

SAN DIEGO COMMUNITY COLLEGE DISTRICT  
CONTINUING EDUCATION  
COURSE OUTLINE

**SECTION I**

**SUBJECT AREA AND COURSE NUMBER**

AUTO 411

**COURSE TITLE**

AUTO BODY AND PAINT TECHNICIAN

**ALTERNATE TITLES:**

AUTO BODY/COLLISION REPAIR

**TYPE COURSE**

NON-FEE

VOCATIONAL

**CATALOG COURSE DESCRIPTION**

This open-entry/exit course is designed to teach skills required for entry-level employment in auto body/collision repair and related industries. This course includes guided practice in a simulated work environment, in sanding, masking, collision repair, and glass installation. Class instruction is based on standards developed by the National Automotive Technicians Education Foundation (NATEF) and the Inter-Industry Conference on Auto Collision Repair (I-CAR). (FT)

**LECTURE HOURS**

60

**LABORATORY HOURS**

240

**ADVISORY**

NONE

**RECOMMENDED SKILL LEVEL**

Sixth grade reading level, ability to communicate effectively in the English language and knowledge of general math.

**INSTITUTIONAL STUDENT LEARNING OUTCOMES**

1. Social Responsibility  
SDCE students demonstrate interpersonal skills by learning and working cooperatively in a diverse environment.
2. Effective Communication  
SDCE students demonstrate effective communication skills.

INSTITUTIONAL STUDENT LEARNING OUTCOMES (CONTINUED)

3. Critical Thinking  
SDCE students critically process information, make decisions, and solve problems independently or cooperatively.
4. Personal and Professional Development  
SDCE students pursue short term and life-long learning goals, mastering necessary skills and using resource management and self advocacy skills to cope with changing situations in their lives.

COURSE GOALS

This course will provide instruction in current methods and practices of repair used in the auto body repair industry. Students will develop the critical thinking skills necessary to diagnose and repair collision problems. Instruction is integrated in order to enhance the students' reading, writing math and communication skills, enabling them to interact successfully with future employers and customers. Activities will take place in a simulated work environment representative of those encountered in the auto body repair industry today. This experience will include instruction in common business practices, ethics and integrity. Students who successfully complete the course will be qualified for an entry-level position as an auto body collision repair technician.

COURSE OBJECTIVES

Students will demonstrate through practical applications, written and oral exams, their ability to:

1. Apply general safety practices in addition to the specific procedures related to the Auto Collision Repair industry.
2. Analyze and evaluate waste products from the repair task and dispose of the residue or trash according to Federal, State and Local rules and regulations.
3. Understand the use and safety requirements of all solvents used in automotive applications.
4. Use the information from service manuals, charts, tables, graphs or databases to determine manufacturer's specifications for systems operations and the appropriate repair/replacement part and procedures.
5. Select and properly use the correct hand and power tools to repair auto body/collision damage.
6. Convert measurements as necessary to U.S. Standard or Metric specifications.
7. Explain the principle of force as it applies to the realignment of body and frame components.
8. Demonstrate the concept of pressure in relation to force when realigning body and frame components.
9. Use precision measuring tools to determine if repairs and replaced components are within manufacturers specifications.

**COURSE OBJECTIVES (CONTINUED)**

10. Explain the necessity of knowing that the hardness of a metal determines its function and location in the automobile.
11. Explain how fillers and finishes adhere to metals.
12. Demonstrate current welding techniques used to repair modern auto body designs.
13. Demonstrate professional ethics, personal integrity, good business practices and customer relation skills, meeting the standards of the California Department of Consumer Affairs.

**SECTION II**

**COURSE CONTENT AND SCOPE**

All modules of the program contain the following:

1. Safety Review
2. System Descriptions
3. Theory of Operation
4. Component Functions
5. Diagnostic Procedures
6. System – Component Repair Procedures
7. Related Terminology and Communication Skills

Math review for this course may include the following areas: addition, subtraction, multiplication and division of whole numbers; fractions and decimals; linear measurements; degrees and angles; the metric system; temperature measures.

