MANUAL DRIVE TRAIN/AXLE

COURSE NUMBER: AUT 115

PREREQUISITE(S): AUT 132

CO-REQUISITE(S): None

COURSE DESCRIPTIONS: This course is a basic study of clutches, gearing, and manual transmission operation, including the basic study of rear axles and rear axle set up.

TEXTBOOK(S):

REFERENCE(S): Online service Manual, North American, Asian and European Service material

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: Safety Glasses, USB Storage Device or Online 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 online and multimedia (GMT) 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:

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<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 - 100</td>
<td>A</td>
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<tr>
<td>80 - 89</td>
<td>B</td>
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<td>70 - 79</td>
<td>C</td>
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<td>60 - 69</td>
<td>D</td>
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GRADE CALCULATION METHOD:

Web/Multimedia = 25%
Projects = 15%
Worksheets = 15%
Participation = 10%
Tests = 15%
Final = 20%

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.

**ACADEMIC 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 will be worn 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 Mitchell On-line or factory service manuals and 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 or toll-free 1-800-922-3679; by 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.
Upon satisfactory completion of this course, the student will be able to:

I. Diagnosis and repair clutch components.
   1. Explain the purpose of the automotive clutch.
   2. Identify the components of a clutch system.
   3. Describe the operation of major components of a clutch assembly and its actuating parts.
   4. Recognize symptoms of pending clutch failure.
   5. Perform flywheel housing inspection and alignment procedures.

II. Diagnosis and repair manual transmission/transaxle concerns.
   1. Explain the purpose of a transmission/transaxle in an automobile.
   2. Identify the major components of a transmission/transaxle.
   3. Analyze gear combinations that provide different gear ratios to produce more power or more speed.
   4. Trace the power flow through each gear of a five (5) speed transmission.
   5. Perform disassembly/assembly procedures.

III. Perform drive/half shaft and universal joint service.
   1. Discuss the need for universal joints in the driveline.
   2. Differentiate between front wheel drive and rear drive components.
   3. Explain the function of the various types of constant velocity joints.
   4. Measure driveline angularity.

IV. Interpret rear axle gear patterns.
   1. Identify the major components of a rear axle.
   2. State the principles of operation of a differential.
   3. Perform differential pinion rear/ring gear adjusting procedures to obtain correct tooth contact pattern.

V. Perform four-wheel drive service and adjustments.
   1. Explain the difference between four-wheel drive and all-wheel drive.
   2. State why locking hubs are used in four-wheel drive units.
3. Trace power flow through a transfer case.
4. Perform service and adjustments on a four-wheel drive vehicle.
Find the training resources you need for all your activities. Studyres contains millions of educational documents, questions and answers, notes about the course, tutoring questions, cards and course recommendations that will help you learn and learn.