

Apprenticeship and Industry Training

Auto Body Technician

Apprenticeship Course Outline

010.1 (2017)



Apprenticeship
and Industry
Training

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Auto Body Technician: apprenticeship course outline

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**Auto Body Technician
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Course Outline

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Apprenticeship

Apprenticeship is post-secondary education with a difference. Apprenticeship begins with finding an employer. Employers hire apprentices, pay their wages and provide on-the-job training and work experience. Approximately 80 per cent of an apprentice's time is spent on the job under the supervision of a certified journeyman or qualified tradesperson. The other 20 per cent involves technical training provided at, or through, a post-secondary institution – usually a college or technical institute.

To become certified journeymen, apprentices must learn theory and skills, and they must pass examinations. Requirements for certification—including the content and delivery of technical training—are developed and updated by the Alberta Apprenticeship and Industry Training Board on the recommendation of Auto Body Technician Provincial Apprenticeship Committee.

The graduate of the Auto Body Prepper apprenticeship training is a journeyman who will be able to:

- be proficient in all phases of auto body prepping
- use hand tools and powered equipment
- relate to the work of other tradespeople in the automotive industry
- apply primers, primer surfacers and corrosion proofing materials

The graduate of the Auto Body Refinisher apprenticeship training is a journeyman who will be able to:

- be proficient in all phases of auto body refinishing
- use hand tools and powered equipment
- relate to the work of other tradespeople in the automotive industry
- apply primers, primer surfacers and corrosion proofing materials
- refinish motor vehicles

The graduate of the Auto Body Repairer apprenticeship training is a journeyman who will be able to:

- be proficient in all phases of auto body repair
- use hand tools and powered equipment
- relate to the work of other tradespeople in the automotive industry
- straighten and align frames and unitized structures
- apply primers, primer surfacers and corrosion proofing materials
- repair, replace and align chassis components
- repair and replace vehicle support systems
- repair and replace structural and non-structural motor vehicle sections

The graduate of the Auto Body Technician apprenticeship training is a journeyman who will be able to:

- be proficient in all phases of auto body refinishing and repair
- use hand tools and powered equipment
- relate to the work of other tradespeople in the automotive industry
- apply primers, primer surfacers and corrosion proofing materials
- paint motor vehicles
- straighten and align frames and unitized structures
- repair, replace and align chassis components
- repair and replace vehicle support systems
- repair and replace structural and non-structural motor vehicle sections

Apprenticeship and Industry Training System

Industry-Driven

Alberta's apprenticeship and industry training system is an industry-driven system that ensures a highly skilled, internationally competitive workforce in more than 50 designated trades and occupations. This workforce supports the economic progress of Alberta and its competitive role in the global market. Industry (employers and employees) establishes training and certification standards and provides direction to the system through an industry committee network and the Alberta Apprenticeship and Industry Training Board. The Alberta government provides the legislative framework and administrative support for the apprenticeship and industry training system.

Alberta Apprenticeship and Industry Training Board

The Alberta Apprenticeship and Industry Training Board provides a leadership role in developing Alberta's highly skilled and trained workforce. The board's primary responsibility is to establish the standards and requirements for training and certification in programs under the Apprenticeship and Industry Training Act. The board also provides advice to the Minister of Advanced Education on the needs of Alberta's labour market for skilled and trained workers, and the designation of trades and occupations.

The thirteen-member board consists of a chair, eight members representing trades and four members representing other industries. There are equal numbers of employer and employee representatives.

Industry Committee Network

Alberta's apprenticeship and industry training system relies on a network of industry committees, including local and provincial apprenticeship committees in the designated trades, and occupational committees in the designated occupations. The network also includes other committees such as provisional committees that are established before the designation of a new trade or occupation comes into effect. All trade committees are composed of equal numbers of employer and employee representatives. The industry committee network is the foundation of Alberta's apprenticeship and industry training system.

Local Apprenticeship Committees (LAC)

Wherever there is activity in a trade, the board can set up a local apprenticeship committee. The board appoints equal numbers of employee and employer representatives for terms of up to three years. The committee appoints a member as presiding officer. Local apprenticeship committees:

- monitor apprenticeship programs and the progress of apprentices in their trade, at the local level
- make recommendations to their trade's provincial apprenticeship committee (PAC) about apprenticeship and certification in their trade
- promote apprenticeship programs and training and the pursuit of careers in their trade
- make recommendations to the board about the appointment of members to their trade's PAC
- help settle certain kinds of disagreements between apprentices and their employers
- carry out functions assigned by their trade's PAC or the board

Provincial Apprenticeship Committees (PAC)

The board establishes a provincial apprenticeship committee for each trade. It appoints an equal number of employer and employee representatives, and, on the PAC's recommendation, a presiding officer - each for a maximum of two terms of up to three years. Most PACs have nine members but can have as many as twenty-one. Provincial apprenticeship committees:

