BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

AUT 9 - Automotive Engines Lab **2.5 Unit(s)**

Prerequisite(s): AUT 41 (or concurrent enrollment)
Co-requisite(s): AUT 8
Recommended Prep: AUT 1

Transfer Status: CSU
135 hours Lab

In this course students will develop and demonstrate the hands-on skills needed to repair the internal combustion engine and related components. Students will learn the proper use of hand and power tools and test equipment used in the automotive industry.

II. **OBJECTIVES**

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

A. Demonstrate accurate general engine diagnosis, removal, and reinstallation.
B. Perform basic cylinder head and valve train diagnosis and repair.
C. Diagnose and repair lubrication and cooling systems.
D. Diagnose a faulty engine block assembly and perform basic repairs.

III. **COURSE CONTENT**

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

Topics	Lab Hours
1. Valve system service and diagnosis (Engine top end)	30.00
2. Engine block service and diagnosis (Engine bottom end) a. Disassemble and diagnose b. Precision measuring	45.00
3. Engine - fault diagnosis and repair a. Diagnose cooling system b. Diagnose valve train c. Diagnose lower engine components	60.00
Total Hours	135.00

IV. **METHODS OF INSTRUCTION**

A. Instructor Demonstrations
B. Collaborative Group Work
C. Class Activities
D. Discussion
E. Problem-Solving Sessions
F. Laboratory Experiments

V. **METHODS OF EVALUATION**

A. Exams/Tests
B. Demonstration
C. Group Participation

D. Lab Projects
E. Final Examination
F. Performance Examinations

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
1. Read the specifications on engine teardown and assembly and be prepared to discuss in class.
2. Consult a repair publication before performing the intake valve removal procedure and be ready to show the instructor where you found the correct repair information or specifications.

B. Writing Assignments
1. To aid in reinstallation of bolts and miscellaneous parts, mark and/or organize them using cans, drawing diagrams, tagging with masking tape, mounting them on/in cardboard, using plastic bags, etc. Inspect all parts as they are removed from the engine. Consult repair publications, your text, or ask the instructor for help any time you feel you are not absolutely sure of the procedure being performed.
2. Acquire data about the proper procedures for removal and reassembly of a major engine component and fill out the worksheet provided by the instructor.

C. Out-of-Class Assignments
1. Not applicable.

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

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

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