

STRANDS AND STANDARDS

COLLISION NON-STRUCTURAL REPAIR



Course Description

This course prepares individuals to perform non-structural repair, replacement, and adjustment of automotive outer body panels and uni-body components. 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. (asestudentcertification.com), (http://pdmdev.i-car.com/pdf/education_foundation/natef_crosswalk_2016.pdf)

Intended Grade Level	10-12
Units of Credit	0.5 - 1.0
Core Code	40.09.00.00.010
Concurrent Enrollment Core Code	40.09.00.13.010
Prerequisite	Basic Automotive Collision Repair
Skill Certification Test Number	N/A
Test Weight	N/A
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Automotive Collision Repair
Endorsement 2	N/A
Endorsement 3	N/A

STRAND 1

Students will participate in personal and leadership development activities through SkillsUSA or another appropriate career and technical student organization.

Standard 1

Student will use communication skills to effectively communicate with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.

Standard 2

Student will effectively use teamwork to respectfully work with others.

- Identify and understand different roles in working with a team.

Standard 3

Student will use critical thinking and problem-solving skills.

- Analyze the cause of the problem.
- Develop a solution to address the problem.
- Implement the plan.
- Evaluate the effectiveness of the plan.

Standard 4

Student will be dependable, reliable, steady, trustworthy, and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan, and manage work to complete assignments and projects on time.

Standard 5

Student will be accountable for results.

- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- File a regular written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics, e.g. fair, honest, disciplined.

STRAND 2

Students will participate in work-place readiness activities.

Standard 1

Student will demonstrate employability skills.

- Use a career search network to find career choices.
- Write a resume including a list of demonstrated skills.
- Write a letter of application.
- Complete a job application.
- Participate in an actual or simulated job interview.

Standard 2

Student will participate in a work-based learning experience outside the classroom.

- Student will plan and implement a work-based learning experience aligned with their career goal.

STRAND 3

Students will understand and demonstrate safety and environmental practices.

Standard 1

Select and use proper personal safety equipment; take necessary precautions with hazardous operations and materials in accordance with federal, state, and local regulations.

Standard 2

Locate OEM procedures to identify material and composition of the vehicle being repaired (mild steel, high strength steel, ultra-high strength steel, aluminum, etc.).

Standard 3

Locate procedures and precautions that may apply to the vehicle being repaired.

Standard 4

Identify vehicle system precautions and/or inspections to include but not limited to supplemental restraint system (SRS), advanced driver assistance systems (ADAS), hybrid/electric/alternative fuel vehicles, locations and recommended procedures before inspecting or replacing components.

Standard 5

Perform vehicle clean-up; complete quality control using a checklist on operations performed.

Standard 6

Understand safety practices related to general shop, personal protection, vehicle lifts, and hand and power equipment.

Standard 7

Understand and identify different fasteners and their applications and repair procedures.

Standard 8

Understand how to select and properly use hand and select power tools.

Performance Skills

Understand and demonstrate safety and environmental practices.

- Select and use proper personal safety equipment; take necessary precautions with hazardous operations and materials in accordance with federal, state, and local regulations.
- Locate OEM procedure s to identify material and composition of the vehicle being repaired (mild steel, high strength steel, ultra-high strength steel, aluminum, etc.).
- Locate procedures and precautions that may apply to the vehicle being repaired.
- Identify vehicle system precautions and/or inspections to include but not limited to supplemental restraint system (SRS), advanced driver assistance systems (ADAS), hybrid/electric/alternative fuel vehicles, locations and recommended procedures before inspecting or replacing components.
- Perform vehicle clean-up; complete quality control using a checklist on operations performed.
- Understand safety practices related to general shop, personal protection, vehicle lifts, and hand and power equipment.
- Understand and identify different fasteners and their applications and repair procedures.
- Understand how to select and properly use hand and select power tools.

STRAND 4

Students will understand and demonstrate vehicle preparation.

Standard 1

Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan.

Standard 2

Inspect, remove, protect, label, store, inventory, and reinstall exterior trim and moldings.

Standard 3

Inspect, remove, protect, label, store, inventory, and reinstall interior trim and components.

Standard 4

Inspect, remove, protect, label, store, inventory, and reinstall body panels and components that may interfere with or be damaged during repair.

Standard 5

Inspect, remove, protect, label, store, inventory and reinstall vehicle mechanical and electrical components that may interfere with or be damaged during repair.

Standard 6

Protect panels, glass, interior parts, and other vehicles adjacent to the repair area.

Standard 7

Soap and water wash entire vehicle; complete pre-repair inspection checklist.

Standard 8

Prepare damaged area using water-based and solvent-based cleaners.

Standard 9

Remove corrosion protection, undercoating, sealers, and other protective coatings as necessary to perform repairs.

Standard 10

Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair.

Performance Skills

Understand and demonstrate vehicle preparation.

- Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan.
- Inspect, remove, protect, label, store, inventory, and reinstall exterior trim and moldings.
- Inspect, remove, protect, label, store, inventory, and reinstall interior trim and components.
- Inspect, remove, protect, label, store, inventory, and reinstall body panels and components that may interfere with or be damaged during repair.
- Inspect, remove, protect, label, store, inventory and reinstall vehicle mechanical and electrical components that may interfere with or be damaged during repair.
- Protect panels, glass, interior parts, and other vehicles adjacent to the repair area.
- Soap and water wash entire vehicle; complete pre-repair inspection checklist.
- Prepare damaged area using water-based and solvent-based cleaners.
- Remove corrosion protection, undercoating, sealers, and other protective coatings as necessary to perform repairs.
- Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair.

STRAND 5

Students will understand and demonstrate outer body panel repairs, replacements, and adjustments.

Standard 1

Inspect/locate direct, indirect, or hidden damage and direction of impact.

Standard 2

Inspect, remove and replace welded steel panel or panel assemblies.

Standard 3

Determine the extent of damage to aluminum body panels; repair or replace.

Standard 4

Inspect, remove, replace, and align hood, hood hinges, and hood latch.

Standard 5

Inspect, remove, replace, and align deck lid, lid hinges, and lid latch.

Standard 6

Inspect, remove, replace, and align doors, latches, hinges, and related hardware.

Standard 7

Inspect, remove, replace and align tailgates, hatches, liftgates and sliding doors.

Standard 8

Inspect, remove, replace, overhaul, and align bumpers, covers, reinforcements, guards, impact absorbers, and mounting hardware.

Standard 9

Inspect, remove, replace and align fenders, and related panels.

Standard 10

Restore corrosion protection during and after the repair.

Standard 11

Replace door skins.

Standard 12

Restore sound deadeners and foam materials.

Standard 13

Perform panel bonding and weld bonding.

Standard 14

Diagnose and repair water leaks, dust leaks, and wind noise.

Standard 15

Identify one-time use fasteners.

Standard 16

Weld damaged or torn steel body panels; repair broken welds.

Standard 17

Inspect, identify labels/decals and replace as necessary.

Performance Skills

Understand and demonstrate outer body panel repairs, replacement, and adjustments.

- Inspect/locate direct, indirect, or hidden damage and direction of impact.
- Inspect, remove and replace welded steel panel or panel assemblies.
- Determine the extent of damage to aluminum body panels; repair or replace.
- Inspect, remove, replace, and align hood, hood hinges, and hood latch.
- Inspect, remove, replace, and align deck lid, lid hinges, and lid latch.
- Inspect, remove, replace, and align doors, latches, hinges, and related hardware.

- Inspect, remove, replace and align tailgates, hatches, liftgates and sliding doors.
- Inspect, remove, replace, overhaul, and align bumpers, covers, reinforcements, guards, impact absorbers, and mounting hardware.
- Inspect, remove, replace and align fenders, and related panels.
- Restore corrosion protection during and after the repair.
- Replace door skins.
- Restore sound deadeners and foam materials.
- Perform panel bonding and weld bonding.
- Diagnose and repair water leaks, dust leaks, and wind noise.
- Identify one-time use fasteners.
- Weld damaged or torn steel body panels; repair broken welds.
- Inspect, identify labels/decals and replace as necessary.

STRAND 6

Students will understand and demonstrate metal finishing and body filler.

Standard 1

Prepare a panel for body filler by abrading or removing the coatings; featheredge, refine scratches, and clean the surface before the application of body filler.

Standard 2

Locate and repair surface irregularities and straighten contours on a damaged body panel using power tools, hand tools, and weld-on pulling attachments.

