

# Dakota County Technical College

## ABCT 2106: Collision Damage Repair/Replacement

### A. COURSE DESCRIPTION

Credits: 6

Lecture Hours/Week: 1

Lab Hours/Week: 5

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course will focus on sheetmetal, unitized body and full frame sectioning and replacement of parts and components.

Prerequisites: ABCT1111, ABCT1212 or BSEP1301, and ABCT1120.

**B. COURSE EFFECTIVE DATES:** 08/19/2002 - Present

**C. OUTLINE OF MAJOR CONTENT AREAS**

**D. LEARNING OUTCOMES (General)**

1. Perform safe replacement and sectioning procedures
2. Demonstrate frame/unibody spec. manual usage
3. Perform 3 section measuring procedures
4. Describe types of primary damage
5. Identify powertrain mounts describe types of secondary damage
6. Identify power train mounts
7. Describe history of frame rail repair, sectioning and replacement development
8. Identify structural panel types
9. Identify body anchoring methods
10. Identify body anchoring devices
11. Identify repair/replacement/sectioning sequences
12. Perform cold stress relief methods
13. Identify structural damage
14. Identify laser measuring equipment
15. Identify self-centering gauge usage
16. Identify suspension mounts
17. Identify bolt on panel alignment and replacement procedures
18. Perform bolt on panel alignment and replacement
19. Identify corrosion resistance procedures
20. Identify quarter panel replacement procedures
21. Identify upper rail sectioning procedures
22. Identify body repair equipment maintenance procedures
23. Perform body repair equipment maintenance procedures
24. Identify structural sectioning methods
25. Identify frame rail repair or replace principles
26. Perform upper rail sectioning procedures
27. Identify A pillar sectioning procedures
28. Perform A pillar sectioning procedures
29. Identify B pillar sectioning procedures
30. Perform B pillar sectioning procedures
31. Identify rocker panel sectioning procedures
32. Perform rocker panel sectioning procedures
33. Identify lower rail sectioning procedures
34. Perform lower rail sectioning procedures
35. Repair unibody structural damage
36. Diagnose and measure structural damage using tram and self-centering gauges according to industry specifications HP-I
37. Attach frame anchoring devices HP-I
38. Straighten and align mash (collapse) damage HP-G
39. Straighten and align sag damage HP-G
40. Straighten and align sideway damage HP-G
41. Straighten and align twist damage HP-G
42. Straighten and align diamond frame damage HP-G
43. Remove and replace damaged frame horns, side rails, and cross members according to manufacturer's specifications/procedures HP-G

44. Restore corrosion protection to repaired or replaced frame areas HP-G
45. Repair or replace weakened or cracked frame members in accordance with vehicle manufacturer's specifications/procedures HP-G
46. Identify misaligned or damaged steering, suspension, and powertrain components that can cause vibration, steering, and wheel alignment problems, align or replace in accordance with vehicle manufacturer's specifications/procedures HP-G
47. Identify heat limitations in frame repair HP-G
48. Identify misaligned or damaged steering, suspension, and powertrain components that can cause vibration, steering, and 4-wheel alignment problems; realign or replace in accordance with vehicle manufacturer's specifications/procedures HP-G
49. Diagnose and analyze unibody vehicle dimensions using a tram gauge HP-I
50. Determine and inspect the locations of all suspension, steering, and powertrain component attaching points on the body HP-G
51. Diagnose and measure unibody vehicles using a dedicated (fixture) measuring system HP-G
52. Diagnose and measure unibody vehicles using a universal measuring system (mechanical, electronic, laser) HP-G
53. Determine the extent of the direct and indirect damage and the direction of impact; plan the methods and sequence of repair HP-I
54. Attach body anchoring devices; remove or reposition components as necessary HP-I
55. Straighten and align cowl assembly HP-G
56. Straighten and align roof rails/headers and roof panels HP-G
57. Straighten and align hinge and lock pillars HP-G
58. Straighten and align body openings, floor pans, and rocker panels HP-G
59. Straighten and align front-end sections (aprons, strut towers, upper and lower rails, steering and suspension/power train mounting points, etc.) HP-G
60. Use proper heat stress relief methods in high strength steel in accordance with manufacturer specifications/procedures HP-G
61. Use proper cold stress relief methods HP-G
62. Remove creases and dents using power tools and hand tools to restore damaged areas to proper contours and dimensions HP-I
63. Determine the extent of damage to structural steel body panels; repair or replace HP-I
64. Remove and replace damaged sections of structural steel body panels in accordance with manufacturer's specifications/procedures HP-G
65. Restore corrosion protection to repaired or replaced unibody structural areas HP-G
66. Exhibit the utmost in professionalism

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted