



***Department of Teaching & Learning***  
***Parent/Student Course Information***

***Auto Body and Paint Technology I***  
***(VO8676)***

***Three Credits, One Year***  
***Grades 11 or 12***

*Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.*

**COURSE DESCRIPTION**

This two-year program covers all aspects of auto body repair from estimating to a complete paint job. Students learn to analyze different types of body damage and to restore vehicles to their original appearance. Students will be taught to weld, straighten a frame, repair fiberglass, use plastic filler, complete hand and power sanding, spray paint and replace damaged glass. Students also are trained to custom mix paint.

**CERTIFICATION**

i-CAR Non-Structural Technician Certification

i-CAR Refinish Technician Certification

Environmental Protection Agency (EPA): Safety and Pollution Prevention Certification

**STUDENT ORGANIZATION**

SkillsUSA is a co-curricular organization for all students enrolled in trade and industrial education programs. SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA helps students excel by providing educational programs, events and competitions that support career and technical education (CTE) in the nation's classrooms. Students are highly encouraged to participate.

**PREREQUISITE**

None

**OPTIONS FOR NEXT COURSE**

Auto Body and Paint Technology II

**REQUIRED STUDENT TEXTBOOK**

None

# COMPETENCIES FOR AUTO BODY AND PAINT TECHNOLOGY I

## **Demonstrating Personal Qualities and Abilities**

- 1 Demonstrate creativity and innovation.
- 2 Demonstrate critical thinking and problem solving.
- 3 Demonstrate initiative and self-direction.
- 4 Demonstrate integrity.
- 5 Demonstrate work ethic.

## **Demonstrating Interpersonal Skills**

- 6 Demonstrate conflict-resolution skills.
- 7 Demonstrate listening and speaking skills.
- 8 Demonstrate respect for diversity.
- 9 Demonstrate customer service skills.
- 10 Collaborate with team members.

## **Demonstrating Professional Competencies**

- 11 Demonstrate big-picture thinking.
- 12 Demonstrate career- and life-management skills.
- 13 Demonstrate continuous learning and adaptability.
- 14 Manage time and resources.
- 15 Demonstrate information-literacy skills.
- 16 Demonstrate an understanding of information security.
- 17 Maintain working knowledge of current information-technology (IT) systems.
- 18 Demonstrate proficiency with technologies, tools, and machines common to a specific occupation.
- 19 Apply mathematical skills to job-specific tasks.
- 20 Demonstrate professionalism.
- 21 Demonstrate reading and writing skills.
- 22 Demonstrate workplace safety.

## **Examining All Aspects of an Industry**

- 23 Examine aspects of planning within an industry/organization.
- 24 Examine aspects of management within an industry/organization.
- 25 Examine aspects of financial responsibility within an industry/organization.
- 26 Examine technical and production skills required of workers within an industry/organization.
- 27 Examine principles of technology that underlie an industry/organization.
- 28 Examine labor issues related to an industry/organization.
- 29 Examine community issues related to an industry/organization.
- 30 Examine health, safety, and environmental issues related to an industry/organization.

## **Addressing Elements of Student Life**

- 31 Identify the purposes and goals of the student organization.
- 32 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.
- 33 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.
- 34 Identify Internet safety issues and procedures for complying with acceptable use standards.

## **Exploring Work-Based Learning**

- 35 Identify the types of work-based learning (WBL) opportunities.
- 36 Reflect on lessons learned during the WBL experience.
- 37 Explore career opportunities related to the WBL experience.
- 38 Participate in a WBL experience, when appropriate.

## **Safety Precaution**

- 39 Select and use personal protective equipment (PPE); take necessary precautions with hazardous operations and materials in accordance with federal, state, and local regulations.
- 40 Identify procedures and precautions that may apply to the vehicle being repaired.
- 41 Identify vehicle system hazard types (supplemental restraint system [SRS], hybrid or electric or alternative fuel vehicles), locations, and recommended procedures before inspecting or replacing components.
- 42 Select and use a National Institute for Occupational Safety and Health (NIOSH)-approved air purifying respirator.

## **Preparing for Non-Structural Analysis and Damage Repair**

- 43 Pass an industry-specific safety exam.
- 44 Review a damage report and analyze the damage to determine appropriate methods for overall repair; develop and document a repair plan.
- 45 Inspect, remove, label, store, and reinstall exterior trim and moldings.
- 46 Inspect, remove, label, store, and reinstall interior trim and components.
- 47 Inspect, remove, label, store, and reinstall body panels and components that may interfere with or be damaged during repair.
- 48 Inspect, remove, protect, label, store, and reinstall vehicle mechanical and electrical components that may interfere with or be damaged during repair.
- 49 Protect panels, glass, interior parts, and other vehicles adjacent to the repair area.
- 50 Soap and water wash the entire vehicle; complete a pre-repair inspection checklist.
- 51 Prepare the damaged area using water-based and solvent-based cleaners.
- 52 Remove corrosion protection, undercoating, sealers, and other protective coatings, as necessary, to perform repairs.
- 53 Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair.
- 54 Demonstrate the safe use and operation of tools common to the collision repair industry.
- 55 Explain vehicle parts, assemblies, and fasteners used in the collision repair industry.

## **Repairing the Outer Body Panel**

- 56 Inspect or locate direct, indirect, or hidden damage and the direction of impact.
- 57 Inspect, remove, and replace a mechanically fastened, welded, steel panel or panel assemblies.
- 58 Determine the extent of damage to aluminum body panels; repair or replace.
- 59 Inspect, remove, replace, and align hood, hood hinges, and the hood latch.
- 60 Inspect, remove, replace, and align deck lid, lid hinges, and the lid latch.
- 61 Inspect, remove, replace, and align doors, latches, hinges, and related hardware.
- 62 Inspect, remove, replace, and align tailgates, hatches, liftgates, and sliding doors.
- 63 Inspect, remove, replace, and align bumpers, covers, reinforcements, guards, impact absorbers, and mounting hardware.
- 64 Inspect, remove, replace, and align fenders and related panels.
- 65 Straighten damaged panels for body filling or metal finishing.

- 66 Restore corrosion protection during and after the repair.
- 67 Replace door skins.
- 68 Restore sound deadeners and foam materials.
- 69 Perform panel bonding and weld bonding.
- 70 Diagnose and repair water leaks, dust leaks, and wind noise.
- 71 Identify one-time-use fasteners.
- 72 Weld damaged or torn steel body panels; repair broken welds.

### **Applying Metal Finishing and Body Filling**

- 73 Prepare a panel for body filler by abrading or removing the coatings; featheredge and refine scratches before the application of body filler.
- 74 Locate and repair surface irregularities on a damaged body panel using power tools, hand tools, and weld-on pulling attachments.
- 75 Demonstrate hammer and dolly techniques.
- 76 Heat-shrink stretched panel areas to proper contour.
- 77 Cold-shrink stretched panel areas to proper contour.
- 78 Identify body filler defects; correct the cause and condition (e.g., pinholing, ghosting, staining, over catalyzing, etc.).
- 79 Identify different types of body fillers.
- 80 Shape body filler to contour; finish sanding.
- 81 Perform proper metal finishing techniques for aluminum.
- 82 Perform proper application of body filler to aluminum.
- 83 Straighten contours of damaged panels to a suitable condition for body fillings or metal finishing using power tools, hand tools, and weld-on pulling attachments.

### **Repairing Moveable Glass and Hardware**

- 84 Inspect, adjust, repair, or replace window regulators, run channels, glass, power mechanisms, and related controls.
- 85 Inspect, adjust, repair, remove, reinstall, or replace weather-stripping.
- 86 Inspect, repair, or replace, and adjust removable power-operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs.
- 87 Inspect, remove, reinstall, and align a convertible top and related mechanisms.
- 88 Initialize electrical components as needed.

### **Practicing Metal Welding and Cutting**

- 89 Identify the considerations for cutting, removing, and welding various types of steel, aluminum, and other metals.
- 90 Explain procedures for welding high-strength steel and other steels.
- 91 Explain the procedures for welding aluminum.
- 92 Determine the correct gas metal arc welding (GMAW) welder type.
- 93 Set up and attach a work clamp (i.e., ground), and adjust the GMAW welder to "tune" for proper electrode stickout, voltage, polarity, flow rate, and wire-feed speed required for the substrate being welded.
- 94 Store, handle, and install high-pressure gas cylinders; test for leaks.
- 95 Determine the proper angle of the gun to the joint and direction of gun travel for the type of weld being made.
- 96 Protect adjacent panels, glass, and vehicle interior from welding and cutting operations.

- 97 Protect computers and other electronics and wires during welding procedures.
- 98 Clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, and clamp or tack, as required.
- 99 Determine the joint type (e.g., butt weld with backing, lap) for the weld being made.
- 100 Determine the type of weld (e.g., continuous, stitch weld, plug, etc.) for each specific welding operation.
- 101 Perform welds (e.g., plug, butt weld with and without backing, and fillet) in the flat, horizontal, vertical, and overhead positions.
- 102 Perform a visual evaluation and destructive test on each weld type.
- 103 Identify the causes of various welding defects; make necessary adjustments.
- 104 Identify the cause of contact, tip burn-back, and failure of the wire to feed; make necessary adjustments.
- 105 Identify the cutting process for different substrates and locations; perform the cutting operation.
- 106 Identify different methods of attaching structural components.

### **Working with Plastics and Adhesives**

- 107 Identify the types of plastics and their potential for repair.
- 108 Identify the types of plastic repair procedures.
- 109 Replace or repair rigid, semi-rigid, and flexible plastic panels.
- 110 Remove or repair damaged areas from rigid exterior composite panels.
- 111 Replace bonded rigid exterior composite body panels; straighten or align panel supports.

### **Preparing for a Career in Auto Body Repair**

- 112 Research opportunities in the auto body repair field.
- 113 Prepare a portfolio of current skills.
- 114 Identify the basic construction of the auto body.
- 115 Identify ASE areas of certification.
- 116 Create a written estimate of repairs.

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Produced by the Department of Teaching and Learning.  
For further information, please call (757) 263-1070.

### **Notice of Non-Discrimination Policy**

Virginia Beach City Public Schools does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation/gender identity, pregnancy, childbirth or related medical condition, disability, marital status, age, genetic information or veteran status in its programs, activities, employment, or enrollment, and provides equal access to the Boy Scouts and other designated youth groups. School Board policies and regulations (including, but not limited to, Policies 2-33, 4-4, 5-7, 5-19, 5-20, 5-44, 6-33, 6-7, 7-48, 7-49, 7-57 and Regulations 4-4.1, 4-4.2, 5-44.1, 7-11.1, 7-17.1 and 7-57.1) provide equal access to courses, programs, enrollment, counseling services, physical education and athletic, vocational education, instructional materials, extracurricular activities and employment.

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The School Division is committed to providing educational environments that are free of discrimination, harassment, and bullying. Students, staff, parents/guardians who have concerns about discrimination, harassment, or bullying should contact the school administration at their school. Promptly reporting concerns will allow the school to take appropriate actions to investigate and resolve issues. School Board Policy 5-7 addresses non-discrimination and anti-harassment, Policy 5-44 addresses sexual harassment and discrimination based on sex or gender. Policy 5-36 and its supporting regulations address other forms of harassment.

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