BETHLEHEM AREA
VOCATIONAL-TECHNICAL SCHOOL
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Auto Collision Repair Program

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Description
This course covers the preparation of a student to enter the Auto Collision Repair Field.

Employment opportunities

A critical shortage

Every year, more than 21,500 collision repair technicians leave the industry, a trend that has increased steadily since 1995. An additional 31,000 technicians leave their current employers for another job within the industry. The average age of collision repair technicians is 38.7, compared with 35.5 in 1995, and more than a quarter of the existing workforce plan to either retire or change jobs in the next 12 months.

How much does an Auto Body Technician make in the United States? According to Salery.com. The average Auto Body Technician salary in the United States is $52,709 as of September 26, 2019, but the salary range typically falls between $46,294 and $60,767. Salary ranges can vary widely depending on many important factors, including education, certifications, additional skills, and the number of years you have spent in your profession. Auto Collision repair consists of many varied careers, estimator, detailer, painter and more, the data does not accurately reflect this fact and you can find technicians in many Lehigh Valley shops exceeding the salary ranges noted by Salary.com.

Syllabus:
47.0603 Auto Body/ Collision and Repair Technology.

Marking Period 1 Blocks 1&2 – First Quarter (10-Day Rotation)

ORIENTATION

The premise of the rotation is to introduce students to the Auto Collision Industry and the career opportunities associated. Students are introduced to many skills through a project that involves dent repair and painting, all of which is done in a real-world environment. Students are expected to explore this field during rotation and act in a safe manner. Many of the skills introduced require more time then is available during rotation to obtain a level in which students can perform independently. Therefore these tasks will need to be graded during rotation. Students are graded for safety and following of rules, two worksheets, a vocabulary test and their daily work grade.

Competencies Covered:

100 SAFETY

101 Follow general shop safety rules.
102 Use of personal safety devices and clothing.

Assignments & Assessments

Identify opportunities in the auto body field.
Identify program rules and policies
Introduction to Industry Certifications

The rotation project includes:
Measuring and cutting sheet metal
Use of auto body hand tools
Metal straightening
Auto body filler
Mixing and application of auto paints and primers.

Auto Collision Safety worksheet
Auto Collision Career opportunity worksheet
Rotation Vocabulary test

Level I –Blocks 1&2 Second Quarter (45 Days)
Competencies Covered

100 SAFETY

101 Follow general shop safety rules.
102 Use of personal safety devices and clothing.
103 Locate and identify fire extinguishers.
104 Locate and operate emergency switches.
105 Explain fire and tornado drill procedures.
106 Demonstrate proper handling of hazardous materials.
107 Follow proper chemical disposal techniques.
108 Operate shop and spray area ventilation systems.
109 Follow rules for care and safe use of hand tools.

500 METAL FINISHING

501 Select proper metal straightening tools.
502 Evaluate stretched metal for repair.
503 Demonstrate weld-on nail gun to repair sheet metal.
504 Repair metal to meet industry standards.

600 BODY FILLERS

601 Select correct body filler and tools.
602 Prepare surface for body filler.
603 Mix and apply body filler.
604 Sand body fillers to correct contour.

1300 SURFACE PREPARATION, REFINISHING, AND EQUIPMENT

1301 Explain various environmental regulations.
Locate hazardous warning information.
1303 Select and inspect personal protection equipment (PPE).
1304 Demonstrate safe painting practices.
1305 Identify personal health and safety hazards.

1500 SURFACE PREPARATION

1501 Demonstrate proper steps to pre-wash entire vehicle.
1502 Use wax and grease remover.
1503 Demonstrate proper use of sanding and featheredging techniques.
1504 Wet sand and featheredge.
1505 Apply suitable metal treatments.
1506 Obtain the vehicle paint code.
1507 Apply undercoats.
1508 Prepare panels for blending.
1510 Identify masking materials.
1511 Perform masking.
1512 Select the appropriate abrasive.

Assignments & Assessments

Students will be provided a panel(fender) in which to practice skills.
Students will demonstrate a technical understanding of each competency
Students will perform each competency to an acceptable level of understanding for an entry level technician. (established per the review of the program's Occupational Advisory Committee)

I-CAR courses;

ITMOOe, ITMO1e, ITMO2e, IRC01e IRTOOe, IPSOOe, IVT01e, IVT02e, ISSOOe

Pro Level Certification
STS01 Cosmetic Straightening Steel
HAP01e Hazardous Airborne Pollutant Reduction
HWD01e Hazardous Material Storage and Disposal
WKR01 Hazardous Materials, Personal Safety, and Refinish Safety

Level I – Blocks 1&2Third Quarter (45 Days)

Competencies Covered

100 SAFETY
110 Demonstrate safe and proper use of power tools and equipment.
112 Identify information on Safety Data Sheets (SDS).

1600 REFINISHING EQUIPMENT AND PAINT AREA

1601 Operate the spray booth.
1602 Maintain the paint mixing area.
1603 Set up, test and adjust spray guns.
1604 Inspect, clean, and determine conditions of spray guns and equipment.
1605 Select and use the National Institution of Safety and Health (NIOSH) approve personal painting/refinishing respirator systems.

1700 REFINISHING OPERATIONS

1701 Prepare surface for topcoat system (degrease and tack).
1702 Apply primer-sealer.
1703 Apply single-stage finish.
1704 Apply basecoat/clearcoat finish.
1705 Describe the application of stone chip-resistant coating to lower body areas.

1400 AUTOMOTIVE FINISHES

1401 Describe the difference between paint systems.
1402 Describe paint defects - causes and cures.
1403 Identify various undercoats.
1404 Identify various topcoats (single stage, basecoat/clearcoat, tricoat, quadcoat).

1800 BLENDING OPERATIONS

1802 Blend basecoat/clearcoat finish.
1803 Tint and blend color coat.

Assignments & Assessments

Students will demonstrate a technical understanding of each competency
Students will perform each competency to an acceptable level of understanding for an entry level technician. (established per the review of the program's Occupational Advisory Committee)

I-CAR courses;

Pro Level Certification
REFO1, REFO2

Level I – Blocks 1&2 Fourth Quarter (45 Days)

Competencies Covered

2100 PLASTIC REPAIR
2101 Identify plastic and perform tests to make repair decisions.
2102 Demonstrate plastic repair methods (adhesive and welding)
2103 Repair plastics with two-part adhesives, with and without reinforcement.
2104 Research recommended repair processes for bumper cover repair on Advanced Driver assistance (ADAS) vehicles.

300 Panel Replacement and Alignment
305 Replace wheels/tires.

Assignments & Assessments
Students will be provided plastic parts to practice skills.
Knowledge;
I-CAR
Intro series; IRTOOe, ICMOOe, IPSOOe
Pro Level certification PLA03
Skill: Students will demonstrate skills in Plastic repair. Each student will have a plastic part in which they are required to independently perform various types of plastic repair.

Level 2/3 Blocks 3&4 – First Quarter (45 Days)

Competencies Covered

Assignments & Assessments

Year A

Returning students will review the prior years practical skills by demonstrating each task individually.

1100 WELDING

1101 Identify different methods of attaching components (MIG welding, squeeze type resistance spot welding (STRSW) riveting, structural adhesive, silicon bronze, etc.)
1102 Demonstrate personal safety practices.
1103 Set up and tune the MIG welder.
1104 Complete a butt joint with backing in various welding positions.
1105 Complete an overlap weld in various positions.
1106 Complete a plug weld in various positions.
1107 Define protection of adjacent panels, glass, vehicle interior, etc. from welding and cutting operations.

Year B

Returning students will review prior practical skills by demonstrating each task individually.

1900 DETAILING

1901 Remove overspray.
1902 Clean exterior of vehicle.
1903 Clean interior of vehicle.
1904 Apply decals and stripes.
1905 Demonstrate color sanding and polishing techniques.
1906 Clean body openings.
1907 Clean exterior and interior glass surfaces.

2200 RESTRAINT SYSTEMS

2201 Research auto manufacturers' recommended safety procedures to prevent accidental deployment of supplemental restraint systems.
2202 Identify supplemental restraint systems.
2203 Remove and reinstall seat belt components.

2300 Advanced Technology

2301 Explain function and components of the Advance Driver Assistance system(ADAS)
2302 Describe precautions required when working on high voltage vehicles.

Students will demonstrate a technical understanding of each competency
Students will perform each competency to an acceptable level of understanding for an entry level technician. (established per the review of the program's Occupational Advisory Committee)

Level 2/3 Blocks 3&4 – Second Quarter (45 Days)

Competencies Covered

Assignments & Assessments

Year A

1200 CUTTING PROCESSES

1201 Identify cutting processes.
1202 Demonstrate sheet metal cutting processes.

1000 CORROSION PROTECTION

1001 Identify corrosion causes and OEM corrosion protection.
1002 Apply repair methods for corrosion protection.
1004 Demonstrate the application of seam sealers.

