



Collision Repair

EXAM INFORMATION

Items

43

Points

45

Prerequisites

NONE

Grade Level

10-12

Course Length

ONE SEMESTER

Career Cluster

TRANSPORTATION, DISTRIBUTION, AND LOGISTICS

Performance Standards

INCLUDED

Certificate Available

YES

DESCRIPTION

This course prepares individuals to repair automotive, uni-bodies, fenders, and frames of automobiles, including instruction in non-structural and structural repairs. This course is based on the Automotive Service Excellence (ASE) automotive collision task list and the I-CAR training program. Work ethics and productivity are an integral part of the classroom and laboratory activities of this program.

EXAM BLUEPRINT

STANDARD	PERCENTAGE OF EXAM
1- Safety and Environmental Practices	20%
2- Automotive Finishes	9%
3- Refinishing Surfaces	11%
4- Metal Straightening	11%
5- Procedures Necessary to Finish	4%
6- Detailing	4%
7- Detailed Damage Reports	9%
8- Body Fillers	9%
9- MIG Welding	19%
10- Vehicle Construction/Parts Identifications	4%
11- Professional Skills in the Workplace (Optional)	



STANDARD 1

STUDENTS WILL BE ABLE TO UNDERSTAND AND DEMONSTRATE SAFETY AND ENVIRONMENTAL PRACTICES

- Objective 1 Explain the need for regulations and safety devices such as Environment Protection, state and local environmental laws, and regulations involved with the refinishing department.
- Objective 2 Locate hazardous warning information for products used in refinishing. Be able to locate basic information from a Material Safety Data Sheet (MSDS).
- Objective 3 Identify and select the proper personal protection equipment, inspect it, and demonstrate its proper use.
- Objective 4 Identify the Volatile Organic Compound (VOC) content of paint products and explain the environmental concerns.
- Objective 5 Understand safety practices related to general shop, personal protection, vehicle lifts, and hand and power equipment.
- Objective 6 Understand and identify different fasteners and their applications and repair procedures.
- Objective 7 Understand how to select and properly use hand and select power tools.

Standard 1 Performance Evaluation included below (Optional)

STANDARD 2

STUDENTS WILL BE ABLE TO UNDERSTAND AUTOMOTIVE FINISHES

- Objective 1 Identify and distinguish between the different types of automotive finishes.
- Objective 2 Select the proper finish for repairs and understand why certain repair finish systems and system parts are used.
- Objective 3 Be able to read and understand how to mix a product from the tech sheet.

Standard 2 Performance Evaluation included below (Optional)

STANDARD 3

STUDENTS WILL BE ABLE TO UNDERSTAND THE PRINCIPLES NEEDED TO PREPARE A SURFACE FOR REFINISHING

- Objective 1 Identify the type and color of a finish and plan a system for refinishing a vehicle.
- Objective 2 Understand the importance of removing old paint from a vehicle using a variety of methods.
- Objective 3 Understand the importance of corrosion protection and undercoatings used in corrosion protection, and how to clean and treat the metal in the repair area before refinishing.
- Objective 4 Understanding corrosion principles and factory corrosion protection.
- Objective 5 Protecting exposed exterior surfaces, trim, and accessories.
- Objective 6 Select proper sanding materials and equipment and know how to sand a vehicle prior to and during the refinishing process.
- Objective 7 Determine where chip-resistant coatings have been used by the vehicle manufacturer and why this coating is used.
- Objective 8 Understand the importance of masking a vehicle for spot repairs, panel repairs, or a complete refinish job using a variety of masking materials.



Objective 9 Understand the removal and installation of pinstripes, decals, and emblems.

Standard 3 Performance Evaluation included below (Optional)

STANDARD 4

STUDENTS WILL BE ABLE TO UNDERSTAND AND DEMONSTRATE METAL STRAIGHTENING

Objective 1 Identify the necessary tools to straighten damaged sheet metal.

Objective 2 Straighten a damaged metal panel close to its original contours.

Objective 3 Set up and use a plasma arc cutter.

Objective 4 Students will be able to understand the effects of heating various types of metals.

Objective 5 Understand the difference between a kink and a bend.

Standard 4 Performance Evaluation included below (Optional)

STANDARD 5

STUDENTS WILL BE ABLE TO UNDERSTAND THE PROCEDURES NECESSARY IN THE APPLICATION OF A FINISH

Objective 1 Properly identify and prepare the surface for top coat application.

Objective 2 Understand different types of undercoats and how to apply them.

Objective 3 Demonstrate proper gun setup for undercoat and top coat applications.

Objective 4 Apply both base coat and clear coat finishes on a panel.

Standard 5 Performance Evaluation included below (Optional)

STANDARD 6

STUDENTS WILL BE ABLE TO UNDERSTAND AND DEMONSTRATE DETAILING

Objective 1 Describe the processes and importance of proper detailing, remove overspray and perform final finishing processes, including compounding and polishing, to improve the quality of the finish.

Objective 2 Understand the importance of thoroughly cleaning the vehicle before and after repairs; select and use proper cleaning products and tools to clean the vehicle exterior, including the engine compartment, tires and wheels.

Standard 6 Performance Evaluation included below (Optional)

STANDARD 7

STUDENTS WILL BE ABLE TO UNDERSTAND A DETAILED DAMAGE REPORT

Objective 1 Describe the function and importance of damage reports and general business aspects in the collision repair industry.

Objective 2 Use a vehicle identification number and an information source to fully identify a vehicle.



- Objective 3 Explain and identify different types of vehicle damage.
- Objective 4 Identify and describe a general plan for repairs on a damaged area.
- Objective 5 Explain the importance of planning, describe a sequence for damage analysis, and identify common industry parts names and repair terms.
- Objective 6 Recognize damage to various mechanical systems of the vehicle.
- Objective 7 Understand flat rate, hourly rate, and pricing of materials as it applies to collision repair.

Standard 7 Performance Evaluation included below (Optional)

STANDARD 8

STUDENTS WILL BE ABLE TO UNDERSTAND AND DEMONSTRATE THE USE OF BODY FILLERS

- Objective 1 Select and understand the correct filler and tools needed to perform final finishing.
- Objective 2 Properly clean and prepare the repair area before applying plastic filler.
- Objective 3 Explain the preparation and application of specialty fillers.
- Objective 4 Properly mix and apply plastic body filler to a properly prepared area.
- Objective 5 Restore the original contour and shape of a straightened panel using plastic body filler.

Standard 8 Performance Evaluation included below (Optional)

STANDARD 9

STUDENTS WILL BE ABLE TO UNDERSTAND AND DEMONSTRATE MIG WELDING

- Objective 1 Describe metal joining methods and identify where each method is suitable in automotive sheet metal repair.
- Objective 2 Explain and demonstrate all applicable personal and shop safety steps, along with vehicle protection measures, to be followed when welding and cutting.
- Objective 3 Properly set up a MIG welder for welding automotive sheet metal
- Objective 4 Run a test weld and tune the welder for the welds being made.
- Objective 5 Clean, assemble, and complete a butt joint with backing in a flat position; visually inspect the weld.
- Objective 6 Clean, assemble, and complete a fillet weld lap joint in a flat position; visually inspect the weld.
- Objective 7 Clean, assemble, and complete a plug weld in a flat position; visually inspect the weld.

Standard 9 Performance Evaluation included below (Optional)

STANDARD 10

STUDENTS WILL BE ABLE TO UNDERSTAND VEHICLE CONSTRUCTION AND PARTS IDENTIFICATIONS

- Objective 1 Identify type of vehicle construction (space frame, unibody, body-over-frame).
- Objective 2 Recognize the different damage characteristics of space frame, unibody, and body-over-frame vehicles.
- Objective 3 Identify impact energy absorbing components.
- Objective 4 Identify steel types; determine reparability.
- Objective 5 Identify aluminum/magnesium components; determine reparability.



- Objective 6 Identify plastic/composite components; determine reparability
- Objective 7 Identify vehicle glass components and repair/replacement procedures.
- Objective 8 Identify add-on accessories.

Standard 10 Performance Evaluation included below (Optional)

STANDARD 11 (Optional)

STUDENTS WILL GAIN AN UNDERSTANDING OF AUTOMOTIVE COLLISION REPAIR AS A PROFESSION AND WILL DEVELOP PROFESSIONAL SKILLS FOR THE WORKPLACE

- Objective 1 As a participating member of the SkillsUSA student organization complete the SkillsUSA Level I Professional Development Program.
 1. Complete a self-assessment inventory and identify individual learning styles.
 2. Discover self-motivation techniques and establish short-term goals.
 3. Determine individual time-management skills.
 4. Define future occupations.
 5. Define awareness of cultural diversity and equity issues.
 6. Recognize the benefits of conducting a community service project.
 7. Demonstrate effective communication skills with others.
 8. Participate in a shadowing activity.
 9. Identify components of an employment portfolio.
 10. Explore what is ethical in the workplace or school.
 11. Demonstrate proficiency in program competencies.
 12. Explore what is ethical in the workplace or school. • State the SkillsUSA motto.
 1. State the SkillsUSA creed.
 2. Learn the SkillsUSA colors.
 3. Describe the official SkillsUSA dress.
 4. Describe the procedure for becoming a SkillsUSA officer.
- Objective 2 Understand the use of drawings in architectural design and how those drawings relate to career opportunities.
- Objective 3 Display a professional attitude toward the instructor and peers.

Standard 11 Performance Evaluation included below (Optional)



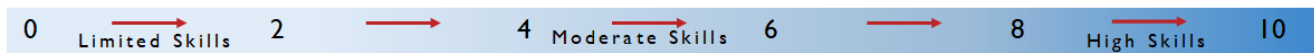
Collision Repair Performance Standards (Optional)

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of **8 or higher** on the rating scale. Students may be encouraged to repeat the objectives until they average **8 or higher**.

Students Name _____

Class _____

PERFORMANCE RATING SCALE



STANDARD 1 Safety and Environmental Practices

Score:

- Understand and demonstrate safety and environmental practices

STANDARD 2 Automotive Finishes

Score:

- Understand automotive finishes

STANDARD 3 Refinishing

Score:

- Understand the principles needed to prepare a surface for refinishing

STANDARD 4 Metal Straightening

Score:

- Understand and demonstrate metal straightening

STANDARD 5 Applying Finishes

Score:

- Understand the procedures necessary in the application of a finish

STANDARD 6 Detailing

Score:

- Understand and demonstrate detailing

STANDARD 7 Detailed Damaged Report

Score:

- Read and understand a detailed damage report

STANDARD 8 Body Fillers

Score:

- Understand and demonstrate the use of body fillers

STANDARD 9 MIG Welding

Score:

- Understand and demonstrate MIG welding

STANDARD 10 Vehicle Construction Parts

Score:

- Understand vehicle construction parts identification



STANDARD II Professional Skills for the Workplace

Score:

- Understanding of Automotive Collision Repair as a profession and will develop professional skills for the workplace

PERFORMANCE STANDARD AVERAGE SCORE: