

Minnesota State College Southeast

AUTO 1113: Drive Train and Axle Lab

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: *.*

Lab Hours/Week: 8

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course will develop the students' hands-on skills with emphasis on wheel traction controls.
(Prerequisites: AUTO1105, AUTO1106, AUTO1203 or instructor approval) (4 Credits: 0 lecture/4 lab)

B. COURSE EFFECTIVE DATES: 10/06/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. General Drive Train Diagnosis
2. Clutch Diagnosis and Repair
3. Transmission/Transaxle Diagnosis and Repair
4. Drive Shaft and Half Shaft, Universal and Constant-Velocity (CV) Joint Diagnosis and Repair
5. Drive Axle Diagnosis and Repair
6. Four-wheel Drive/All-wheel Drive Component Diagnosis and Repair

D. LEARNING OUTCOMES (General)

1. Perform shop safety
2. Remove axle shaft
3. Describe front drive axle hub power flow
4. Identify tooth contact pattern
5. Remove transaxle
6. Disassemble manual transaxle
7. Inspect manual transaxle gear and shafts
8. Install transaxle
9. Install axle shaft
10. Remove transmission
11. Disassemble manual transmission
12. Complete final assembly
13. Install manual transmission
14. Perform final inspection
15. Service clutch linkages and pedal free travel
16. Service hydraulic clutch components
17. Examine related clutch parts
18. Service clutch disc and pressure plate
19. Service drive axle fixed joint
20. Service drive axle plunge joints
21. Service drive axle boots
22. Diagnose driveline related vibration
23. Perform transfer case adjustments
24. Disassemble transfer case
25. Inspect transfer case output flanges and seals
26. Inspect transfer case seals, bushing and bearings
27. Inspect transfer case gears, shafts and chains
28. Remove steering/suspension components
29. Assemble transfer case
30. Identify front drive axle components
31. Service front drive locking hubs
32. Service front wheel bearings
33. Service drive axle shafts
34. Perform customer 4X4 diagnosis
35. Perform front C.V. joint service
36. Identify types of differential lubricants
37. Service rear wheel bearings and seals
38. Remove frame cradle
39. Measure ring gear run-out
40. Inspect pinion gear assembly
41. Measure drive pinion bearing preload
42. Adjust differential
43. Diagnose limited slip differential
44. Exhibit 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