

BUTTE COLLEGE

COURSE OUTLINE

I. CATALOG DESCRIPTION

AUT 53 - Automatic Transmissions/Transaxles Lab

3 Unit(s)

Prerequisite(s): AUT 41 (or concurrent enrollment)

Co-requisite(s): AUT 52

Recommended Prep: AUT 1

Transfer Status: CSU

150 hours Lab

This course enhances skills in diagnosing, testing, and repair procedures of automotive transmissions/transaxles, drive lines and axles. Shop practice includes diagnostics, testing, and repairing of each system.

II. OBJECTIVES

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

- A. Identify the different types of automatic transmissions and transaxles found in today's cars and trucks.
- B. Correctly identify the procedure then perform a fluid level check on various automatic transmissions.
- C. Disassemble and reassemble an transmission/transaxle using special tools and jigs.
- D. Understand and describe the operating characteristics of the mechanical and hydraulic systems found in an automatic transmission/transaxle.
- E. Service an automatic transmission by replacing the filter and doing a fluid exchange using current industry practices.
- F. Use a scan tool and pressure gauges to measure hydraulic pressures and access transmission related Diagnostic Trouble Codes (DTC's).
- G. Interpret pressure readings and scan tool data to determine the root cause of transmission failures.
- H. Remove and install, using industry standard tools and practices, an automatic transmission/transaxle.

III. COURSE CONTENT

A. Unit Titles/Suggested Time Schedule

Lab	
<u>Topics</u>	<u>Hours</u>
1. Transmission identification using Mitchell or All Data and a Vehicle Identification Number (VIN).	5.00
2. Transmission fluid level check procedures.	10.00
3. Transmission tear down.	10.00
4. Transmission power flow through different planetary components.	30.00
5. Transmission holding clutches and hydraulic operation.	4.00
6. Transmission turning clutches and hydraulic operation.	4.00
7. Transmission one way clutch operation.	3.00
8. Transmission pump types and pressure regulation.	10.00
9. Valvebody and valve movement during shifts.	10.00
10. Transmission reassembly.	10.00

11. On car transmission pressure testing using scan tools and pressure gauges.	6.00
12. Using a scan tool to retrieve transmission related DTC's.	6.00
13. Using a scan tool to record transmission related data.	6.00
14. Using a scan tool to interpret adaptive values.	6.00
15. Using scan tools and pressure gauges to diagnose transmission related concerns.	15.00
16. Torque converter operation and transmission/transaxle removal and installation.	15.00
Total Hours	150.00

IV. **METHODS OF INSTRUCTION**

- A. Collaborative Group Work
- B. Class Activities
- C. Discussion
- D. Demonstrations
- E. Problem-Solving Sessions
- F. Multimedia Presentations
- G. Laboratory Experiments

V. **METHODS OF EVALUATION**

- A. Demonstration
- B. Class participation
- C. Lab Projects
- D. Final Examination
- E. Written Assignments
- F. Performance Examinations

VI. **EXAMPLES OF ASSIGNMENTS**

- A. Reading Assignments
 - 1. Using the supplied technical manual for the transmission used in lab, interpret the valve sequencing for up-shifts from first to fourth.
 - 2. Using Mitchell or All Data, look up the fluid level check procedure for an assigned vehicle.
- B. Writing Assignments
 - 1. In your work book, provide a detailed description of the process for flushing the cooler after removing a transmission.
 - 2. After completing the required transmission services, write a story to industry standards and make sure it includes the 3 C's.
- C. Out-of-Class Assignments
 - 1. Not applicable.

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**

Textbooks:

- A. Jack Erjavec. Today's Technician: Automatic Transmissions and Transaxles Set. 6th Edition. Cengage Learning, 2015.

Materials Other Than Textbooks:

- A. Closed toe leather work shoes with slip resistant soles

Created/Revised by: Robert Holt
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