

Las Positas College
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Course Outline for AUTO 69
AUTO TESTING AND DIAGNOSIS
Effective: Fall 2017

I. CATALOG DESCRIPTION:

AUTO 69 — AUTO TESTING AND DIAGNOSIS — 4.00 units

Inspection, diagnosis and repair of connected and related components, and malfunctioning parts; replacing and adjusting components for maximum efficiency and emission standards. Students are strongly recommended to enroll in Automotive Lab concurrently. Prerequisites: Automotive 60B and 61B (both completed with a grade of "C" or higher)t.

3.00 Units Lecture 1.00 Units Lab

Prerequisite

AUTO 60B - Auto Electrics/Electronics II
with a minimum grade of C
and

AUTO 61B - AUTO FUEL EMISSIONS II
with a minimum grade of C

Strongly Recommended

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Grading Methods:

Letter or P/NP

Discipline:

	MIN
Lecture Hours:	54.00
Lab Hours:	54.00
Total Hours:	108.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering the course a student should be able to:

- A. AUTO60B
- B. AUTO61B

IV. MEASURABLE OBJECTIVES:

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

- A. Research Rules and Regulations for Smog Check Stations, and Technicians
- B. Emission control Theory and Operation
- C. Test Analyzer System (TAS) operation
- D. Computer System Theory
- E. Diagnosis and repair of computerized Vehicles
- F. Outline hazardous waste handling
- G. Maintain a clean professional environment.

V. CONTENT:

- A. Rules and Regulations
 - 1. Research Rules and Regulations
 - a. Smog Check Stations
 - b. Smog Check Technicians
- B. Emission Control Theory and Operation
 - 1. Discuss impact of automotive emissions on the environment
 - 2. Evaluate exhaust gas emission smog test results
 - 3. Test Analyzer System (TAS) operation
 - a. TAS calibration

- 1. Perform three day calibration
 - a. TAS Maintenance
 - 1. Service filters
 - 2. Lock out procedures
- C. Computer System Theory
 - 1. Closed and Open Loop operation
 - a. Closed Loop operation
 - 1. Components and function
 - 2. Open Loop operation
 - a. Components and function
- D. Diagnosis and repair of computerized Vehicles
 - 1. Analyze Emission system function and failures
 - a. Proper closed loop operation
 - b. System malfunction inspection and repair
- E. Handling of hazardous waste materials
 - 1. Storage and handling of gasoline
 - 2. Storage and handling of diesel fuel
- F. Professional environment
 - 1. Safety glasses (clear lens) worn in all Laboratory areas
 - 2. No loose clothing (coveralls strongly recommended)
 - 3. Long Hair secured
 - 4. No open toe shoes (safety shoes recommended)
 - 5. Work areas maintained: clean free

VI. METHODS OF INSTRUCTION:

- A. **Lecture** -
- B. Student Hands-on labor
- C. **Audio-visual Activity** - 1. PowerPoint presentations 2. Mockup parts from automotive
- D. **Discussion** - Group discussion

VII. TYPICAL ASSIGNMENTS:

A. Lecture based assignments 1. Text reading 2. Oral presentation 3. Class discussion 2. Lab based assignments 1. Completion of applied activities 2. Lab activity worksheet 3. Diagnosis and debugging 3. Student Lab work sheets with emphasis on Hands-on applications 4. Review of Lab sheets in both Lab and class settings 5. Text reading assignments 6. Class discussions of reading assignments 7. Demonstrations pertaining to reading assignments

VIII. EVALUATION:

- A. **Methods**
 - 1. Quizzes
 - 2. Class Participation
 - 3. Home Work
 - 4. Lab Activities
- B. **Frequency**

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IX. TYPICAL TEXTS:

- 1. Hollembeak, Barry, *Automotive Fuels & Emissions Classroom Manual*, Thomson Delmar Learning, 2005.
- 2. Hollembeak Barry *Automotive Fuels & Emissions Shop Manual*, Thomson Delmar Learning, 2005.
- 3. Safety Glasses

X. OTHER MATERIALS REQUIRED OF STUDENTS: