Auto Body Repair and Paint

COURSE OUTLINE

1. Course Title: Auto Body Repair and Paint
2. CBEDS Title: Automotive Body Repair & Refinishing, combination
3. CBEDS Number: 5654
4. Job Titles:

Assembler & Fabricator
Automotive Body & Related Repairer
Painting and Coating Worker
Sheet Metal Worker
Welder

5. Course Description:

This course will enable students to develop entry-level skills as auto body repair and refinish technicians with possible job placement for accomplished students. Students will learn the importance of safe work practices in a body shop. Students will develop a basic understanding of automobile construction (unibody, body-over-frame, space frame) and will learn basic repair techniques. Students will learn to identify and use power and hand tools necessary to perform basic repairs. This course offers a combination of in-class instruction and hands-on shop activities.

Student Outcomes and Objectives:

1. Students will exhibit safe work practices
2. Student proficiency with basic auto body repair techniques
3. Students have improved in areas of the **five competencies** (SCANS)
4. Students have job seeking skills
5. Students are prepared to enter work environment
6. Students will prepare an electronic portfolio demonstrating skills

Pathway

Recommended Sequence	Courses
Introductory	Automotive Technology
Skill Building	**Auto Body Repair & Paint**
Advanced Skill	Advanced Auto Body Repair & Paint

6. Hours: *Students receive up to 180 hours of classroom instruction.*

7. Prerequisites: None

8. Date (of creation/revision): July 2010

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Upon successful completion of this course, students will be able to demonstrate the following skills necessary for entry-level employment.

Instructional Units and Competencies	Course Hours	Model Curr. Standards	CA Academic Content Standards	CAHSEE
I. CAREER PREPARATION STANDARDS A. Career Planning and Management. 1. Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers. a. Students will identify skills needed for job success b. Students will identify the education and experience required for moving along a career ladder. 2. Understand the scope of career opportunities and know the requirements for education, training, and licensure. a. Students will describe how to find a job. b. Students will select two jobs in the field and map out a timeline for completing education and/or licensing requirements. 3. Develop a career plan that is designed to reflect career interests, pathways, and postsecondary options. a. Students will conduct a self—assessment and explain how professional qualifications affect career choices. 4. Understand the role and function of professional organizations, industry associations, and organized labor in a productive society. a. Contact two professional organization and identify the steps to become a member. 5. Understand the past, present and future trends that affect careers, such as technological developments and societal trends, and the resulting need for lifelong learning. a. Students will describe careers in the transportation industry sector. b. Students will identify work-related cultural differences to prepare for a global workplace. 6. Know the main strategies for self-promotion in the hiring process, such as completing job applications, resume writing, interviewing skills, and preparing a portfolio. a. Students will write and key a resume, cover letters, thank you letters, and job applications. b. Students will participate in mock job interviews. B. Technology. 1. Understand past, present and future technological advances as they relate to a chosen pathway. 2. Understand the use of technological resources to gain access to, manipulate, and produce information, products and services. 3. Understand the influence of current and emerging technology on selected segments of the economy. 4. Use appropriate technology in the chosen career pathway. C. Problem solving and Critical Thinking. 1. Apply appropriate problem-solving strategies and critical thinking to work-related issues and tasks. 2. Understand the systematic problem-solving models that incorporate input, process, outcome and feedback components.	22 Additional hours are integrated throughout the course.	Transportation Industry Sector, Model Curriculum Standards 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0	Language Arts (8) R 1.3, 2.6 W1.3, 2.5. LC 1.4,1.5, 1.6 LS1.2, 1.3, (9/10) R2.1,2.3,2 W2.5 LC1.4 LS 1.1, 2.3 (11/12) R2.3 W2.5 LC1.2 Math (7) NS1.2, 1.7 MR 1.1,1.3 2.7,2.8, 3.1	**Lang. Arts** **R 8.2.1** **(9/10)** **R 2.1, 2.3** **W2.5** **Math (7)** **NS 1.2, 1.3, 1.7** **MR 1.1, 2.1, 3.1**