2000 ESTIMATING DAMAGE

2001 Identify vehicle by VIN (vehicle identification number).
2002 Collect vehicle and customer data.
2003 Use collision indirect).
2005 Indicate repair and replace decisions.
2006 Prepare an estimate/repair estimating guides.
2004 Identify different types of vehicle damage sequence/calculate repair costs.

Year B

400 TRIM AND HARDWARE

402 Determine types of fasteners.
403 Remove and replace adhesive hold

Students will demonstrate a technical understanding of each competency Students will perform each competency to an acceptable level of understanding for an entry level technician. (established per the review of the program's Occupational Advisory Committee)

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Level 2/3 Blocks 3&4 – Third Quarter (45 Days)

Competencies Covered

Year A

800 STRUCTURAL COMPONENT REPAIR AND DAMAGE ANALYSIS

801 Classify the various types structural damage a vehicle can sustain.
802 Interpret body dimension specifications.
803 Use a tram gauge to diagnose vehicle length and width damage.
804 Diagnose vehicle height with datum line gauges.
805 Identify various measuring systems.
806 Identify repair methods for vehicle with diamond damage, twist, sag side swag or mash.

Year B

700 GLASS AND HARDWARE

701 Remove and reinstall a door window regulator.
702 Remove and reinstall moveable door glass.
703 Describe the removal and replacement of stationary glass.

Assignments & Assessments

Students will demonstrate a technical understanding of each competency
Students will perform each competency to an acceptable level of understanding for an entry level technician. (established per the review of the program's Occupational Advisory Committee)

Level 2/3 Blocks 3&4 – Fourth Quarter (45 Days)

Competencies Covered

Year A

900 STRUCTURAL STRAIGHTENING

901 Mount and anchor vehicle to a pulling system.
902 Prepare vehicle for measuring and analysis.
903 Prepare vehicle for structural alignment.

Year B

200 VEHICLE DESIGN AND CONSTRUCTION

201 Identify the differences between various vehicle construction types.
202 Identify and describe structural and nonstructural panels of a unibody vehicle.
203 Determine the various materials used in vehicle construction.

300 PANEL REPLACEMENT AND ALIGNMENT

301 Identify the principles of full or partial panel replacement (bonded, bolted, or welded).
302 Remove, reinstall, and align bolt on panels.
303 Remove and reinstall wheel/tire assembly.
304 Aim headlights using mechanical aiming equipment.

Assignments & Assessments

Students will demonstrate a technical understanding of each competency
Students will perform each competency to an acceptable level of understanding for an entry level technician. (established per the review of the program's Occupational Advisory Commit

Supplemental Learning Activities*

Students who participate in this program will also have opportunities to participate in the following program and school-sponsored activities:

SkillsUSA: Professional Development Conference, Local Competitions, Sate Competitions, National Competitions. Students will also be able to participate in yearly events held at BAVTS: Chapter Meetings, fundraising and carnival.

NTHS: Level II and Level III students who have received an "A" in their career and technical program as well as a "B" average at their sending school are eligible to become a member of the BAVTS Chapter of the National Technical Honor Society.

Cooperative Education: Students who have attended six quarters in their career and technical program are eligible to participate in a paid working experience during the PM session of BAVTS. Positions must be available and the student must be recommended by the CTE teacher to be eligible.

Job Shadowing: Students are eligible to visit business and industry partners for one or more days to view the day-to-day operations of this career area.

Internships: Students who have completed six or more quarters of their CTE program are eligible to work for a business and industry partner with the recommendation of the instructor and the availability of assignment.

Field Trips: Students in this program will on occasion attend field trips that expose them to educational experiences within the career field.

I-CAR Courses and Certifications

Intro to Collision Repair Series

IRC02e Intro to Refinishing and Corrosion Protection - Part 2
IRC01e Intro to Refinishing and Corrosion Protection - Part 1
IMV00e Intro to Mechanical Repair Terms and Vehicle Protection
IMT02e Intro to Mechanical Systems Terminology
IMT01e Intro to Mechanical Systems Terminology
IRT00e Intro to Industry Repair Terms
ITM02e Intro to Tools, Equipment, and Attachment Methods - Part 2
ITM01e Intro to Tools, Equipment, and Attachment Methods - Part 1
IVT02e Intro to Vehicle Parts Terminology - Part 2
ICM00e Intro to Vehicle Construction Materials
IRP00e Intro to Collision Repair Process Overview
IVT01e Intro to Vehicle Parts Terminology - Part
IPS00e Intro to Personal Safety
ISS00e Intro to Safety Systems

I-CAR Pro Level 1 Non-Structural Certification
I-CAR Pro Level 1 Refinish Certification

S/P 2 Collision Safety and Pollution

EPA Painter certification

Air Conditioning Certification