**MODULE I**

**SAFETY AND ORIENTATION**

5 hrs.

1. Program Orientation
  - 1.1. Syllabus
  - 1.2. Overview of the auto collision and refinishing industry
    - 1.2.3 Management structure
    - 1.2.4 Finances
    - 1.2.5 Labor issues
2. Facilities Orientation
  - 2.1. Safety equipment
  - 2.2. Types
  - 2.3. Locations

COURSE CONTENT AND SCOPE (CONTINUED)

3. Common Types of Injuries
  - 3.1. Burns
  - 3.2. Asbestos hazards
  - 3.3. Chemical hazards
  - 3.4. Vapors/inhalation hazards
4. Tool Safety
5. Fire Safety
6. Batteries
  - 6.1. Charging
  - 6.2. Use of jumper cables
7. Material Safety Data Sheets (MSDS)
8. Hybrid/Electric vehicle precautions

MODULE II

10 hrs.

PREPARATION

NOTE: Preparation is an ongoing activity and is re-enforced throughout all units.

1. Interpret Damage Report
2. Plan Repair Surface
3. Prepare Repair Surface
  - 3.1. Removal of dirt, wax corrosion protection
4. Protecting Panels and Adjacent Areas

MODULE III

40 hrs.

PANEL REPLACEMENT AND ALIGNMENT

1. Panel Replacement and Alignment Tools
  - 1.1. Selection
  - 1.2. Use
2. Fasteners
  - 2.1. Types
  - 2.2. Applications
  - 2.3. Repair Procedures
3. Panel Alignment Methods
4. Remove, Reinstall and Align
  - 4.1. Bumpers
  - 4.2. Fascia
  - 4.3. Header panel
  - 4.4. Hood
  - 4.5. Deck lid
  - 4.6. Hatches
  - 4.7. Fenders
  - 4.8. Doors
  - 4.9. Tailgates

COURSE CONTENT AND SCOPE (CONTINUED)

MODULE IV 30 hrs.  
TRIM AND HARDWARE

1. Trim Tools
  - 1.1. Removal
  - 1.2. Installation
2. Remove and Reinstall
  - 2.1. Interior door trim panels
  - 2.2. Door lock and handle assembly
  - 2.3. Decklid lock cylinder
  - 2.4. Exterior trim and moldings
  - 2.5. Pin stripes
  - 2.6. Decals
  - 2.7. Emblems

MODULE V 20 hrs.  
GLASS AND HARDWARE

1. Removing and Replacing Glass
  - 1.1. Door
  - 1.2. Hinged glass
  - 1.3. Windshield and rear window
2. Alignment of Movable Glass
3. Sealing
  - 3.1. Air leaks
  - 3.2. Water leaks

MODULE VI 30 hrs.  
WELDING AND CUTTING

1. Safety Review
2. Oxyacetylene Equipment
  - 2.1. Orientation
  - 2.2. Set up
  - 2.3. Adjustments
  - 2.4. Use
3. M.I.G. Welding
  - 3.1. Set up and adjust
  - 3.2. Protect computers and other electrical components
  - 3.3. Weld continuous, stitch, spot, plug and tack
4. Spot Welders (STRSW)
  - 4.1. Orientation
  - 4.2. Set up
  - 4.3. Adjustments
  - 4.4. Use

COURSE CONTENT AND SCOPE (CONTINUED)

5. Spot Weld Sheet Metal Panels

MODULE VII

80 hrs.

STRAIGHTENING AND FILLING

1. Metal Straightening
  - 1.1. Tools
  - 1.2. Straightening techniques
  - 1.3. Shrinking techniques
2. Body Fillers
  - 2.1. Tools
  - 2.2. Materials
  - 2.3. Surface preparation
  - 2.4. Mixing
  - 2.5. Application
  - 2.6. Specialty and finish fillers
    - 2.6.1. Mixing
    - 2.6.2. Tools

MODULE VIII

70 hrs.

