoat defects that occur during application and describe the procedures used to prevent or correct them.

**Practical:**

1. Demonstrate the procedure for:
  - i. color matching
  - ii. for mixing and applying single stage finishes
  - iii. for mixing and applying basecoat, clearcoat, and tri-coats.
  - iv. refinishing pastic parts
  - v. to correct and prevent topcoat defects

## **AB2830    Damage Analysis of Conventional Frames and Unitized Bodies**

### **Outcomes:**

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

- Demonstrate knowledge of tools and equipment used to analyze damage to conventional frames and unitized bodies.
- Demonstrate knowledge of procedures to analyze damage to conventional frames and unitized bodies.

**Pre-requisites:** AB2740

### **Objectives and Content:**

1. Identify energy management zones in conventional frames and unitized bodies as per manufacturing specifications.
2. Identify and describe measuring tools and equipment used to analyze damage to conventional frames and unitized bodies, their applications and procedures for use.
3. Identify and describe the procedures and considerations for analyzing damage to unitized bodies.
4. Identify and describe the procedures and considerations for analyzing damage to conventional frames.

### **Practical:**

1. Identify and locate energy management zones in conventional frames and unitized bodies.
2. Perform damage analyses on both a conventional frame and a unitized body vehicle.

## **Block 4**

### **AB2901 Mechanical Systems and Components**

#### **Outcomes:**

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

- Demonstrate knowledge of procedures for inspecting and determining damage to mechanical systems and components.
- Demonstrate knowledge of procedures to repair and replace mechanical systems and components.

**Pre-requisites:** Entry level completed

#### **Objectives and Content:**

1. Identify mechanical components.
  - i. drive train
  - ii. exhaust system
  - iii. fuel system
  - iv. heating/cooling system
  - v. accessories
2. Identify and describe safety considerations relating to servicing mechanical systems and components.
  - i. personal
  - ii. shop/facility
  - iii. environment
3. Identify and describe safety regulations and documentation relating to servicing mechanical systems.
  - i. jurisdictional regulations
  - ii. federal regulations
4. Identify tools and equipment used to service mechanical systems and components.



5. Describe the procedures to inspect mechanical systems for collision related damage.
6. Describe the procedures used to remove and re-install mechanical components in order to perform collision repairs.
7. Describe the procedures used to clean, repair and replace mechanical systems components.
8. Describe the procedures used to perform operation check of mechanical system and components.

**Practical:**

1. Perform an inspection of the mechanical systems on a vehicle for collision damage.
2. Remove, clean, repair, and re-install mechanical components of a vehicle.

## **SV1110 Ozone Depletion**

### **Outcome:**

Upon successful completion of this unit, the apprentice will be able to write an exam covering the regulation ozone-depleting substances with a pass of 75%.

**Pre-requisites:** None

### **Objectives and Content:**

1. Describe procedures for handling ozone-depleting substances (refrigerants) used in motor vehicles as per regulations.
2. Identify the Act relating to ozone-depletion substances regulations.

## **AB2910 Steering, Suspension and Braking Systems**

### **Outcomes:**

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

- Demonstrate knowledge of procedures for inspecting and determining damage to steering, suspension and braking systems and components.
- Demonstrate knowledge of procedures to repair and replace steering, suspension and braking systems and components.

**Pre-requisites:** AB2901

### **Objectives and Content:**

1. Identify types of steering and suspension systems and their components.
2. Identify and explain terminology associated with steering, suspension and braking systems and components.
3. Define and explain terminology associated with steering, suspension and braking systems and components.
4. Identify and describe regulations and documentation relating to servicing steering, suspension and braking systems.
5. Identify and describe safety considerations relating to servicing steering, suspension and braking systems and components.
  - i. personal
  - ii. shop/facility
  - iii. environment
  - iv. liability
6. Identify tools and equipment used to service steering, suspension and braking systems components.