- Make recommendations to the board about:
 - standards and requirements for training and certification in their trade
 - courses and examinations in their trade
 - apprenticeship and certification
 - designation of trades and occupations
 - regulations and orders under the Apprenticeship and Industry Training Act
- monitor the activities of local apprenticeship committees in their trade
- determine whether training of various kinds is equivalent to training provided in an apprenticeship program in their trade
- promote apprenticeship programs and training and the pursuit of careers in their trade
- consult with other committees under the Apprenticeship and Industry Training Act about apprenticeship programs, training and certification and facilitate cooperation between different trades and occupations
- consult with organizations, associations and people who have an interest in their trade and with employers and employees in their trade
- may participate in resolving certain disagreements between employers and employees
- carry out functions assigned by the board

Auto Body Technician PAC Members at the Time of Publication

Mr. M. Yeo.....	Calgary	Presiding Officer
Mr. M. Demas.....	Bowden	Employer
Mr. P. Ouellette	Bonnyville.....	Employer
Mr. T. Robertson	Edmonton.....	Employer
Mr. T. Taniguchi	Lethbridge	Employer
Mr. S. Giordano	Sherwood Park.....	Employee
Mr. B. Hart.....	Airdrie.....	Employee
Mr. D. Litzenberger	Stony Plain	Employee
Mr. G. Nishiguchi.....	Coaldale	Employee

Alberta Government

Alberta Advanced Education works with industry, employer and employee organizations and technical training providers to:

- facilitate industry's development and maintenance of training and certification standards
- provide registration and counselling services to apprentices and employers
- coordinate technical training in collaboration with training providers
- certify apprentices and others who meet industry standards

Apprenticeship Safety

Safe working procedures and conditions, incident/injury prevention, and the preservation of health are of primary importance in apprenticeship programs in Alberta. These responsibilities are shared and require the joint efforts of government, employers, employees, apprentices and the public. Therefore, it is imperative that all parties are aware of circumstances that may lead to injury or harm.

Safe learning experiences and healthy environments can be created by controlling the variables and behaviours that may contribute to or cause an incident or injury. By practicing a safe and healthy attitude, everyone can enjoy the benefit of an incident and injury free environment.

Alberta Apprenticeship and Industry Training Board Safety Policy

The Alberta Apprenticeship and Industry Training Board (board) fully supports safe learning and working environments and emphasizes the importance of safety awareness and education throughout apprenticeship training- in both on-the- job training and technical training. The board also recognizes that safety awareness and education begins on the first day of on-the-job training and thereby is the initial and ongoing responsibility of the employer and the apprentice as required under workplace health and safety training. However the board encourages that safe workplace behaviour is modeled not only during on-the-job training but also during all aspects of technical training, in particular, shop or lab instruction. Therefore the board recognizes that safety awareness and training in apprenticeship technical training reinforces, but does not replace, employer safety training that is required under workplace health and safety legislation.

The board has established a policy with respect to safety awareness and training:

The board promotes and supports safe workplaces, which embody a culture of safety for all apprentices, employers and employees. Employer required safety training is the responsibility of the employer and the apprentice, as required under legislation other than the *Apprenticeship and Industry Training Act*.

The board's complete document on its 'Apprenticeship Safety Training Policy' is available at www.tradesecrets.alberta.ca; access the website and conduct a search for 'safety training policy'.

Implementation of the policy includes three common safety learning outcomes and objectives for all trade course outlines. These common learning outcomes ensure that each course outline utilizes common language consistent with workplace health and safety terminology. Under the title of 'Standard Workplace Safety', this first section of each trade course outline enables the delivery of generic safety training; technical training providers will provide trade specific examples related to the content delivery of course outline safety training.

Occupational Health and Safety

A tradesperson is often exposed to more hazards than any other person in the work force and therefore should be familiar with and apply the Occupational Health and Safety Act, Regulations and Code when dealing with personal safety and the special safety rules that apply to all daily tasks.

Occupational Health and Safety (a division of Alberta Human Services) conducts periodic inspections of workplaces to ensure that safety regulations for industry are being observed.

Additional information is available at www.humanservices.alberta.ca

Technical Training

Apprenticeship technical training is delivered by the technical institutes and colleges in the public post-secondary system throughout Alberta. The colleges and institutes are committed to delivering the technical training component of Alberta apprenticeship programs in a safe, efficient and effective manner. All training providers place a strong emphasis on safety that complements safe workplace practices towards the development of a culture of safety for all trades.

The technical institutes and colleges work with Alberta's Apprenticeship and Industry Training Board, industry committees and Alberta Advanced Education to enhance access and responsiveness to industry needs through the delivery of the technical training component of apprenticeship programs across the Province. They develop curriculum from the course outlines established by industry and provide technical training to apprentices.