DOOR AND QUARTER PANEL REPAIR

1. Door Repair
  - 1.1. Straightening door frames
  - 1.2. Removing and replacing welded door skins
  - 1.3. Removing and replacing bonded door skins
  - 1.4. Replacing intrusion beams
2. Quarter Panel Repair
  - 2.1. Planning and preparation
    - 2.1.1. Sectioning
    - 2.1.2. Full panel replacement
  - 2.2. Removal of damaged panel
  - 2.3. Preparation for reinstallation of replacement panel
  - 2.4. Installation and alignment of replacement panel

MODULE IX

15 hrs.

BUSINESS PROCEDURES & CUSTOMER RELATIONS

1. Business Conduct and Ethics
  - 1.1. Consumer affairs
2. Repair Order and Job Scheduling
3. Phone Skills
4. Oral and Written Communications
5. Keyboarding Skills and Computer Literacy for Use in this Field

### APPROPRIATE READINGS

*Dupont Refinishing News*, monthly magazine

*Auto Body News*, monthly magazine

*I Car Advantage*, monthly magazine

*San Diego Craftsman*, California Autobody Association, monthly publication

### WRITING ASSIGNMENTS

Typical writing assignments may include but are not limited to:

1. Completing assigned reports.
2. Providing written answers to assigned questions.
3. Performing arithmetic calculations as assigned.
4. Completing repair orders.
5. Completing a job application and resume.

### OUTSIDE ASSIGNMENTS

Students are expected to spend a minimum of 1 hour per day outside of class in practice and preparation for each day in class. Appropriate assignments may include, but are not limited to:

1. Appropriate readings.
2. Preparing research reports.
3. Preparing appropriate writing assignments.
4. Studying as needed to perform successfully in class.

### APPROPRIATE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING

Students will perform analysis and evaluation of reading and/or classroom materials and utilize this analysis in classroom discussions, writing assignments, and in performing laboratory activities. Students must select and use appropriate methods and materials needed to complete laboratory assignments.

### EVALUATION

A student's grade will be based on multiple measures of performance. The assessment will measure the development of independent critical thinking skills and will include evaluation of the student's ability to:

1. Perform the manipulative skills of the craft, as required, to NATEF and I-CAR standards.
2. Apply theory to laboratory assignments.
3. Perform on written, oral, or practical examinations.
4. Contribute to class discussions.
5. Maintain attendance per current policy.

### EVALUATION (CONTINUED)

Satisfactory completion of the course requires completion of a culminating activity, which may include, but is not limited to, one of the following:

1. Written report.
2. Classroom presentation.
3. Research project.
4. Industry involvement.

The culminating activity will require the student to use the new skills that he/she acquired during the course.

The student will receive an evaluation at the end of each module or when requested by the student.

A grade point average of 2.0 or letter grade of C or better must be achieved for satisfactory completion.

Upon successful completion of each individual course, a Certificate of Course Completion will be issued. Upon successful completion of all courses included in the program a Certificate of Program Completion will be issued.

### METHOD OF INSTRUCTION

Classroom lectures, demonstrations, laboratory, audio-visual presentations and computer assisted instruction. Group and individual instruction. Field trips, job shadowing and intern/externships may be utilized.

### TEXTS AND SUPPLIES

Texts:

*I-CAR Professional Automotive Collision Repair*, James E. Duffy, current edition

Required Supplies:

Air Bow Gun and Connector  
Rubber Spreader  
Plastic Spreader (3 PC set)  
Safety Glasses  
Rubber Sanding Block  
Particle Mask  
Tip Cleaner  
Soft Sanding Pad  
OSHA approved Respirator



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PREPARED BY Jose Alvarez/David Bouchey DATE March 19, 1997

REVISED BY Edward G Nugent DATE February 20, 2007

REVISED BY David Bouchey DATE March 14, 2011

Instructors must meet all requirements stated in Policy 3100 (Student Rights, Responsibilities and Administrative Due Process), and the Attendance Policy set forth in the Continuing Education Catalog.

REFERENCES:

San Diego Community College District Policy 3100  
California Community Colleges, Title 5, Section 55002  
Continuing Education Catalog