7. Describe the procedures to identify damaged or worn steering and suspension system components.
8. Describe the procedures used to remove and re-install steering, suspension and braking components in order to perform collision repairs.
9. Describe the procedures used to service steering and suspension components.
10. Identify the alignment process and its importance in the repair of steering and suspension system components.
11. Describe the procedures used to service and replace braking system components.
12. Describe the procedures used to perform operation check of steering, suspension and braking system and components.

**Practical:**

1. Inspect and repair tires.
2. Remove tires from rims.
3. Replace tires.
4. Balance wheel and tire assemblies.
5. Clean, inspect and repack serviceable wheel bearing.
6. Identify and locate different types of suspension systems.
7. Locate and identify steering linkage systems.
8. Identify and locate various braking systems (drum and disc).
9. Identify and locate ABS brake components.
10. Retrieve ABS trouble codes.

11. Remove and re-install steering, suspension and braking components.
12. Replace steering components.
13. Perform power-steering pressure tests.

## **AB2920 Unitized Body Repairs**

### **Outcomes:**

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

- Demonstrate knowledge of equipment used to repair unitized bodies, their applications and procedures for use.
- Demonstrate knowledge of procedures used to repair unitized bodies.
- Demonstrate knowledge of anchoring and anchoring equipment interpret related documentation and specifications.

**Pre-requisites:** AB2830

### **Objectives and Content:**

1. Define and explain terminology relating to repairing unitized bodies.
2. Identify and describe safety precautions relating to straightening and repairing unitized bodies.
  - i. personal
  - ii. shop/facility
  - iii. vehicle
  - iv. liability
3. Identify measuring equipment and describe its application and procedures for use.
4. Identify the type of damage and determine the appropriate repair procedure.
5. identify straightening equipment and describe its applications and procedures for use.
6. Identify anchoring techniques and procedures used for unitized body repair.
7. Describe the procedures used to repair unitized bodies.
  - i. original equipment manufacturer (OEM) specification

**Practical:**

1. Set-up and use measuring equipment used in repairing unitized bodies.
2. Set-up and use straightening equipment used in repairing unitized bodies.
3. Demonstrate anchoring techniques and procedures used for repairing unitized bodies.

## **AB2930 Conventional Frame Repair**

### **Outcomes:**

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

- Demonstrate knowledge of equipment used to repair and align frames, their applications and procedures for use.
- Demonstrate knowledge of procedures used to repair and align frames.
- Demonstrate knowledge of sectioning procedures for frames.

**Pre-requisites:** AB2830

### **Objectives and Content:**

1. Define and explain terminology relating to repairing conventional frames.
2. Identify and describe safety precautions relating to repairing and aligning conventional frames.
  - i. personal
  - ii. shop/facility
  - iii. vehicle
  - iv. liability
3. Identify and describe types of conventional frame construction.
4. Identify measuring equipment and describe its application and procedures for use.
5. Describe the procedures to identify the type of damage and determine the appropriate repair procedure.
6. Identify straightening equipment and describe its applications and procedures for use.
7. Identify anchoring techniques and procedures used for conventional frame repair.



8. Describe the procedures used to repair conventional frames.
  - i. original equipment manufacturer (OEM) specifications
9. Describe the procedures used to section a conventional frame.
  - i. original equipment manufacturer (OEM) specification

**Practical:**

1. Set-up and use measuring equipment used for repairing conventional frames.
2. Demonstrate the use of straightening equipment.
3. Demonstrate anchoring techniques and procedures used for conventional frame repair.

## **AB2940 Damage Analysis and Estimating Costs**

### **Outcomes:**

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

- Perform an estimate.
- Prepare estimate documentation.

**Pre-requisites:** Entry level completed

### **Objectives and Content:**

1. Describe the importance of effective communication relating to preparing estimates.
  - i. customers
  - ii. co-workers
  - iii. appraisers
  - iv. insurance adjusters
2. Identify the sources of information used in the preparation of estimates.
3. Describe the procedures used to perform estimates.
4. Describe the procedures used to prepare estimate documentation.

### **Practical:**

1. Locate and list all of the necessary sources of information from the vehicle and applicable data bases.
2. Perform estimate and prepare estimate documentation.