Automotive Collision Repair I

Course Syllabus 2015-2016

COURSE DESCRIPTION

This is a course that helps students understand the broad field of auto collision repair technology and its career possibilities. This course will help students answer the question, "Is a career in auto painting or auto collision repair technology for me?"

COURSE OBJECTIVES

Upon the successful completion of this course, the student will be able to:

- Define and apply major concepts of non-structural analysis and damage repair.
- Demonstrate competency in straightening, welding and repairing body panels.
- Demonstrate the ability to disassemble and reassemble variety of body parts.
- Simulate a repair on a fender using hammer and dolly techniques.
- Demonstrate the ability to straighten a fender using body plastic.
- Demonstrate the ability to produce different welds.
- Demonstrate the ability to repair plastic parts.
- Demonstrate the ability to work safely in a lab environment.

REQUIRED TEXT & MATERIALS

3" 3 Ring Binder- with Tabs
Safety glasses
Work type clothing and old shoes or boots

EVALUATION CRITERIA

	Total Points
Unit Tests (1-6) (50pts each) approx..	
Daily Performance (10pts daily- 90 days)	900
Projects (Units 1-6) (100pts each) approx..	
Midterm & Final 20% of total points	

Final grade will be 80% total points 20% final test

MSD Warren Township
Grade Scale

100-92.5=A
92.4-89.5=A-
89.4-86.5=B+
86.4-82.5=B
82.4-79.5=B-
79.4-76.5=C+
76.4-72.5=C
72.4-69.5=C-
69.4-66.5=D+
66.4-62.5=D
62.4-59.5=D-
Below 59.5=F

COURSE OUTLINE

Unit 1 Preparation

- Lesson 1.1 Inspect, remove, store and replace interior and exterior trim, moldings and components:
- Lesson 1.2 Inspect, remove, store and replace non-structural body panels and components that may interfere with or be damaged during repair:
- Lesson 1.3 Protect panels, glass and parts adjacent to the repair area:
- Lesson 1.4 Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants from those areas to be repaired:

Unit 2 Outer Body Panel Repair, Replacements and Adjustments

- Lesson 2.1 Determine the extent of direct and indirect damage and direction of impact; develop and document a repair plan:
- Lesson 2.2 Inspect, remove and replace bolted, bonded and welded steel panel or panel assemblies:
- Lesson 2.3 Inspect, remove, replace and align hood, hood hinges and hood latch:
- Lesson 2.4 Inspect, remove, replace and align deck lid, lid hinges and lit hatch:
- Lesson 2.5 Inspect, remove, replace and align doors, tailgates, hatches, lift gates, latches, hinges and related hardware:
- Lesson 2.6 Inspect, remove, replace and align front fenders, headers and other panels:
- Lesson 2.7 Straighten and rough-out contours of damaged panels to suitable condition for body filling or metal finishing using power tools, hand tools and weld-on pull attachments:

Unit 3 Metal Finishing and Body Filling

- Lesson 3.1 Remove paint from the damaged area of body panel:
- Lesson 3.2 Locate and reduce surface irregularities on a damaged body panel:
- Lesson 3.3 Demonstrate hammer and dolly techniques:
- Lesson 3.4 Heat shrink stretched panel areas to proper contour:
- Lesson 3.5 Mix body filler:
- Lesson 3.6 Apply body filler; shape during curing;
- Lesson 3.7 Rough sand cured body filler to contour; finish sand:
- Lesson 3.8 Mix and apply primer-surfacer:

Unit 4 Moveable Glass and Hardware

- Lesson 4.1 Inspect, adjust, repair or replace window regulators, run channels, glass, power mechanisms and related controls:

Unit 5 Metal Welding and Cutting

- Lesson 5.1 Identify weldable and non-weldable materials used in collision repair:
- Lesson 5.2 Determine the correct GMAW (Mig) welder type, electrode, wire type, diameter and gas to be used in a specific welding situation:
- Lesson 5.3 Set up and adjust the GMAW (Mig) welder to “tune” for proper electrode stickout, voltage, polarity, flow rate and wire-feed speed required for the material being welded:
- Lesson 5.4 Store, handle and install high-pressure gas cylinders:
- Lesson 5.5 Determine work clamp (ground) location and attach:
- Lesson 5.6 Use the proper angle of the gun to the joint and direction of gun travel for the type of weld being made in the flat, horizontal, vertical and overhead positions:
- Lesson 5.7 Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations:
- Lesson 5.8 Protect computers and other electronic control modules during welding procedures:
- Lesson 5.9 Clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, and clamp as required:

- Lesson 5.10 Determine the joint type (butt weld with backing, lap, etc.) for weld being made:
- 5.11 Determine the type of weld (continuous, butt weld with backing, plug, etc.) for each specific welding operation:
- 5.12 Perform the following welds: continuous, stitch, tack, plug, butt weld with and without backing and fillet:
- 5.13 Perform visual and destructive tests on each weld type:
- 5.14 Identify the causes of various welding defects; make necessary adjustments:
- 5.15 Identify cause of contact tip burn-back and failure of wire to feed: make necessary adjustments:
- 5.16 Identify cutting process for different materials and locations; perform cutting operation:

Unit 6 Plastics and Adhesives

- 6.1 Identify the types of plastics; determine reparability:
- 6.2 Identify the types of plastic repair procedures; clean and prepare the surface of plastic parts:
- 6.3 Replace or repair rigid, semi-rigid and flexible plastic panels:
- 6.4 Remove or repair damaged areas from rigid exterior composite panels: