

# AB R004: ADVANCED AUTO BODY COLLISION AND DAMAGE REPAIR

**Originator**

ptrujillo

**Co-Contributor(s)****Name(s)**

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**College**

Oxnard College

**Discipline (CB01A)**

AB - Automotive Body Repair&amp;Paint

**Course Number (CB01B)**

R004

**Course Title (CB02)**

Advanced Auto Body Collision and Damage Repair

**Banner/Short Title**

Collision Damage/Repair

**Credit Type**

Credit

**Start Term**

Fall 2021

**Catalog Course Description**

This is an advanced course in the techniques of repairing heavy damage to the automobile body and chassis; emphasis will be on automobile frame straightening, structure damage repairs, and advanced welding. The student's auto body projects will be in the scope of complete automotive wrecks.

**Taxonomy of Programs (TOP) Code (CB03)**

0949.00 - \*Automotive Collision Repair

**Course Credit Status (CB04)**

D (Credit - Degree Applicable)

**Course Transfer Status (CB05) (select one only)**

C (Not transferable)

**Course Basic Skills Status (CB08)**

N - The Course is Not a Basic Skills Course

**SAM Priority Code (CB09)**

C - Clearly Occupational

**Course Cooperative Work Experience Education Status (CB10)**

N - Is Not Part of a Cooperative Work Experience Education Program

**Course Classification Status (CB11)**

Y - Credit Course

**Educational Assistance Class Instruction (Approved Special Class) (CB13)**

N - The Course is Not an Approved Special Class

**Course Prior to Transfer Level (CB21)**

Y - Not Applicable

**Course Noncredit Category (CB22)**

Y - Credit Course

**Funding Agency Category (CB23)**

Y - Not Applicable (Funding Not Used)

**Course Program Status (CB24)**

1 - Program Applicable

**General Education Status (CB25)**

Y - Not Applicable

**Support Course Status (CB26)**

N - Course is not a support course

**Field trips**

May be required

**Grading method**

Letter Graded

**Alternate grading methods**

Student Option- Letter/Pass  
Pass/No Pass Grading

**Does this course require an instructional materials fee?**

No

**Repeatable for Credit**

No

**Is this course part of a family?**

No

**Units and Hours**

**Carnegie Unit Override**

No

**In-Class**

**Lecture**

**Minimum Contact/In-Class Lecture Hours**

35

**Maximum Contact/In-Class Lecture Hours**

35

**Activity**

**Laboratory**

**Minimum Contact/In-Class Laboratory Hours**

105

**Maximum Contact/In-Class Laboratory Hours**

105

**Total in-Class****Total in-Class****Total Minimum Contact/In-Class Hours**

140

**Total Maximum Contact/In-Class Hours**

140

**Outside-of-Class****Internship/Cooperative Work Experience****Paid****Unpaid****Total Outside-of-Class****Total Outside-of-Class****Minimum Outside-of-Class Hours**

70

**Maximum Outside-of-Class Hours**

70

**Total Student Learning****Total Student Learning****Total Minimum Student Learning Hours**

210

**Total Maximum Student Learning Hours**

210

**Minimum Units (CB07)**

4

**Maximum Units (CB06)**

4

**Prerequisites**

AB R003

**Entrance Skills****Entrance Skills**

1. Describe what happens to a motor vehicle during a collision.
2. Explain the major work areas of a typical collision repair facility.
3. Describe the types of positions or jobs available in the collision repair industry.
4. Summarize the workflow through typical collisions repair facility.
5. Explain the general purpose of damage estimates.
6. Manually prepare an estimate.
7. Explain the difference between flat-rate labor times and overlap labor time when estimating.
8. Determine whether damaged parts should be repaired or replaced with new ones.
9. Calculate materials costs based on a refinishing materials list.

**Prerequisite Course Objectives**

- AB R003-Describe what happens to a motor vehicle during a collision.  
AB R003-Explain the major work areas of a typical collision repair facility.  
AB R003-Describe the types of positions or jobs available in the collision repair industry.  
AB R003-Summarize the workflow through a typical collision repair facility.

