

## **COURSE OUTLINE**

### **Introduction to Collision Repair**

#### **Course Description**

AB 101. Introduction to Collision Repair. 2 hours credit. Prerequisite: A score at a pre-determined level in reading, writing, and math on a diagnostic instrument selected by the department. This course will enable the student to practice basic skills used in collision repair. The student will be introduced to the collision repair field including safety issues, which will serve as a foundation for all subsequent areas of collision repair studies.

#### **Course Relevance**

The principles learned in this course will allow the student to be familiar with the career of auto collision repair and assess if this is a field he/she desires to pursue. This course and subsequent courses will be taught according to NATEF (National Automotive Technicians Education Foundation)/ASE (Automotive Service Excellence) standards.

#### **Required Materials**

Duffey, J., Scharff, R., (2004). *Auto body repair technology* (4<sup>th</sup> ed.). Clifton Park, NY: Delmar Publishing

#### **Learning Outcomes**

The intention is for the student to be able to

1. Apply personal and environmental safety practices
2. Identify, maintain, and use proper tools, equipment, and chemicals related to collision repair
3. Select correct adjustments for collision repair equipment

#### **Learning PACT Skills that will be DEVELOPED and/or documented in this course**

Through the student's involvement in this course, he/she will develop his/her ability in the following PACT skill areas:

##### **Technology Skills**

1. Discipline-specific Technology
  - Through "in class" exercises, the student will be able to demonstrate his/her understanding of proper use of collision repair equipment.

#### **Major Summative Assessment Task(s)**

These learning outcomes and the Learning PACT skills will be demonstrated by

1. Setting up a mig welder, identifying materials needed, and applying all safety practices

2. The completion of a project that demonstrates the ability to identify problems and correct them using accepted collision repair principles, techniques and equipment

### **Course Content**

- I. Themes – Key recurring concepts that run throughout this course:
  - A. Safety
  - B. Quality
- II. Issues- Key areas of conflict that must be understood in order to achieve the intended outcomes:
  - A. Planning an auto repair
  - B. Preparing surface for welding and/or repair
  - C. Straightening material
- III. Concepts – Key concepts that must be understood to address the issues:
  - A. Proper planning techniques of repair
  - B. Proper preparation of material and equipment
  - C. Proper performance of repair functions
- IV. Skills/Competencies – Actions that are essential to achieve the course outcomes:
  - A. 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 HP-1
  - B. Mix body fillers HP-1
  - C. Apply body filler: shape during curing HP-1
  - D. Rough sand cured body filler to contour; finish sand HP-1

### **Learning Units**

- I. Understanding collision repair shop practices and safety procedures
  - A. What is collision repair
  - B. Body shop repairs
  - C. Auto body careers
- II. Shop safety and efficiency :Comply with personal and environmental safety practices associated with clothing and the use of gloves; respiratory protection; eye protection; hand tools; power equipment ; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.
  - A. Shop accidents
  - B. Personal safety
  - C. General shop safety procedures
  - D. Tool and equipment safety
  - E. Fire safety
  - F. Hazardous material safety
  - G. Good shop house keeping
  - H. Air bag safety
- III. Understanding vehicle construction and component technology
  - A. Body chasis

- B. Vehicle frame
  - C. Major body selections
  - D. Body classifications
- IV. Introduction to collision repair hand tool technology
- A. General purpose tools
  - B. Body working tools
  - C. Body surfacing tools
  - D. Hand tool safety
- V. Understanding collision repair power tool technology
- A. Air power tools
  - B. Electric power tools
  - C. Hydraulically powered shop equipment
  - D. Power jacks and straightening equipment
  - E. Hydraulic tool care
  - F. Hydraulic lifts
- VI. Understanding collision repair materials
- A. Body fillers
  - B. Abrasives
- VII. Introduction to MIG (wire feed) welding equipment and its uses
- A. Understanding MIG (wire feed) principles
  - B. Identifying metal joining techniques
- VIII. Applying collision repair hand tools to fundamental metal exercises
- A. Understanding automotive sheet metal
  - B. Understanding sheet metal straightening techniques

### **Learning Activities**

Learning activities will include lectures, demonstration, and performance. Classroom lecture is designed to enable the student to understand the key principles in auto body repair.

### **Grade Determination**

The student will be graded on assessment tasks (learning activities), and written assignment and examinations.