



AUTOMOTIVE TRANSMISSION OVERHAUL

Date 07/05/10

C - L - CR
4 - 3 - 5

COURSE NUMBER: AUT 251

PREREQUISITE(S): AUT 132

CO-REQUISITE(S): None

COURSE DESCRIPTIONS This course is an advanced study of transmission overhaul procedures, including proper overhaul procedures used to repair overdrive transmissions and transaxles.

TEXTBOOK(S): Halderman, James. *Automotive Technology: Principles, Diagnosis, and Service*. 3rd Ed. New Jersey: Pearson 2009.

Halderman, James. *Automotive Technology: Principles, Diagnosis, and Service.(Tech Manual)* 3rd Ed. New Jersey: Pearson 2009..

REFERENCE(S): On line service Manual, North American, Asian and European Service Material

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: Safety glasses
USB storage device or on line storage ability

METHOD OF INSTRUCTION: Concepts will be taught by lecture and demonstration followed by both group and individual participation in learning activities. Group discussion and selected activities will be used to determine learner abilities. Normal audio-visual aids and Manufacturer specific on line and multimedia training will be incorporated when available. Additionally, the students will complete work orders and repair procedures listing the steps in the diagnostic process. This will be written in a style that will communicate the repair process and outcome to all parties involved in the process.

GRADING SYSTEM:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

**GRADE
CALCULATION
METHOD:**

Web/Multimedia	=	25%
Projects	=	15%
Worksheets	=	15%
Participation	=	10%
Tests	=	15%
Final	=	<u>20%</u>
	=	100%

**ATTENDANCE
POLICY:**

Students are responsible for punctual and regular attendance in all classes, laboratories, field trips, and other class activities.

Students are tardy if not in class at the time the class is scheduled to begin. Tardy students are admitted to class at the discretion of the instructor.

Procedure for Dropping Classes

- Students are responsible for dropping classes.
- It is important for students to be aware of the deadlines to drop classes each term. If a student stops attending class and does not complete a drop form to drop the course, the student will remain on the class roster and receive a zero for all incomplete assignments. The instructor will calculate a grade at the end of the term which may result in a grade of F for the course. It is the responsibility of the student to insure that a class is dropped. Students not dropping a class by the end of the drop period will receive the grade they earn in the class. Students who do not drop a class and quit attending the class will owe a re-payment for any financial aid received.
- Not dropping classes as required and in a timely manner can affect your financial aid
- Go to the Student Records Office to initiate a drop form. The Student Records Office is located in room 156 in the Dan L. Terhune Student Services Building.
- No drop forms will be accepted after the deadline to drop a class.
- Faculty/Advisor signatures are not required to drop a class
- Drop forms will not be accepted after the deadline to drop classes.
- Students will be allowed to drop classes through the 75% point of the term. The last date on which a student may drop a class will vary per class depending on the start and end dates of the class.
- After the census date for each term, a grade of W will be awarded for all classes dropped during the drop period.

- The date a drop form is received by Student Records will be recorded as the last date the class was attended by the student.
- Dates for the allowed drop period will be posted in Student Records and on the SCC Student Records website. Students can call 864-592-4681 or go to <http://www.sccsc.edu/Records/> for information about the deadline for dropping classes

CLASSROOM CONDUCT:

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

CELLULAR PHONES AND PAGERS/BEEPERS: Cellular phones, pagers and beepers are not permitted to be turned on or used within the classroom. Use of these devices during classroom time will be considered a violation of the student code as it relates to “disruptive behavior.”

CLASS/LAB PROCEDURES:

All safety procedures must be used when working in the shop area. Safety glasses are required in the lab areas. All lab projects will be graded by quality, neatness and completeness. Additionally the lab projects will be compared to factory installation and specifications. The student must use on line information systems or factory service manuals as a reference to complete work procedures.

ACCOMMODATIONS:

Students who need special accommodations in this class because of a documented disability should notify Student Disability Services. You may contact Student Disability Services by calling, (864) 592-4811, toll-free 1-800-922-3679; via email through the Spartanburg Community College web site at www.sccsc.edu/SDS/; or by visiting the office located in the Dan Lee Terhune Student Services Building, room 112 of the Spartanburg Community College campus. By contacting Student Disability Services early in the semester, students with disabilities give the College an opportunity to provide necessary support services and appropriate accommodations.

COURSE OUTCOMES
& OBJECTIVES:

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

- I. Diagnose and repair Hydraulic and Mechanical Automatic Transmission concerns.
 - A. Explain the purpose of the automatic transmission.
 - B. Identify the components of an automatic transmission.
 - C. Describe the operation of hydraulic/mechanical components and its actuating devices.
 - D. Explain the operation of the torque converter.
 - E. Recognize symptoms of pending hydraulic failure.
 - F. Perform hydraulic pressure test procedures.

- II. Perform Automatic Transmission Disassembly-Overhaul-Reassembly procedures.
 - A. Perform disassembly/assemble procedures.
 - B. Inspect components of a transmission/transaxle.
 - C. Analyze friction clutch/band components for serviceability.
 - D. Explain valve body service procedures.

- III. Diagnose and repair Ford NAAO Electronic Automatic Transmission concerns.
 - A. Discuss the need for electronic controls in a transmission.
 - B. Differentiate between inputs and outputs.
 - C. Explain the function of the various types of sensors and actuators.
 - D. Perform transmission electronic diagnosis using recommended equipment.

- IV. Diagnose and repair Ford Association Electronic Automatic Transmission concerns.
 - A. Discuss the need for electronic controls in a transmission.
 - B. Differentiate between inputs and outputs.
 - C. Explain the function of the various types of sensors and actuators.
 - D. Perform transmission electronic diagnosis using recommended equipment.
 - E. Demonstrate procedures used to diagnose starter circuit faults.