The following institutions deliver Auto Body Technician apprenticeship technical training:

Northern Alberta Institute of Technology
Southern Alberta Institute of Technology

Procedures for Recommending Revisions to the Course Outline

Advanced Education and has prepared this course outline in partnership with the Auto Body Technician Provincial Apprenticeship Committee.

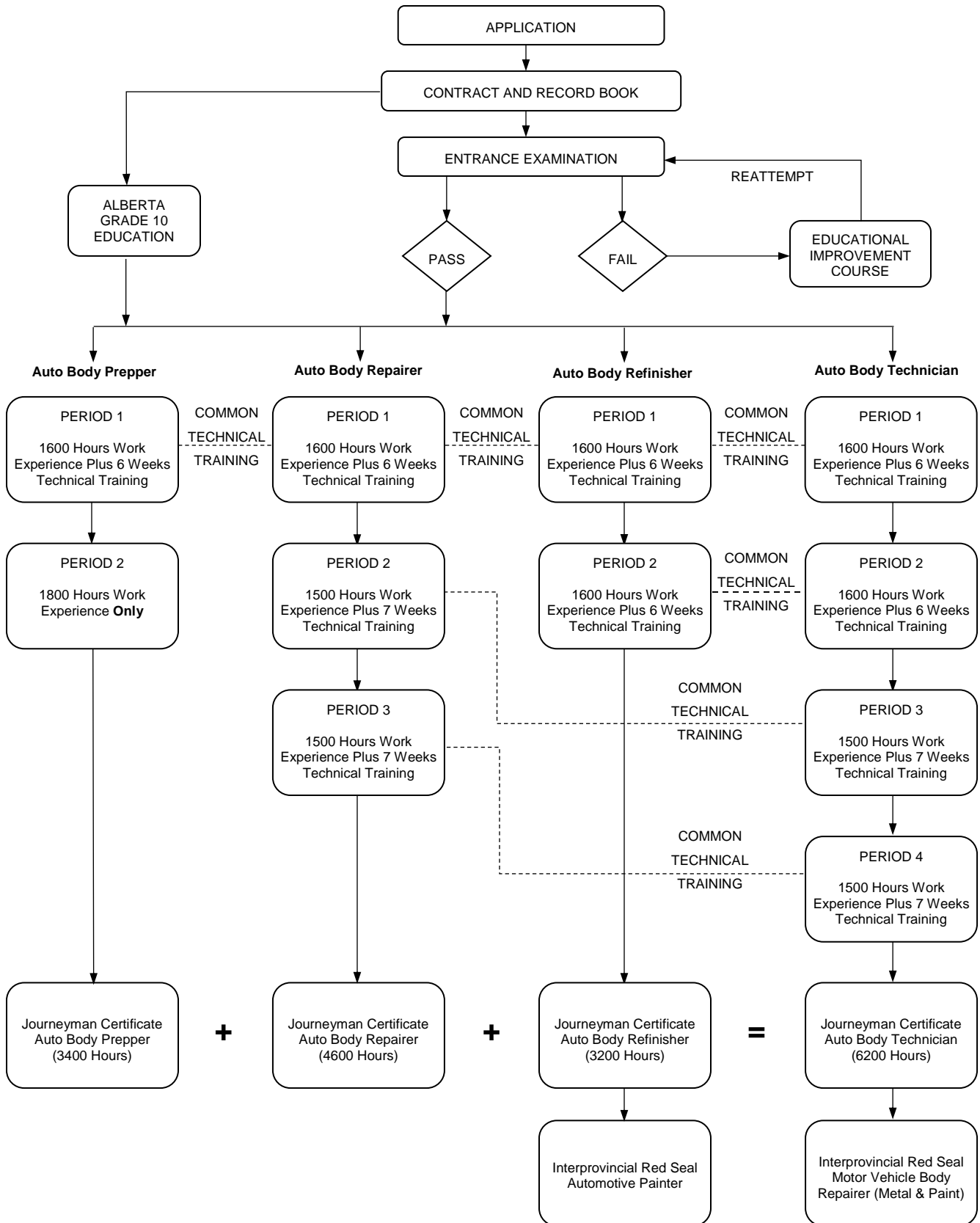
This course outline was approved on December 16, 2016 by the Alberta Apprenticeship and Industry Training Board on a recommendation from the Provincial Apprenticeship Committee. The valuable input provided by representatives of industry and the institutions that provide the technical training is acknowledged.

Any concerned individual or group in the province of Alberta may make recommendations for change by writing to:

Auto Body Technician Provincial Apprenticeship Committee
c/o Industry Programs and Standards
Apprenticeship and Industry Training
Advanced Education
10th floor, Commerce Place
10155 102 Street NW
Edmonton AB T5J 4L5

It is requested that recommendations for change refer to specific areas and state references used. Recommendations for change will be placed on the agenda for regular meetings of the Auto Body Technician Provincial Apprenticeship Committee.