Standard 3

Demonstrate hammer and dolly techniques.

Standard 4

Heat shrink stretched panel areas to proper contour.

Standard 5

Cold shrink stretched panel areas to proper contour.

Standard 6

Identify body filler defects; correct the cause and condition. (Pinholing, ghosting, staining, over catalyzing, etc.)

Standard 7

Identify different types of body fillers.

Standard 8

Shape body filler to contour; finish sand.

Standard 9

Perform proper metal finishing techniques for aluminum.

Standard 10

Perform proper application of body filler to aluminum.

Standard 11

Locate and repair surface irregularities and straighten contours on a damaged panel using Glue-Pulling Dent Repair (GDPR).

Standard 12

Mix and apply body filler.

Performance Skills

Understand and demonstrate metal finishing and body filler.

- Prepare a panel for body filler by abrading or removing the coatings; featheredge, refine scratches, and clean the surface before the application of body filler.
- Locate and repair surface irregularities and straighten contours on a damaged body panel using power tools, hand tools, and weld-on pulling attachments.
- Demonstrate hammer and dolly techniques.
- Heat shrink stretched panel areas to proper contour.
- Cold shrink stretched panel areas to proper contour.
- Identify body filler defects; correct the cause and condition. (Pinholing, ghosting, staining, over catalyzing, etc.)
- Identify different types of body fillers.
- Shape body filler to contour; finish sand.
- Perform proper metal finishing techniques for aluminum.
- Perform proper application of body filler to aluminum.
- Locate and repair surface irregularities and straighten contours on a damaged panel using Glue-Pulling Dent Repair (GDPR).
- Mix and apply body filler.

STRAND 7

Students will understand and demonstrate repair, replacement, and adjustment of moveable glass and hardware.

Standard 1

Inspect, adjust, overhaul, repair or replace window regulators, run channels, glass, power mechanisms, and related controls.

Standard 2

Inspect, adjust, repair, remove, reinstall or replace weather-stripping.

Standard 3

Inspect, remove, repair or replace, and adjust removable power operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs.

Standard 4

Inspect, remove, reinstall, and align convertible top and related mechanisms.

Standard 5

Identify or recalibrate electrical components that may need to be initialized.

Performance Skill

Understand and demonstrate repair, replacement, and adjustment of moveable glass and hardware.

- Inspect, adjust, overhaul, repair or replace window regulators, run channels, glass, power mechanisms, and related controls.
- Inspect, adjust, repair, remove, reinstall or replace weather-stripping.
- Inspect, remove, repair or replace, and adjust removable power operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs.
- Inspect, remove, reinstall, and align convertible top and related mechanisms.
- Identify or recalibrate electrical components that may need to be initialized.

STRAND 8

Students will understand and demonstrate plastics, adhesives, and welding.

Standard 1

Identify the types of plastics; determine reparability.

Standard 2

Clean and prepare the surface of plastic parts; identify the types of plastic repair procedures.

Standard 3

Repair rigid, semi-rigid, and flexible plastic panels.

Standard 4

Remove, replace, or repair damaged areas of rigid exterior composite panels.

Standard 5

Replace bonded rigid exterior composite body panels; straighten or align panel supports.

Standard 6

Repair plastic parts by welding (nitrogen, airless).

Standard 7

Perform a single-sided adhesively bonded cosmetic repair.

Standard 8

Perform a double-sided adhesively bonded repair.

Standard 9

Perform an adhesively bonded or welded tab repair.

Standard 10

Shape or reform damaged plastic.

Performance Skills

Understand and demonstrate how to repair plastics using adhesives.

- Identify the types of plastics; determine reparability.
- Clean and prepare the surface of plastic parts; identify the types of plastic repair procedures.
- Repair rigid, semi-rigid, and flexible plastic panels.
- Remove, replace, or repair damaged areas of rigid exterior composite panels.
- Replace bonded rigid exterior composite body panels; straighten or align panel supports.
- Repair plastic parts by welding (nitrogen, airless).
- Perform a single-sided adhesively bonded cosmetic repair.
- Perform a double-sided adhesively bonded repair.
- Perform an adhesively bonded or welded tab repair.
- Shape or reform damaged plastic.