

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

#### **ASTE 12304 Theory and Maintenance**

Credit Hours: 4

Lecture Hours: 2

Laboratory Hours: 4

Effective: 2018-2019

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

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

Beginning course for all automotive and diesel students with major emphasis on design, operation and servicing of vehicles and related systems.

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

The major emphasis in this introductory course is on the theory of the internal combustion and diesel engine. Specific areas include precision measuring, instruments, disassembling, reassembling, adjustment of components and basic electricity. Also, the fuel systems and the cooling system are discussed, tested, adjusted.

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

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

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

1. Perform shop organization and safety functions.
2. Perform general engine diagnosis.
3. Perform heating and engine cooling systems diagnosis and repair.
4. Perform hydraulic brake system diagnosis.
5. Perform air brake system diagnosis.
6. Perform miscellaneous (wheel bearings, parking brakes, electrical, electronic) diagnostic and repair.
7. Perform suspension systems diagnosis.
8. Tire diagnosis.
9. Perform general electrical system diagnosis.
10. Perform battery diagnosis and service.

11. Perform ignition system diagnosis and repair.
12. Take a customer's complaints

### **B. University Learning Outcomes**

This course enhances student abilities in the following areas:

#### **Communication Skills (written and oral)**

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

#### **Ethical Decision Making**

Students will identify ethical issues and affected parties related to the automotive repair industry.

#### **Analytical Skills**

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

### **III. Major Course Topics**

- A. Shop Safety
- B. Tools Usage and Equipment
- C. Principles of operation
- D. Measure engine components
- E. Electrical System