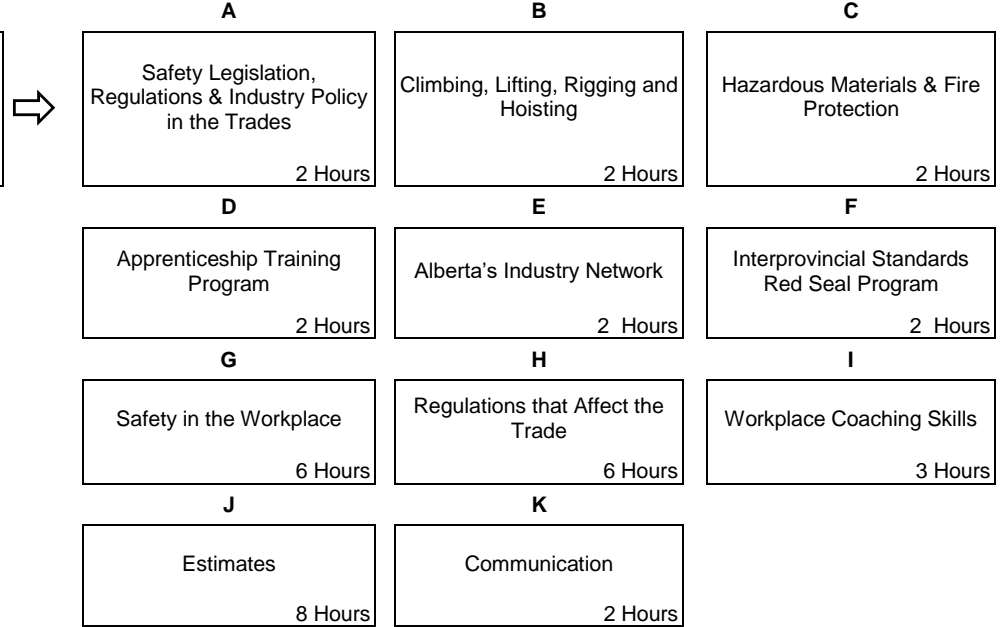
Apprenticeship Route toward Certification



**Auto Body Technician Training Profile
First Period (All Branches)
(6 Weeks 30 Hours per Week – Total of 180 Hours)**

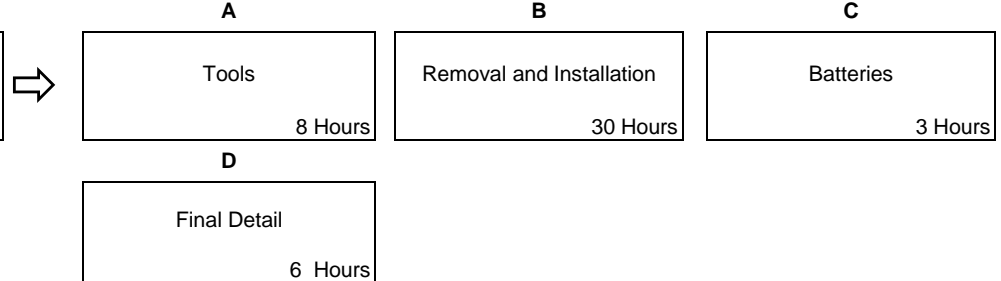
SECTION ONE

**STANDARD WORKPLACE
SAFETY, INDUSTRY OVERVIEW,
REGULATIONS AND
ADMINISTRATION**
37 HOURS



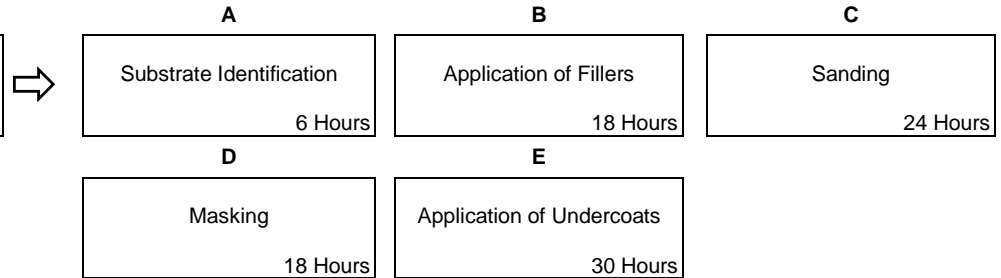
SECTION TWO

**COMPONENT REMOVAL,
INSTALLATION AND FINAL
DETAIL**
47 HOURS



SECTION THREE

SUBSTRATE PREPARATION
96 HOURS



Second Period (Technician & Refinisher)
(6 Weeks 30 Hours per Week – Total of 180 Hours)