AB R003-Explain the general purpose of damage estimates.  
 AB R003-Explain the difference between flat-rate labor time and overlap labor time when estimating.  
 AB R003-Determine whether damaged parts should be repaired or replaced with new ones.  
 AB R003-Calculate materials costs based on a refinishing materials list.

## Requisite Justification

### Requisite Type

Prerequisite

### Requisite

AB R003

### Requisite Description

Course in a sequence

### Level of Scrutiny/Justification

Content review

## Student Learning Outcomes (CSLOs)

**Upon satisfactory completion of the course, students will be able to:**

- |   |  |
|---|--|
| 1 | Repair plastic bumpers with bonding adhesives.                                   |
| 2 | Perform rust repairs using techniques, tools, equipment properly.                |
| 3 | Students demonstrate how to replace and install chrome moldings and accessories. |

## Course Objectives

**Upon satisfactory completion of the course, students will be able to:**

- |    |   |
|----|---|
| 1  | Summarize the steps needed to repair a car or light truck damaged in an accident.         |
| 2  | Identify and use measuring tools common to auto body repair.                              |
| 3  | Choose the correct tool for the job at hand.  |
| 4  | Identify air-powered tools used in the body shop.   |
| 5  | Choose the correct body filler for a particular repair job.                               |
| 6  | Repair gouges, tears, and punctures in plastics by means of a chemical bonding process.   |
| 7  | Analyze damage by measuring body dimensions.  |
| 8  | Perform straightening and aligning techniques.  |
| 9  | Use the information in a vehicle dimension manual to properly replace welded body panels. |
| 10 | Properly plan and execute collision repair procedures.                                    |
| 11 | Describe the anticorrosive materials used to prevent and retard rust formation.           |
| 12 | Choose the correct anticorrosive application equipment for specific applications.         |

## Course Content

### Lecture/Course Content

1. Sheet Metal Stress Relieving
  - a. Sheet metal damage repair
  - b. Working aluminum panels
  - c. Metal shrinking, stress relieving
  - d. Paintless dent removal
2. Repairing Plastics
  - a. Types of plastics
  - b. Plastic repair
  - c. Chemical-Adhesive bonding techniques

- d. Reinforced plastic repair
- e. Plastic welding procedures
- 3. Passenger Compartment Repair
  - a. Console service
  - b. Instrument cluster service
  - c. Headliner service
  - d. Locating air and water leaks
  - e. Rattle elimination
- 4. Major Body Frame Repairs
  - a. Measurement of body dimensions
  - b. Gauge measuring systems
  - c. Centering gauges
  - d. Strut centerline gauge
  - e. Universal measuring systems
- 5. Unibody Frame Realignment Repairs
  - a. Realignment basics
  - b. Unibody/Frame straightening equipment
  - c. Straightening and realigning techniques
  - d. Measuring when pulling
  - e. Planning the pull
  - f. Executing a pulling sequence
  - g. Stress relieving
- 6. Welded Panel Replacement
  - a. Welded panels repairs
  - b. Removing structural panels
  - c. Preparing panels for welding
  - d. Structural sectioning
  - e. Replacing panels with adhesives
- 7. Restoring Corrosion Protection
  - a. Corrosion fundamentals
  - b. Causes for loss of factory protection
  - c. Anticorrosion materials
  - d. Corrosion treatment areas
  - e. Corrosion protection primers
  - f. Exposed exterior surfaces
- 8. Chassis Service and Repairs
  - a. Power-train construction
  - b. Suspension and steering systems
  - c. Cooling systems
  - d. Heater operation
  - e. Air-conditioning systems
  - f. Exhaust systems
  - g. Fuel systems
- 9. Electrical Operations Systems
  - a. Electrical terminology
  - b. Battery system
  - c. Electric components
  - d. Lighting and wire ring systems
  - e. Electronic displays
- 10. Hydraulic Power Repairs
  - a. Power jacks and straightening equipment
  - b. Hydraulic tool care
  - c. Hydraulic lifts
  - d. Repair rear damage with hydraulic equipment

### Laboratory or Activity Content

1. Application of Sheet Metal Stress Relieving
  - a. Sheet metal damage repair
  - b. Working aluminum panels
  - c. Metal shrinking, stress relieving
  - d. Paintless dent removal
2. Application of Repairing Plastics
  - a. Types of plastics
  - b. Plastic repair
  - c. Chemical-Adhesive bonding techniques
  - d. Reinforced plastic repair
  - e. Plastic welding procedures
3. Application of Passenger Compartment Repair
  - a. Console service
  - b. Instrument cluster service
  - c. Headliner service
  - d. Locating air and water leaks
  - e. Rattle elimination
4. Application of Major Body Frame Repairs
  - a. Measurement of body dimensions
  - b. Gauge measuring systems
  - c. Centering gauges
  - d. Strut centerline gauge
  - e. Universal measuring systems
5. Application of Unibody Frame Realignment Repairs
  - a. Realignment basics
  - b. Unibody/Frame straightening equipment
  - c. Straightening and realigning techniques
  - d. Measuring when pulling
  - e. Planning the pull
  - f. Executing a pulling sequence
  - g. Stress relieving
6. Application of Welded Panel Replacement
  - a. Welded panels repairs
  - b. Removing structural panels
  - c. Preparing panels for welding
  - d. Structural sectioning
  - e. Replacing panels with adhesives
7. Application of Restoring Corrosion Protection
  - a. Anticorrosion materials
  - b. Corrosion treatment areas
  - c. Corrosion protection primers
  - d. Exposed exterior surfaces
8. Application of Chassis Service and Repairs
  - a. Power-train construction
  - b. Suspension and steering systems
  - c. Cooling systems
  - d. Heater operation
  - e. Air-conditioning systems
  - f. Exhaust systems
  - g. Fuel systems
9. Application of Electrical Operations Systems
  - a. Electrical terminology
  - b. Battery system
  - c. Electric components
  - d. Lighting and wire ring systems
  - e. Electronic displays
10. Application of Hydraulic Power Repairs

- a. Power jacks and straightening equipment
- b. Hydraulic tool care
- c. Hydraulic lifts
- d. Repair rear damage with hydraulic equipment

## Methods of Evaluation

**Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):**

Problem solving exercises  
Skills demonstrations

**Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):**

Laboratory activities  
Objective exams  
Other (specify)  
Projects  
Problem-Solving Assignments  
Quizzes  
Skills demonstrations

### Other

Textbook Assignments

## Instructional Methodology

**Specify the methods of instruction that may be employed in this course**

Audio-visual presentations  
Class discussions  
Distance Education  
Guest speakers  
Instructor-guided interpretation and analysis  
Laboratory activities  
Lecture

**Describe specific examples of the methods the instructor will use:**

1. Discussion of previous textbook assignment followed by specific examples from textbook and automotive technical manual.
2. The use of audio and video aids.
3. Use of computers.
4. Hands on shop demonstrations.

## Representative Course Assignments

### Writing Assignments

1. Students will be required to take test and answer the review questions at the end of each assigned textbook chapter.
2. Students will be required to do online work on canvas.

### Critical Thinking Assignments

1. Summarize the basic steps needed to repair a car or light truck damage in an accident.
2. Identify and use basic measuring tools common to auto body repair.
3. Choose the correct tool for the job at hand.
4. Identify air-powered tools used in the body shop.

### Reading Assignments

1. In addition to the textbook assignments, students will be required to do outside classroom readings in professional journals, such as "Body Shop Business", "Classic Car" and "Hot Rod."
2. Students will be required to do online work on canvas.

### **Skills Demonstrations**

1. Perform basic straightening and aligning techniques.
2. Used the information in a vehicle dimension manual to properly replace welded body panels.
3. Properly plan and execute collision repair procedures.
4. Describe the anticorrosive materials used to prevent and retard rust formation.
5. Choose the correct anticorrosive application equipment for specific applications.

