Modesto Junior College  
Course Outline of Record  
AUBDY 303

I. **OVERVIEW**  
The following information will appear in the 2009 - 2010 catalog

**AUBDY 303 Automotive Collision Repair 3**  
**4 Units**

**Prerequisite:** Satisfactory completion of AUBDY 302 with a minimum grade of C or better.

This course is designed for the student who has completed Auto Body 301 and 302 with emphasis on advanced techniques, including repair and replacement of non structural and structural components. This course works towards ASE certification and uses the ICAR live delivery program. At the end of each program the student will take a post test and be eligible for ICAR Training Alliance gold class points.

**Materials Fee Required**

Field trips might be required. (A-F Only) Lecture /Lab

II. **LEARNING CONTEXT**  
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

A. Visual inspection and repair plan  
   1. Visual inspection of damage  
   2. Point of impact (direct damage)  
   3. Indirect damage (displaced metals)  
   4. Direction of damaging force  
   5. Inner construction impact and distortion  
   6. Methods of disassembly  

B. Collision repair  
   1. Front-end repairs conventional and unitized.  
   2. Side repair methods  
   3. Turret-top repairs  
   4. Methods of rear-end repairs  

C. Replacing welded body panel and sections  
   1. Removal  
      a. Air chisel  
      b. Air nibbler  
      c. Hacksaw  
      d. Abrasive wheel  
      e. Metal shears  
      f. Spot weld drill  
   2. Types of seams or joints  
      a. Lap seam  
      b. Recess lap  
      c. Butt  
      d. Tack strip  
   3. Body alignment  
      a. X-checking (diagonal measurements)  
      b. Tram gauges  
      c. Fender straps  
      d. Cable ratchet puller  
      e. Friction jack  
   4. Quarter panel  
      a. Full replacement
b. Vertical splices  
c. Horizontal splices  
d. Sectioning  
5. Door outer panel replacement (skin)  
6. Rocker panel  
7. Floor pan (undercarriage)  
8. Top full replacement and outersheet metal (skin)  
9. Inner panel alignment  
10. Attaching and alignment prior to welding  
11. Panel and sheet metal gap  

D. MIG Welding (Metal Inert Gas)  
1. Safety – helmet, gloves, and welding jacket  
2. Set up and adjusting wire welder  
3. Welding different metals  
a. Mild steel  
b. HSS high strength steel  
c. HSLA  
d. Galvanized  
4. Welding methods  
5. Adjustments for metal gauge  
a. Spot weld  
b. Continuous  
a. Pulse  
6. Trade standards and industry regulations for welding unitized structural metals  
7. Heat zone  
a. Effects of heat on different metals  

2. Required Lab Content:  
   
a. Demonstrate proper safety habits in a shop environment as it relates to  
   i. Chemicals  
   ii. Electrical  
   iii. Surface preparation  
   iv. Vehicle lifts  

b. Demonstrate proper tool usage in lab work  

c. Demonstrate appropriate usage of welding and cutting techniques  
   i. Metal inert gas welding  
   ii. Spot welding  
   iii. Heat shrinking processes  

d. Perform non-structural repairs  
   i. Damage analysis  
   ii. Common damage characteristics  
   iii. Removal and replacement of non-structural panels  

e. Apply automotive body fillers to industry standards
f. Determine vehicle design (construction) as it applies to lab projects
   i. Identifying substrates
   ii. Fastening devices

g. Plastic and composite repairs
   i. Repair and replacement

h. Corrosion protection
   i. Surface preparation
   ii. Anticorrosion materials

i. Passenger compartment service
   i. Repair and replacement

j. Welded panel replacement
   i. Spot weld removal
   ii. Panel removal
   iii. New panel installation

k. Vehicle dimensions
   i. Tram gauges
   ii. Diagnosing damage
   iii. Computer measuring systems

l. Estimating repair costs
   i. Analyze
   ii. Evaluate
   iii. Calculate

B. ENROLLMENT RESTRICTIONS

1. Prerequisites

   Satisfactory completion of AUBDY 302 with a minimum grade of C or better.

2. Requisite Skills

   Before entering the course, the student will be able to:

   a. Demonstrate the correct procedures used in automotive plastic and composite repairs.
b. Demonstrate correct procedures for corrosion protection to meet manufacturer’s specifications

c. Complete a repair estimate of a damaged automobile using collision repair manuals. The estimate must include all current information according to industry standards.

C. HOURS AND UNITS

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<th>INST METHOD</th>
<th>TERM HOURS</th>
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D. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Present weekly lectures through the use of power point presentations and DVD presentations.

2. Discuss chapter content and review homework in class to ensure students have knowledge prior to assigned lab activities correlated to lectures and NATEF

3. Modeling trade techniques, during lab, as it relates to the application of repairs

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS
   Time spent on coursework in addition to hours of instruction (lecture hours)
   Weekly Reading Assignments

2. Weekly Homework Assignments

3. NATEF Lab Sheets

4. ICAR Performance Evaluations

III. EVIDENCE OF CRITICAL THINKING

Assignments require the appropriate level of critical thinking

1. List the repair methods of ultra high strength steels.

2. How would you determine whether a vehicle is a total loss?

3. How do you avoid parallax error when reading a scale?

4. If undercutting occurs while MIG welding, what should you do?

5. What can you do to make the LAB area a safer place to work.

6. Summarize the deformation effects of impact on steel panels.

7. Identify and explain the difference between the two major types of plastic used in vehicles.

• TEXTS AND OTHER READINGS (TYPICAL)
DESIRED LEARNING

A. COURSE GOAL
   As a result of satisfactory completion of this course, the student should be prepared to:
   
   diagnose minor collision damage, prepare an estimate, repair and/or replace necessary panels to
   pre-accident condition.

B. STUDENT LEARNING GOALS
   Mastery of the following learning goals will enable the student to achieve the overall course goal.

   A. Required Learning Goals
      Upon satisfactory completion of this course, the student will be able to:
      
      a. Identify major components of a typical passenger compartment and diagnose proper repair or
         replacement procedures.
      b. Identify, diagnose and perform repair or replacement procedures related to substrates, structural
         components and assemblies used in vehicle construction.

   B. Lab Learning Goals
      Upon satisfactory completion of the lab portion of this course, the student will be able to:
      
      a. Demonstrate the ability to comply with industry safety and environmental issues.
      b. Analyze, diagnose and perform minor repairs on non-structural steel panels.
      c. Demonstrate the correct procedure used in plastic adhesive repairs.
      d. Demonstrate correct procedures for corrosion protection to meet manufacturer’s specifications.

METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT
   A. Weekly Reading Assignments
   B. Weekly Homework Assignments
   C. NATEF Lab Sheets
   D. ICAR Performance Evaluations
   E. Bi Monthly Quizzes

B. SUMMATIVE ASSESSMENT
   A. ICAR Post Tests
   B. Mid Term Exam
   C. Final Exam