SECTION ONE

SHOP PRACTICES AND PROCEDURES
24 HOURS



A

Shop Maintenance
18 Hours

B

Shop Procedures
6 Hours

SECTION TWO

PRODUCT PREPARATION
49 HOURS



A

Topcoat Identification
18 Hours

B

Mixing
4 Hours

C

Colour Matching
27 Hours

SECTION THREE

TOPCOAT APPLICATION
107 HOURS



A

Application
95 Hours

B

Application Faults
12 Hours

Third Period (Technician & Repairer)
(7 Weeks 30 Hours per Week – Total of 210 Hours)

SECTION ONE

HEATING, CUTTING AND WELDING
62 HOURS



A

Metal Heating and Cutting
 12 Hours

B

Gas Metal Arc Welding (GMAW)
 44 Hours

C

Resistance Spot Welding
 6 Hours

SECTION TWO

REPAIR PLANNING FOR NON-STRUCTURAL DAMAGE
36 HOURS



A

Non-Structural Damage Assessment
 6 Hours

B

Material Identification
 6 Hours

C

Panel Alignment
 24 Hours

SECTION THREE

NON-STRUCTURAL REPAIR
90 HOURS



A

Panel Repair
 78 Hours

B

Plastic Repair
 9 Hours

C

Composite Repair
 3 Hours

SECTION FOUR

VEHICLE SUPPORT SYSTEMS
22 HOURS



A

Electrical
 10 Hours

B

Heating, Ventilation and Air Conditioning
 6 Hours

C

Engine Cooling Systems
 6 Hours

Fourth Period (Technician & Repairer)
(7 Weeks 30 Hours per Week – Total of 210 Hours)

	A	B	C
SECTION ONE REPAIR PLANNING FOR STRUCTURAL REPAIR 33 HOURS	A Structural Damage Estimates 9 Hours	B Structural Work Plan Development 6 Hours	C Gauging and Measuring 18 Hours
SECTION TWO STRUCTURAL COMPONENTS 121 HOURS	A Structural Correction 60 Hours	B Sectioning and Replacement 55 Hours	C Glass 6 Hours
SECTION THREE MECHANICAL 35 HOURS	A Wheel Alignment 17 Hours	B Vehicle Support Systems 18 Hours	
SECTION FOUR SAFETY SYSTEMS AND FINAL ASSEMBLY 21 HOURS	A Restraint Systems 9 Hours	B Safety Systems 9 Hours	C Final Assembly 3 Hours

NOTE: The hours stated are for guidance and should be adhered to as closely as possible. However, adjustments must be made for rate of apprentice learning, statutory holidays, registration and examinations for the training establishment and Apprenticeship and Industry Training.

**FIRST PERIOD TECHNICAL TRAINING
AUTO BODY TECHNICIAN TRADE
(ALL BRANCHES)
COURSE OUTLINE**

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

**SECTION ONE:..... STANDARD WORKPLACE SAFETY 37 HOURS
INDUSTRY OVERVIEW, REGULATIONS AND ADMINISTRATION**

A. Safety Legislation, Regulations & Industry Policy in the Trades 2 Hours

Outcome: ***Apply legislation, regulations and practices ensuring safe work in this trade.***

1. Demonstrate the application of the Occupational Health and Safety Act, Regulation and Code.
2. Describe the employer's and employee's role with Occupational Health and Safety (OH&S) regulations, Worksite Hazardous Materials Information Systems (WHMIS), fire regulations, Workers Compensation Board regulations and related advisory bodies and agencies.
3. Describe industry practices for hazard assessment and control procedures.
4. Describe the responsibilities of worker and employers to apply emergency procedures.
5. Describe tradesperson attitudes with respect to housekeeping, personal protective equipment and emergency procedures.
6. Describe the roles and responsibilities of employers and employees with the selection and use of personal protective equipment (PPE).
7. Maintain required PPE for tasks.
8. Use required PPE for tasks.

B. Climbing, Lifting, Rigging and Hoisting 2 Hours

Outcome: ***Use industry standard practices for climbing, lifting, rigging and hoisting in this trade.***

1. Describe manual lifting procedures.
2. Describe rigging hardware and associated safety factors.
3. Select equipment for rigging loads.
4. Describe hoisting and load moving procedures.
5. Maintain personal protective equipment (PPE) for climbing, lifting and load moving equipment.
6. Use PPE for climbing, lifting and load moving equipment.

C. Hazardous Materials & Fire Protection 2 Hours

Outcome: ***Apply industry standard practices for hazardous materials and fire protection in this trade.***

1. Describe roles, responsibilities, features and practices related to the Workplace Hazardous Materials Information System (WHMIS) program.
2. Describe three key elements of WHMIS.
3. Describe handling, storing and transporting procedures for hazardous material.
4. Describe venting procedures when working with hazardous materials.
5. Describe hazards, classes, procedures and equipment related to fire protection.

D. Apprenticeship Training Program 2 Hours

Outcome: *Manage an apprenticeship to earn journeyman certification.*

1. Describe the contractual responsibilities of the apprentice, employer and Alberta Apprenticeship and Industry Training.
2. Describe the purpose of the apprentice record book.
3. Describe the procedure for changing employers during an active apprenticeship.
4. Describe the purpose of the course outline.
5. Describe the procedure for progressing through an apprenticeship.
6. Describe advancement opportunities in this trade.

E. Alberta's Industry Network 2 Hours

Outcome: *Describe the role of the network of industry committees that represent trades and occupations in Alberta.*

1. Describe Alberta's Apprenticeship and Industry Training system.
2. Describe roles and responsibilities of the Alberta Apprenticeship and Industry Training Board, the Government of Alberta and post-secondary institutions.
3. Describe roles and responsibilities of the Provincial Apprenticeship Committees (PACs), Local Apprenticeship Committees (LACs) and Occupational Committees (OCs).

F. Interprovincial Standards Red Seal Program 2 Hours

Outcome: *Use Red Seal products to challenge an Interprovincial examination.*

1. Identify Red Seal products used to develop Interprovincial examinations.
2. Use Red Seal products to prepare for an Interprovincial examination.

G. Safety in the Workplace 6 Hours

Outcome: *Demonstrate safety in an auto body shop.*

1. Describe types of personal hazards associated with the work assigned to an auto body technician (electrical tools, rotating machinery, comp. air, jacking and hoisting, exhaust gases, etc).
2. Use safety equipment and procedures when dealing with hazards associated with auto body work.
3. Control hazardous products used by auto body technicians.
4. Describe environmental hazards associated with the trade.
5. Use supplied air breathing systems.

H. Regulations that Affect the Trade 6 Hours

Outcome: *Follow work practices that adhere to the regulations of the Auto Body trade.*

1. Apply Workplace Health and Safety regulations.
2. Apply Occupational Health and Safety (OHS) regulations.
3. Apply Workplace Hazardous Materials Information System (WHMIS) regulations.
4. Apply fire regulations.

5. Apply Workers' Compensation Board (WCB) regulations.
6. Apply environmental regulations including volatile organic compounds (VOC) legislation.

I. Workplace Coaching Skills..... 3 Hours

Outcome: *Use coaching skills when training an apprentice.*

1. Describe the process for coaching an apprentice.

J. Estimates..... 8 Hours

Outcome: *Describe estimates and repair orders and develop a work plan.*

1. Describe the requirements of an estimate.
2. Explain estimates and repair orders.
3. Explain the use of Original Equipment Manufacturer (OEM) service information.
4. Explain the use of aftermarket service information.
5. Develop a work plan.

K. Communication..... 2 Hours

Outcome: *Communicate with all parties involved.*

1. Practice professional verbal and nonverbal communication between trade related contacts.
2. Interpret standard operating procedures.

SECTION TWO:..... COMPONENT REMOVAL, INSTALLATION AND FINAL DETAIL..... 47 HOURS

A. Tools 8 Hours

Outcome: *Use auto body tools and equipment.*

1. Identify hand tools.
2. Identify power tools.
3. Identify equipment.

B. Removal and Installation 30 Hours

Outcome: *Install non-structural body components.*

1. Identify types of body components.
2. Identify the purpose of trim.
3. Identify restraint systems.
4. Describe methods of fastening.
5. Assess components for hidden damage.
6. Describe component storage procedures.
7. Remove bolt on components.
8. Describe body panel alignment of bolt on components.
9. Describe headlight alignment procedure.
10. Describe leak test procedure.
11. Install bolt on components.

C. Batteries 3 Hours

Outcome: Service batteries.

1. Identify battery types.
2. Describe battery function.
3. Describe battery charging.
4. Describe battery boosting.

D. Final Detail..... 6 Hours

Outcome: Perform final detail.

1. Describe detailing procedures.
2. Describe types of decals and striping.
3. Describe removal of decals and striping.
4. Describe installation of decals and striping.
5. Clean interior of vehicle.
Clean exterior of vehicle.

SECTION THREE:SUBSTRATE PREPARATION..... 96 HOURS

A. Substrate Identification..... 6 Hours

Outcome: Identify types of paint finishes.

1. Identify substrate.
2. Identify condition of substrate.
3. Describe substrate preparation methods.

B. Application of Fillers 18 Hours

Outcome: Apply fillers.

1. Describe surface preparation for filler.
2. Apply fillers.
3. Perform sanding of fillers.

C. Sanding..... 24 Hours

Outcome: Prepare surface for coatings.