### **Other assignments (if applicable)**

1. Students will be required to visit websites and complete worksheets, an example would be to visit the <https://www.SP2.org> Auto body shop safety website and complete the Test on Body Shop Safety.

### **Outside Assignments**

#### **Representative Outside Assignments**

1. Students will be required to take test and answer the review questions at the end of each assigned textbook chapter.
2. Students will be required to do online work on canvas.
3. students will be working on their on projects working on their cars or trucks.



**District General Education****A. Natural Sciences****B. Social and Behavioral Sciences****C. Humanities****D. Language and Rationality****E. Health and Physical Education/Kinesiology****F. Ethnic Studies/Gender Studies****CSU GE-Breadth****Area A: English Language Communication and Critical Thinking****Area B: Scientific Inquiry and Quantitative Reasoning****Area C: Arts and Humanities****Area D: Social Sciences****Area E: Lifelong Learning and Self-Development****Area F: Ethnic Studies****CSU Graduation Requirement in U.S. History, Constitution and American Ideals:****IGETC****Area 1: English Communication****Area 2A: Mathematical Concepts & Quantitative Reasoning****Area 3: Arts and Humanities****Area 4: Social and Behavioral Sciences****Area 5: Physical and Biological Sciences****Area 6: Languages Other than English (LOTE)****Textbooks and Lab Manuals****Resource Type**

Textbook

**Description**James E. Duffy, and Jonathan Beaty (2020). *Text book and mind-Tap. Auto Body Repair Technology (7th)*. Cengage Learning. 200 Pier 4 Boulevard Boston, MA 02210.**Resource Type**

Manual

**Description**James E. Duffy, and Jonathan Beaty (2020). *Text book and mind-Tap. Auto Body Repair Technology (7th)*. Cengage Learning. 200 Pier 4 Boulevard Boston, MA 02210.

**Resource Type**

Other Resource Type

**Resource Type**

Other Instructional Materials

**Description**

Instructional auto body props such as hand tools as well as body and fender components..

**Distance Education Addendum****Definitions****Distance Education Modalities**

Hybrid (1%–50% online)

**Faculty Certifications**

Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.

Yes

Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.

Yes

**Regular Effective/Substantive Contact****Hybrid (1%–50% online) Modality:**

Method of Instruction	Document typical activities or assignments for each method of instruction
Other DE (e.g., recorded lectures)	Faculty may use a variety of tools and media along with the learning management system to insure ADA compliance. Not limited to but inclusive of a broad range of options online and on campus, such as library resources, websites and multimedia suppliers.
E-mail	Email communication is available at any time. Announcements and messages will be used regularly to update and clarify assignments.
Asynchronous Dialog (e.g., discussion board)	Regular use of asynchronous discussion boards will be used for online activities. Questions and topics will be posted for meaningful discussion between faculty and required between students.
Video Conferencing	Recordings of proper techniques and processes will be available. Real time video available scheduled and unscheduled.
Face to Face (by student request; cannot be required)	Students will have hands on face to face contact with projects and skill instruction on campus and instructor lead. Many skills developed through this course can not be performed online. Welding, metal grinding, metal repair, sanding, structural repairs, painting and many hands on activities must be observed and demonstrated by instructor.
Telephone	Will be available when on ground labs are available.
Synchronous Dialog (e.g., online chat)	Students may be notified of special instances of synchronous contact through online means.

## Examinations

### Hybrid (1%–50% online) Modality

Online  
On campus

### Primary Minimum Qualification

AUTO BODY TECHNOLOGY

## Review and Approval Dates

### Department Chair

09/16/2020

### Dean

09/16/2020

### Technical Review

10/28/2020

### Curriculum Committee

10/28/2020

### DTRW-I

MM/DD/YYYY

### Curriculum Committee

12/09/2020

### Board

MM/DD/YYYY

### CCCCO

MM/DD/YYYY

### Control Number

CCC000095988

### DOE/accreditation approval date

MM/DD/YYYY