

**University of Arkansas - Fort Smith  
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### **General Syllabus**

#### **ASTE 13804 Introduction to Manual Transmissions and Drivetrains**

Credit Hours: 4

Lecture Hours: 2

Laboratory Hours: 4

Prerequisite or corequisite: ASTE 12304 Theory and Maintenance

Effective: 2018-2019

#### **I. Course Information**

##### **A. Catalog Description**

A study of the function and adaptation of transmissions. Various types of power trains are studied in both rear-wheel and front-wheel vehicles. Students are familiarized with the operation and repair of clutches, manual transmissions, trans axles, differentials and drivelines.

##### **B. Additional Information**

This course is divided into two main areas: classroom or related instruction and shop work. Shop work gives students hands-on experience. Students learn maintenance, troubleshooting and repairing power train components. Shop work may be organized in one of two ways. Students may work on components supplied by the instructor or on operational vehicles.

#### **II. Student Learning Outcomes**

##### **A. Subject Matter**

Upon successful completion of this course, the student will be able to diagnose, service, adjust and replace parts according to manufacturer's specifications or accepted industrial standards in the following areas:

1. Perform clutch diagnosis and repair.
2. Perform transmission diagnosis and repair.
3. Perform transaxle diagnoses and repair.
4. Perform drive (half) shaft and universal joint diagnosis and repair.
5. Perform rear differential/axle diagnosis and repair.
6. Perform four-wheel drive component diagnosis and repair.
7. Perform shop organization and safety functions.

**B. University Learning Outcomes**

This course enhances student abilities in the following areas:

**Communication Skills (written and oral)**

Students must deal effectively with customers' complaints and ask effective questions to elicit more information.

**Analytical Skills**

**Critical Thinking Skills:** Students must analyze data gathered from customer complaints, inspections, tests, etc. in order to diagnose transmissions problems.

**III. Major Course Topics**

- A. Clutch diagnosis and repair
- B. Transmission diagnosis and repair
- C. Transaxle diagnoses and repair.
- D. Drive (half) shaft and universal joint diagnosis and repair
- E. Rear differential/axle diagnosis and repair
- F. Four-wheel drive component diagnosis and repair
- G. Shop organization and safety functions