1. Describe undercoat preparation methods.
2. Perform sanding for undercoats.
3. Describe topcoat preparation methods.
4. Perform sanding for topcoats.

D. Masking 18 Hours

Outcome: Mask a vehicle.

1. Describe methods and materials used for masking.

2. Mask a repair area for undercoat application.
3. Mask a repair area for topcoat application.

E. Application of Undercoats 30 Hours

Outcome: *Apply undercoats.*

1. Describe undercoats.
2. Prepare undercoat materials.
3. Perform operating procedures for refinishing equipment.
4. Perform maintenance procedures for refinishing equipment.
5. Apply undercoats.

**SECOND PERIOD TECHNICAL TRAINING
AUTO BODY TECHNICIAN TRADE (TECHNICIAN & REFINISHER)
COURSE OUTLINE**

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE:.....SHOP PRACTICES AND PROCEDURES..... 24 HOURS

A. Shop Maintenance 18 Hours

Outcome: *Maintain refinishing operations.*

1. Describe spray environment set-up.
2. Describe air supply systems.
3. Describe record keeping procedures.
4. Describe the management of materials inventory.
5. Describe the management of waste materials.
6. Identify mixing room requirements.
7. Maintain mixing room.
8. Maintain spray environment.
9. Maintain refinishing equipment.

B. Shop Procedures 6 Hours

Outcome: *Prepare refinish work plan.*

1. Explain a refinish supplement.
2. Explain a refinish estimate.
3. Identify refinish work required.
4. Develop refinish schedule.

SECTION TWO:.....PRODUCT PREPARATION 49 HOURS

A. Topcoat Identification 18 Hours

Outcome: *Identify required topcoat.*

1. Identify existing substrates.
2. Describe topcoat considerations for complete panel refinish.
3. Describe topcoat considerations for spot repair.
4. Select a formula that corresponds to a paint code.

B. Mixing 4 Hours

Outcome: *Mix product.*

1. Describe additive considerations.
2. Mix paint according to specifications.
3. Correct an over-pour situation when mixing paint.

C. Colour Matching 27 Hours

Outcome: Create a blendable match.

- 1. Explain colour theory.
- 2. Identify a colour mismatch.
- 3. Adjust colour using gun technique.
- 4. Adjust colour by tinting.

SECTION THREE: TOPCOAT APPLICATION 107 HOURS

A. Application 95 Hours

Outcome: Apply topcoat.

- 1. Describe topcoat application.
- 2. Describe blending techniques and applications.
- 3. Prepare the refinisher for topcoat application.
- 4. Prepare the workpiece for topcoat application.
- 5. Prepare spray equipment for topcoat application.
- 6. Perform topcoat application.
- 7. Perform multi-stage blend repair.

B. Paint Faults 12 Hours

Outcome: Correct paint faults.

- 1. Identify paint faults.
- 2. Repair paint faults.

**THIRD PERIOD TECHNICAL TRAINING
AUTO BODY TECHNICIAN TRADE (TECHNICIAN & REPAIRER)
COURSE OUTLINE**

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE:.....WELDING, HEATING AND CUTTING 62 HOURS

A. Metal Heating and Cutting 12 Hours

Outcome: Use metal heating and cutting equipment.

1. Describe the characteristics of oxygen and acetylene.
2. Describe set up of oxygen and acetylene equipment.
3. Describe fusion welding processes.
4. Describe non-fusion welding processes.
5. Describe plasma cutting principles.
6. Perform heating operations.
7. Perform cutting operations.

B. Gas Metal Arc Welding (GMAW) 44 Hours

Outcome: Perform auto body GMAW.

1. Set up GMAW equipment.
2. Maintain GMAW equipment.
3. Identify weld faults.
4. Perform fillet welds on lap joints in all positions.
5. Perform groove welds on butt joints in all positions.
6. Perform plug welds in all positions.

C. Resistance Spot Welding 6 Hours

Outcome: Use resistance spot welders.

1. Set up resistance spot welding equipment.
2. Maintain resistance spot welding equipment.
3. Identify weld faults.
4. Perform resistance spot welds.

SECTION TWO:..... REPAIR PLANNING FOR NON-STRUCTURAL DAMAGE 36 HOURS

A. Non-Structural Damage Assessment 6 Hours

Outcome: Verify extent of non-structural damage.

1. Visually inspect vehicle for direct and indirect damage.
2. Check for hidden damage on vehicle.
3. Identify non-structural damage.
4. Confirm damage to components.

5. Verify parts order for repair.
6. Explain repair estimate times.
7. Determine sequence of repair procedure.
8. Prepare work plan for non-structural repair.

B. Material Identification..... 6 Hours

Outcome: Identify component material.

1. Describe materials used in auto body construction.
2. Explain precautions when working with auto body construction materials.

C. Panel Alignment..... 24 Hours

Outcome: Fit non-structural components.

1. Describe bolt on component fitting sequence.
2. Perform panel alignment.

SECTION THREE: NON-STRUCTURAL REPAIR 90 HOURS

A. Panel Repair 78 Hours

Outcome: Perform non-structural metal repair.

1. Describe types of metal damage.
2. Describe strategies for repairing metal damage.
3. Perform non-structural metal repair.

B. Plastic Repair 9 Hours

Outcome: Perform plastic repair.

1. Describe types of plastic damage.
2. Describe strategies for repairing plastic damage.
3. Perform non-structural plastic repair.

C. Composite Repair 3 Hours

Outcome: Perform composite repair.

1. Describe types of composite repair.
2. Describe strategies for composite repair.

SECTION FOUR: VEHICLE SUPPORT SYSTEMS 22 HOURS

A. Electrical 10 Hours

Outcome: Repair electrical systems.

1. Explain direct current (dc) electrical theory.
2. Interpret electrical diagrams.
3. Describe electronic component handling.

4. Diagnose electrical systems.
5. Perform wire harness repairs.
6. Perform connector repairs.

B. Heating, Ventilation and Air Conditioning (HVAC)..... 6 Hours

Outcome: *Describe service procedures for air conditioning systems.*

1. Identify HVAC systems.
2. Identify HVAC components.
3. Describe removal of HVAC components.
4. Describe installation of HVAC components.
5. Describe HVAC system service procedures.

C. Engine Cooling Systems 6 Hours

Outcome: *Describe service procedures for an engine cooling system.*

1. Describe the operation of an engine cooling system.
2. Identify engine cooling system components.
3. Describe removal of engine cooling system components.
4. Describe installation of engine cooling system components.
5. Describe engine cooling system service procedures.

**FOURTH PERIOD TECHNICAL TRAINING
AUTO BODY TECHNICIAN TRADE (TECHNICIAN & REPAIRER)
COURSE OUTLINE**

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE:.....REPAIR PLANNING FOR STRUCTURAL DAMAGE 33 HOURS

A. Structural Damage Estimates..... 9 Hours

Outcome: *Prepare estimate for structural damage.*

1. Describe considerations for structural estimating.
2. Prepare estimate for structural damage.

B. Structural Work Plan Development 6 Hours

Outcome: *Prepare work plan for structural repair.*

1. Determine sequence of repair.
2. Identify vehicle construction.
3. Prepare work plan for structural repair.

C. Gauging and Measuring..... 18 Hours

Outcome: *Compare measurements to equipment manufacturer specifications.*

1. Explain measuring principals.
2. Identify structural damage types.
3. Use measuring equipment.

SECTION TWO:.....STRUCTURAL COMPONENTS..... 121 HOURS

A. Structural Correction 60 Hours

Outcome: *Perform structural alignment.*

1. Identify anchoring procedures.
2. Describe pulling and pushing techniques.
3. Perform structural alignment.

B. Sectioning and Replacement 55 Hours

Outcome: *Replace structural components.*

1. Identify component material.
2. Identify section locations.
3. Describe sectioning procedures.
4. Describe structural component replacement.
5. Perform a structural repair.
6. Perform a sectioning procedure.

C. Glass 6 Hours

Outcome: **Describe structural glass replacement.**

1. Identify structural glass types.
2. Identify location of structural glass components.
3. Describe procedures for replacing structural glass.
4. Describe laminated glass repair procedure.

SECTION THREE: MECHANICAL 35 HOURS

A. Wheel Alignment..... 17 Hours

Outcome: **Describe the principles of wheel alignment.**

1. Identify steering and suspension components.
2. Describe wheel alignment angles.
3. Describe wheel alignment procedures.
4. Identify alignment faults.

B. Vehicle Support Systems 18 Hours

Outcome: **Install mechanical components.**

1. Describe considerations for removal of mechanical components.
2. Inspect mechanical components.
3. Remove mechanical components.
4. Describe considerations for installation of mechanical components.
5. Install mechanical components.

SECTION FOUR: SAFETY SYSTEMS AND FINAL ASSEMBLY 18 HOURS

A. Restraint Systems 9 Hours

Outcome: **Service vehicle restraint systems.**

1. Describe restraint systems.
2. Identify damaged restraint system components.
3. Describe the replacement procedure of restraint system components.
4. Describe handling procedures for restraint components.

B. Safety Systems 9 Hours

Outcome: **Describe vehicle safety systems.**

1. Identify external safety systems of a vehicle.
2. Describe repair precautions for external safety systems.

C. Final Assembly 3 Hours

Outcome: **Perform pre-delivery inspection.**

1. Verify fit, finish and function of work plan related repair.



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