

# BUTTE COLLEGE

## COURSE OUTLINE

### I. CATALOG DESCRIPTION

**AUT 8 - Auto Engines Lecture**

**2.5 Unit(s)**

**Prerequisite(s):** AUT 41 (or concurrent enrollment)

**Co-requisite(s):** AUT 9

**Recommended Prep:** AUT 1

**Transfer Status:** CSU

45 hours Lecture

This course covers the operation, design, construction, fault diagnosis, service and repair procedures of the internal combustion engine.

### II. OBJECTIVES

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

- A. Evaluate engine failure scenarios and identify appropriate diagnostic processes.
- B. Define basic application of cylinder head and valve train diagnosis and repair.
- C. Identify and distinguish lubrication and cooling systems diagnosis and repair.
- D. Describe the steps necessary to appropriately diagnose and repair an engine block assembly.
- E. Describe engine removal and reinstallation processes.

### III. COURSE CONTENT

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

Lecture	
<u>Topics</u>	<u>Hours</u>
1. Job orientation, shop safety, shop and automotive operations.	4.00
2. Engine - block, crankshaft servicing operation and repair.	10.00
3. Engine - pistons, rings and connecting rods, construction, operation, diagnosis and repair.	8.00
4. Engine - valve system and cylinder head, construction, operation, diagnosis and repair.	7.00
5. Overall engine diagnosis - fault diagnostics of all internal and external related systems.	16.00
Total Hours	45.00

### IV. METHODS OF INSTRUCTION

- A. Lecture
- B. Instructor Demonstrations
- C. Group Discussions
- D. Collaborative Group Work
- E. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- F. Reading Assignments
- G. Multimedia Presentations

### V. METHODS OF EVALUATION

- A. Quizzes
- B. Homework

- C. Class participation
- D. Written Assignments
- E. Practical Evaluations
- F. Mid-term and final examinations

## **VI. EXAMPLES OF ASSIGNMENTS**

### **A. Reading Assignments**

1. Review your Procedure Reference and be prepared to discuss safety and hazmat handling assignment in class.
2. Read the outline chapter on engine diagnosis and prepare for your first quiz.

### **B. Writing Assignments**

1. Complete your reading assigned by the instructor and fill in the identified sections in your "Things to Know" handout.
2. Write a one-page summary of your collaborative engine induction design and present it to the class.

### **C. Out-of-Class Assignments**

1. Perform the 9 self-study modules per month assigned by American Honda. Your instructor will confirm that you have completed the required modules.
2. Complete the Mechanical Safety portion of the SP2 safety test with a score of 80% or better. Prior to working in the lab, you must complete the following areas: Introduction, Fires, Slips & Falls, Power Tools, Lifts, Operating Vehicles, Jump Starting, Chemicals & the MSDS.

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

### **Textbooks:**

- A. Halderman, J. Automotive Engines and Air Conditioning. Pearson, 2014.

**Created/Revised by:** George Medina

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