3. Use critical thinking skills to make informed decisions and solve problems. 4. Apply decision-making skills to achieve balance in the multiple roles of personal, home, work and community life. D. Health and Safety. 1. Know policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. 2. Understand critical elements of health and safety practices related to storing, cleaning and maintaining tools, equipment, and supplies. E. Responsibility & Flexibility. 1. Understand the qualities and behaviors that constitute a positive and professional work demeanor. 2. Understand the importance of accountability and responsibility in fulfilling personal, community, and work-place roles. 3. Understand the need to adapt to varied roles and responsibilities. 4. Understand that individual actions can affect the larger community. F. Ethics and Legal Responsibilities 1. Know the major local, district, state, and federal regulatory agencies and entities that affect the industry and how they enforce laws and regulations. 2. Understand the concept and application of ethical and legal behavior consistent with workplace standards. a. Contact a business and obtain a copy of their rules for employment. b. Role play difference ethical scenarios. 3. Understand the role of personal integrity and ethical behavior in the workplace. G. Leadership and Teamwork. 1. Understand the characteristics and benefits of teamwork, leadership, citizenship in the school, community, and workplace settings. 2. Understand the ways in which professional associations, such as SkillsUSA, ASE, NATEF, and competitive career development activities enhance academic skills, career choices, and contribute to promote employability. 3. Understand how to organize and structure work individually and in teams for effective performance and attainment of goals. 4. Know multiple approaches to conflict resolution and their appropriateness for a variety of situations in the workplace. 5. Understand how to interact with others in ways that demonstrate respect for individual and cultural differences and for the attitudes and feelings of others.				

Instructional Units and Competencies	Hours	Model Curr. Standards.	CA Academic Standards	CAHSEE
A Understanding elements involved with auto body repair and paint 1. Define and discuss what makes collision repair necessary 2. Design and discuss a body shop layout 3. Discuss auto body personnel and what function they serve in a body shop 4. Find the variables necessary to write an accurate collision damage estimate	5	Collision Repair & Refinishing Pathway B6.0, 6.1 B1.0, 1.1 B2.0, 2.1 B3.3 B4.2 B7.3, 7.6	ELA 9-10; LS; 1.1 & 1.6 S. 9-12; Physics; 3a. S. 9-12; Chem.; 6c, 7c Foundation Stds. 6.0, 6.2, 6.3	**M. 7; GM; 2.3**
B Paint and body shop safety (BASIC FIRST AID) 1. Discuss personal safety (respiration, safety glasses, and welding helmet, etc.) 2. Discuss proper dress (boots, no loose clothing or jewelry, tie hair, etc.) 3. Know all shop safety rules 4. Discuss and demonstrate basic first aid 5. Paint safety training (Online) 6. Shop safety training (Online) 7. Environmental pollution prevention	10			
C General hand tools (USE & IDENTIFICATION) 1. Discuss and demonstrate use of various hand tools 2. Discuss safe use of hand tools	10			
D Power tools (USE & IDENTIFICATION) 1.Discuss and demonstrate use of power tools 2.Discuss safe use of power tools	10			
E Introduction to welding and cutting 1. Demonstrate use of MIG welder and discuss technique and types of welds	15			
F Metal working 1. Understand different metal straightening techniques a. Rough out b. Kinking c. Cold shrinking d. Heat shrinking e. Finishing f. Identify when panel should be repaired or replaced	20			
G Body fillers (PLASTIC & FIBERGLASS FILLERS) 1. Discuss and demonstrate use and application 2. Determine when to use waterproof fillers	15			

Instructional Units and Competencies	Hours	Model Curr. Standards.	CA Academic Standards	CAHSEE
H Surface preparation 1. Evaluate grit-rating chart 2. Determine method of preparation for specific substrate 3. Discuss metal conditioners and adhesion promoters 4. Discuss solvent cleaners	15	Collision Repair & Refinishing Pathway B4.4	S. 9-12; Chem.; 2h S. 9-12; Chem.; 6a,b,c	
I Masking for Custom Painting 1. Identify and discuss types of masking tapes and proper use (fine line, dart, etc.) 2. Identify and discuss types of masking paper and plastic sheeting 3. Discuss and demonstrate masking techniques (back & reverse masking)	20	Collision Repair & Refinishing Pathway B2.1 B3.4 B4.5 B9.1, 9.2, 9.3, 9.4, 9.5	ELA 9-10; R; 2.6 ELA 9-10; R; 2.6 ELA 9-10; LS; 1.1 & 1.6 Foundation Stds. 1.1M (1.2), (1.3) 4.0T 4.4	**(7)NS1.2, 1.3, 1.6 Stats (6)P3.3 (10)WA 1.1 (10)R.2**
J Math and Measuring Sketching a design 1. Discuss and demonstrate how to use a tape measure 2. Determine how ratios, percentages and fractions relate to auto body repair 3. Basic math review and exercises	5			
K Mixing and applying undercoats 1. Discuss importance of undercoats 2. Determine proper undercoat for specific substrate 3. Discuss mixing and application technique for undercoats 4. Discuss how the substrate determines type of undercoat to be used	10			
L Mixing and applying topcoats 1. Discuss purpose and characteristics of topcoats 2. Examine types of topcoats (single stage, basecoat, clear coat and multi-stage) 3. Discuss and demonstrate mixing and application and topcoats	15			
M Refinishing equipment 1. Examine types of spray equipment (gravity, suction and pressure feed) 2. Identify spray gun components and demonstrate spray techniques	10			
N Auto construction 1. Discuss types of materials used in vehicle construction 2. Examine vehicle construction (body-over-frame, unibody, space frame) 3. Identify auto body parts. Proper nomenclature.	20			
O Fasteners 1. Discuss how fasteners hold a vehicle together 2. Determine types of fasteners used in vehicle construction (nuts, bolts, screws, etc.) 3. Bolts terminology (bolt strengths or grades)	10			

Instructional Units and Competencies	Hours	Model Curr. Standards.	CA Academic Standards	CAHSEE
P Automotive detailing 1. Discuss the importance of auto detailing a. identify methods to clean paint surfaces b. identify methods to clean glass c. identify methods to clean interior, carpet, upholstery, etc.		Collision Repair & Refinishing Pathway B3.2 B9.6	R2.1(2.3) Foundation Stds. 4.0, 4.2, 4.4	**(10)WA 1.1 (10)R.2**
R. Internet Research for Collision Repair 1. Dealer sites 2. Insurance sites 3. Parts Search 4. Identify and use Refinish Material web sites 5. Repair techniques at autobody.com	5			

10. Additional recommended/optional items

a. Articulation: None

b. Academic credit: None

c. Instructional strategies:

Methods of Instruction:

a. Lecture
b. Audio Visual Materials
c. Research Readings and Written Presentations
d. Homework Assignments
e. Demonstrations
f. Group & Individual Projects
g. Quizzes, Tests, Performance Evaluations & Final Exam
h. Guest Speakers
i. Internet Exploration

d. Instructional materials: Text: Motor Auto Body Repair *Third Edition,* Delmar Publishing.
Complete Automotive Painting, Delmar Publishing
Collision Repair 2000, Units 1-4 & 5-8, I-CAR (Inter-Industry Conference On Auto Collision Repair)
Finish Matching, Restoring Pre-Accident Appearance, Parts 1 & 2, I-CAR (Inter-Industry Conference On Auto Collision Repair)
THE ART OF REFINISHING, Standox Technical Data Guide, February 1998 Edition

e. Certificates: None