

## **COURSE OUTLINE**

### **Non-Structural Analysis and Damage Repair I**

#### **Course Description**

AB 112 Non-Structural Analysis and Damage Repair I. 3 hours credit. Prerequisites: AB 101 and AB 103 with a C or better. This course will enable the student to analyze auto body damage, prepare auto for damage repair, and to perform the needed repair, replacement or adjustment of non-structural panels.

#### **Course Relevance**

The principles learned in this course will allow the student to perform the essential tasks of analyzing, preparing, and then performing damage repair and adjustments. These tasks are essential to those aspiring to work in the auto body repair profession. 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., (2004). *Auto body repair technology* (4<sup>th</sup> ed.). Albany, NY: Delmar Publishing

#### **Learning Outcomes**

The intention is for the student to be able to

1. Review damage report, analyze damage to determine methods of overall repair, and prepare a damage report and repair cost estimate
2. Remove damaged materials and other components to properly prepare automobile for repair
3. Straighten and rough-out contours of damaged panel to a surface condition for body filling or metal finishing using power tools, hand tools and stud welder
4. Apply personal and environmental safety practices

#### **Primary 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 primary PACT skill areas:

1. Field-Related Technology
  - Through "in class" exercises, the student will be able to analyze damage and repair outer body panels.

Secondary skills (developed but not documented):

Health Management  
Reading

## Major Summative Assessment Task(s)

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

1. Analyzing damage and repairing and adjusting a non-structural panel

## 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. Determining whether to repair or replace
  - B. Repair damaged area without damaging and surrounding area
  - C. Misplacing removed parts
- III. Concepts – Key concepts that must be understood to address the issues:
  - A. Assessment regarding whether the damaged area without damaging the surrounding area
  - B. Proper precision of repairing damaged area without damaging the surrounding area
  - C. Proper storage of removed parts
- IV. Skills/Competencies – Actions that are essential to achieve the course outcomes:
  - A. Review damage report and analyze damage to determine appropriate methods for overall repair: develop and document a repair plan. High Priority-One (HP-1)
  - B. Inspect, remove, store, and replace exterior trim and molding (HP-1)
  - C. Inspect, remove, store, and replace interior trim and components (HP-1)
  - D. Inspect, remove, store, and replace non-structural body panels and components that may interfere with or be damaged during repair (HP-1)
  - E. Protect panels, glass, and parts adjacent to the repair area (HP-1)
  - F. Soap and water wash entire vehicle: use appropriate cleaner to remove contaminants from those areas to be repaired (HP-1)
  - G. Remove corrosion protection, undercoatings, sealers and other protective coatings necessary to perform repairs (HP-1)
  - H. Apply environmental practices associated with vehicle components and systems such as substrates, fluids, refrigerants, batteries, etc (HP-1)
  - I. Remove paint from the damaged area of a body panel (HP-1)
  - J. Locate and reduce surface irregularities on a damaged body panel (HP-1)
  - K. Demonstrate hammer and dolly techniques (HP-1)

## Learning Units

- I. Introduction to Auto body damage estimating
  - A. Explain the general purpose of damage estimates
  - B. Demonstrate manual estimating
  - C. Introduction to computer estimating
- II. Introduction to replacing and aligning non-structural parts
  - A. Introduction to fasteners (bolts, rivets, and nuts)

- B. List the various methods of adjusting mechanically fastened panels. (fenders, doors, hoods, trunk lids)
- C. Follow proper safety procedures

### **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 completion of assessment tasks (learning activities), and written assignment and examinations.