

# Minnesota State College Southeast

## **AUTO 1202: Auto Trans/Transaxle Theory**

### **A. COURSE DESCRIPTION**

Credits: 2

Lecture Hours/Week: 2

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course includes the study of torque converters, planetary gears, clutches, bands, and hydraulics. Instruction of computer and electronic shift controls is also emphasized. The class stresses how an automatic transmission operates and its functions in power train application. (Prerequisites: AUTO1105, AUTO1106, or instructor approval) (2 Credits: 2 lecture/0 lab)

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

### **C. OUTLINE OF MAJOR CONTENT AREAS**

1. Transmission Safety Procedures
2. Study of Torque Converters, Planetary Gears, Clutches, Bands, and Hydraulics
3. Computer and Electronic Shift Controls

**D. LEARNING OUTCOMES (General)**

1. Describe transmission safety procedures
2. Perform transmission safety practices
3. Identify basic automatic transmission types
4. Describe converter operation
5. Inspect torque converters
6. Complete final exam
7. Describe stall test procedures
8. Describe lock-up torque converter operation
9. Describe servicing automatic transmission
10. Identify special tool usage
11. Identify seals, functions, and types
12. Describe planetary gears
13. Explain clutch and band operation
14. Explain power flow
15. Describe endplay requirements
16. Inspect case and components
17. Describe bearing/brushing replacement
18. Explain one-way clutch operation
19. Explain Pascal's law
20. Explain friction materials
21. Explain multiple disc clutch operation
22. Explain basic valve types
23. Explain main control pressure system operation
24. Explain converter cooler and lube circuits
25. Describe governor system
26. Explain throttle valve system
27. Complete mid-course exam
28. Explain vacuum modulator testing procedures
29. Explain accumulator and servo systems
30. Describe basic valve body components and functions
31. Inspect valve body
32. Inspect governor assembly
33. Inspect front pumps
34. Trace basic hydraulic circuits
35. Describe TV system manual linkage adjustments
36. Describe basic pressure test procedures
37. Explain seal replacement
38. Inspect transmission bands
39. Explain band adjustment
40. Describe case repair
41. Describe pretest procedures
42. Describe road or dyno test
43. Describe linkage diagnosis
44. Describe throttle valve system diagnosis

45. Describe clutch and band diagnosis
46. Describe hydraulic pressure test
47. Describe converter and cooler cleaning and testing
48. Observe instructors air pressure test demonstration
49. Describe governor systems analysis
50. Service cooler and lines
51. Replace modulator
52. Service filters
53. 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