

# Dakota County Technical College

## **ASEP 2110: Automatic Transmissions**

### **A. COURSE DESCRIPTION**

Credits: 3

Lecture Hours/Week: 1

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course covers the removal, disassembly, operation, reconditioning, assembly, installation, and diagnosis of General Motors automatic transaxles and transmission. Prerequisites: None

**B. COURSE EFFECTIVE DATES:** 03/16/1998 - Present

**C. OUTLINE OF MAJOR CONTENT AREAS**

**D. LEARNING OUTCOMES (General)**

1. Comply with personal and environmental safety practices
2. Identify and interpret transmission/transaxle concern; assure proper engine operation; determine necessary action
3. Research applicable vehicle and service information, such as transmission/transaxle system operation, vehicle service history, service precautions, and technical service bulletins
4. Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, and calibration decals)
5. Diagnose fluid usage, level, and condition concerns; determine necessary action
6. Perform pressure tests; determine necessary action
7. Perform stall test; determine necessary action
8. Perform lock-up converter system tests; determine necessary action
9. Diagnose electronic, mechanical, hydraulic, vacuum control system concerns; determine necessary action
10. Diagnose noise and vibration concerns; determine necessary action
11. Diagnose transmission/transaxle gear reduction/multiplication concerns using driving, driven, and held member (power flow) principles
12. Inspect, adjust or replace throttle valve (TV) linkages or cables; manual shift linkages or cables; transmission range sensor; check gear select indicator (as applicable)
13. Service transmission; perform visual inspection; replace fluids and filters
14. Inspect, adjust or replace (as applicable) vacuum modulator; inspect and repair or replace lines and hoses
15. Inspect, repair, and replace governor assembly
16. Inspect and replace external seals and gaskets
17. Inspect extension housing, bushings and seals; perform necessary action
18. Inspect, leak test, flush, and replace cooler, lines, and fittings
19. Inspect and replace speedometer drive gear, driven gear, vehicle speed sensor (VSS), and retainers
20. Diagnose electronic transmission control systems using a scan tool; determine necessary action
21. Inspect, replace, and align powertrain mounts
22. Remove and reinstall transmission and torque converter (rear-wheel drive)
23. Remove and reinstall transaxle and torque converter assembly
24. Disassemble, clean, and inspect transmission/transaxle
25. Inspect, measure, clean, and replace valve body (includes surfaces and bores, springs, valves, sleeves, retainers, brackets, check-balls, screens, spacers, and gaskets)
26. Inspect servo bore, piston, seals, pin, spring, and retainers; determine necessary action
27. Inspect accumulator bore, piston, seals, spring, and retainer; determine necessary action
28. Assemble transmission/transaxle
29. Inspect converter flex plate, attaching parts, pilot, pump drive, and seal areas
30. Measure torque converter endplay and check for interference; check stator clutch
31. Inspect, measure, and reseal oil pump assembly and components
32. Measure endplay or preload; determine necessary action
33. Inspect, measure, and replace thrust washers and bearings
34. Inspect oil delivery seal rings, ring grooves, and sealing surface areas
35. Inspect bushings; determine necessary action
36. Inspect and measure planetary gear assembly (includes sun, ring gear, thrust washers, planetary gears, and carrier assembly); determine necessary action
37. Inspect case bores, passages, bushings, vents, and mating surfaces; determine necessary action

38. Inspect transaxle drive, link chains, sprockets, gears, bearings, and bushings; perform necessary action
39. Inspect, measure, repair, adjust or replace transaxle final drive components
40. Inspect and reinstall parking pawl, shaft, spring, and retainer; determine necessary action
41. Inspect clutch drum, piston, check-balls, springs, retainers, seals, and friction and pressure plates; determine necessary action
42. Measure clutch pack clearance; determine necessary action
43. Air test operation of clutch and servo assemblies
44. Inspect roller and sprag clutch, races, rollers, sprags, springs, cages, and retainers; replace as needed
45. Inspect bands and drums; determine necessary action

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

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted