

JEFFERSON COLLEGE
COURSE SYLLABUS

AUT231
DRIVELINE DIAGNOSIS AND SERVICE
2 Credit Hours

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AUT231 Driveline Diagnosis and Service

I. CATALOGUE DESCRIPTION

- A. Pre-requisite: AUT 211 Advanced Engine Performance with a Grade of “C” or Better
 AUT 212 Advanced Engine Performance Lab with a Grade of “C” or Better
 Reading Proficiency
 Co-requisite: AUT232 Driveline Diagnosis and Service Lab
- B. 2 Credit Hours
- C. This course covers the theory and operation of driveshaft’s, CV axles, and differentials. This course also covers theory of manual and automatic transmissions, as well as clutch operation. Completion of this course will prepare the student for employment in the automotive field and take the National Institute for Automotive Service Excellence (ASE) Automatic Transmission/Transaxle (A2) and Manual Drive Train & Axles (A3). (S)

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

Explain the theory and operation of driveshaft’s and CV axles	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain the theory and operation of a differential	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain the theory and operation of the clutch assembly	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain how to diagnose clutch problems	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain the theory and operation of manual transmissions and transaxles	Classroom Discussions Lectures Classroom Exercises Reading Assignments

Explain the theory and operation of the internal components of a manual transmission and transaxles	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain the theory and operation of a 4WD system	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain the theory and operation of the internal components of a 4WD system	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain the theory and operation of a torque converter	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain the function of automatic transmissions	Classroom Discussions Lectures Classroom Exercises Reading Assignments
Explain the theory and operation of the internal component of an automatic transmission and transaxle	Classroom Discussions Lectures Classroom Exercises Reading Assignments

III. OUTLINE OF TOPICS

A. Driveshaft's

1. Explain how driveshafts are constructed
2. Explain how "U" joints are constructed
3. Identify "U" joint malfunctions

B. CV Axles

1. Explain how CV axles are constructed
2. Know CV joint construction
3. Explain CV joint operation

C. Manual Transmissions

1. Explain construction of manual transmissions
2. Explain gear reduction
3. Explain overdrive
4. Understand the operation of manual transmissions

- D. Clutches
 - 1. Describe the construction of a clutch
 - 2. Identify the components of a clutch
 - 3. Explain the operating principals of a clutch
- E. Automatic Transmissions
 - 1. Describe the construction of automatic transmission
 - 2. Explain basic hydraulic systems operation
 - 3. Identify components of an automatic transmission

IV. METHOD(S) OF INSTRUCTION

- A. Lecture
- B. Classroom Discussion
- C. Homework Assignments

V. REQUIRED TEXTBOOK(S)

James D. Halderman, *Automatic Transmissions and Transaxles* (Current Edition), Pearson

James D. Halderman, *Manual Drivetrains and Axles* (Current Edition), Pearson

VI. REQUIRED MATERIALS

- A. Jefferson College Automotive Technology or Approved Sponsoring Shop Workshirt
- B. Safety Glasses
- C. Work Boots

VII. SUPPLEMENTAL REFERENCES

None

VIII. METHODS OF EVALUATION

- A. Tests 33 1/3%
- B. Student Participation 33 1/3%
- C. Class Assignments 33 1/3%

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Technology Center 101; phone 636-481-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College Website <http://www.jeffco.edu>).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.