COURSE INFORMATION FORM

DISCIPLINE  
Automotive Technology

COURSE TITLE  
Structural Analysis and Damage Repair

CR.HR  
6

LECT HR.  
3

LAB HR.  
9

CLIN/INTERN HR.  

CLOCK HR.  
N/A

CATALOG DESCRIPTION

The analysis, measure, and repair of frames and unibody structures of automobiles and light trucks.

PREREQUISITES

Acceptance into the Articulation Program for Auto Collision Repair.

EXPECTED STUDENT OUTCOMES IN THE COURSE

Upon completion of this course, the student will be able to:

1. Analyze frame and unibody structural damage.
2. Perform pulling, straightening, sectioning, and component replacement.
3. Develop accurate repair orders and estimates.
CLASS-LEVEL ASSESSMENT MEASURES

Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Written tests. (1, 3)
2. Observation of performance in laboratory. (2)
3. Laboratory test based on industry standards. (1, 2)

PROGRAM-LEVEL OUTCOMES ADDRESSED

General Education Outcomes
Specify which general education outcomes, if any, are substantially addressed by the course by completing the “Course/Program Assessment Matrix” to show the relationship between course and program outcomes and assessment measures.

Occupational Program Outcomes
Specify which occupational program outcomes, if any, are substantially addressed by the course by completing the “Course/Program Assessment Matrix” to show the relationship between course and program outcomes to assessment measures.
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Body shop safety, tools and equipment
   A. Shop safety
   B. Tools of the industry
   C. Materials and disposal methods
   D. Identification of structural analysis and damage repair approaches

II. Frame inspection and analysis of damage according to industry standards
   A. Using tram gauge
   B. Using centering gauge
   C. Using datum gauge

III. Straightening and alignment
   A. Collapse, sag and sideways damage
   B. Twist and diamond frame damage

IV. Restoration and repair
   A. Remove and replace damaged components within or attached to the frame
   B. Repair or replace weakened sections of frame
   C. Restore corrosion protection

V. Structural analysis of unibody misalignment and damage

VI. Diagnosis and analysis of unibody height, length and width
   A. Using centering gauges
   B. Using tram gauge
   C. Using datum line gauges

VII. Determine locations of all suspension, steering and power train component attaching points on the body

VIII. Diagnosis and measurement of unibody vehicles
    A. Using a universal measuring system
    B. Using a dedicated bench measuring system

IX. Straightening and alignment of body
   A. Cowls, roof rails and panels
   B. Hinge and lock pillars
   C. Body openings
   D. Floor pans, rocker panels and quarter panels
   E. Wheelhouse assemblies
F. Front and rear end sections

X. Removal and replacement of parts
   A. Damaged sections of structural steel body parts
   B. Fixed glass
   C. Modular glass