Las Positas College
3000 Campus Hill Drive
Livermore, CA 94551-7650
(925) 424-1000
(925) 443-0742 (Fax)

Course Outline for AUTO LABB

AUTOMOTIVE LAB ADVANCED

Effective: Spring 2018

I. CATALOG DESCRIPTION:
AUTO LABB — AUTOMOTIVE LAB ADVANCED — 2.00 units

Automotive Lab Advanced is an open laboratory class for advanced automotive students. This class is for students desiring to expand their hands-on experience using their own vehicle. Instructor will provide technical and supervisory support to guide students in completion of their self initiated projects. Students are expected to help others in class and be able to work without guidance. Service information via computer service manuals will be available for students to use for vehicle information and research. Class is recommended for second year students only. Prerequisite: Automotive Technology INTR. 6 hours laboratory.

2.00 Units Lab

Prerequisite
AUTO LABA - Automotive Lab
with a minimum grade of C
and

AUTO INTR - Automotive Service and Introduction
with a minimum grade of C

Grading Methods:
Letter or P/NP

Discipline:
- Automotive Technology

	MIN
Lab Hours:	108.00
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. AUTOLABA
1. Maintain a Safe work environment
2. Proper vehicle lifting techniques
3. Correct tool usage
4. Proper hazardous waste disposal
5. Duplicate a good example of professionalism in the work place
6. Working with peers
7. Working under a shop foreman (Instructor/head student)
8. Knowing when to ask for help or guidance
9. Build hands-on experience to further their career in the automotive field
10. Construct and adapt critical thinking skills to diagnose and repair vehicles
11. Create time and labor estimates using Alldata

B. AUTOINTR
1. utilize and apply hazardous waste handling;
2. identify and describe uses of automotive related tools;
3. perform basic engine teardown and reassembly;
4. apply Ohm's law, read basic schematics, test automotive electrical systems;
5. identify emissions components, understand 5 gas theory;
6. discuss heating and cooling systems, perform basic cooling systems tests;
7. identify air conditioning systems, understand cycles of refrigerant;
8. discuss braking systems, perform a brake inspection, identify parts;
9. differentiate between suspension and steering system types, inspect and qualify components;
10. identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
11. restraints system identification, know safety concerns of each system and inspection of restraint systems;

IV. MEASURABLE OBJECTIVES:

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

A. Maintain a safe work environment
   1. Proper vehilce lifting techniques
   2. Correct tool usage
   3. Proper hazardous waste disposal
B. Duplicate a good example of professionalism in the work place
   1. Working with peers
   2. