

# BUTTE COLLEGE

## COURSE OUTLINE

### I. CATALOG DESCRIPTION

**AUT 1 - Introduction to Automotive Technology**

**4 Unit(s)**

**Prerequisite(s):** NONE

**Recommended Prep:** Reading Level III; English Level II; Math Level II

**Transfer Status:** CSU

68 hours Lecture

This course introduces students to the automotive field and the electrical/mechanical systems found in today's automobile. This course will cover safety related practices, the principles of operation and system service procedures for all systems found on today's cars.

### II. OBJECTIVES

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

- A. Identify and describe the function of various parts in a 4-cycle gas engine.
- B. Identify and describe the function of various parts related to automatic transmissions/transaxles.
- C. Identify and describe the function of various parts related to suspension and steering systems.
- D. Identify and describe the function of various parts related to the brake system.
- E. Identify and describe the function of various parts in the electrical/electronic system.
- F. Identify and describe the function of various parts in the heating and air conditioning system.
- G. Identify and describe the function of various parts related to engine performance.
- H. Identify and describe the personal protective equipment used in the automotive industry.

### III. COURSE CONTENT

#### **A. Unit Titles/Suggested Time Schedule**

Lecture	
<u>Topics</u>	<u>Hours</u>
1. Automotive industry, safety procedures and automotive history	2.00
2. Tools, tool usage and safety; Fasteners and identification of fasteners	2.00
3. Engine repair and operation	8.00
4. Automatic transmission/transaxle theory, operation and repair	8.00
5. Manual drive train and axles theory, operation and repair	8.00
6. Suspension and steering theory, operation and repair	8.00
7. Brake system theory, operation and repair	8.00
8. Electrical/Electronics systems theory, operation and repair	8.00
9. Heating and air conditioning system theory, operation and repair	8.00
10. Engine performance systems theory, operation and repair	8.00
Total Hours	68.00

### IV. METHODS OF INSTRUCTION

- A. Lecture
- B. Collaborative Group Work
- C. Class Activities
- D. Field Trips
- E. Homework: Students are required to complete two hours of outside-of-class homework for each

- hour of lecture
- F. Discussion
- G. Reading Assignments
- H. Multimedia Presentations

## **V. METHODS OF EVALUATION**

- A. Exams/Tests
- B. Research Projects
- C. Oral Presentation
- D. Group Participation
- E. Class participation
- F. Mid-term and final examinations

## **VI. EXAMPLES OF ASSIGNMENTS**

- A. Reading Assignments
  - 1. Using the assigned vehicle locate and read the procedure for replacing the front brake pads. Be prepared to demonstrate the procedure on the mock-up in class.
  - 2. In the "Classroom Manual", read the chapter on the 4-cycle process. Answer the end of chapter questions.
- B. Writing Assignments
  - 1. In the "Key Notes" work book answer the questions and fill in the blanks about the heat exchange process in air conditioning systems.
  - 2. After completing the required assignment on bedding brake pads, summarize the procedure in your work book.
- C. Out-of-Class Assignments
  - 1. Use All Data to look up the fill capacities and fluid requirements for your personal vehicle. Be prepared to share your findings with the instructor.
  - 2. Complete this week's quiz and assigned reading and submit to the instructor.

## **VII. RECOMMENDED MATERIALS OF INSTRUCTION**

Textbooks:

- A. Hadfield, Chris. Today's Technician, Basic Automotive Service and Systems. 5th Edition. Cengage Learning, 2014.

Materials Other Than Textbooks:

- A. Safety Glasses

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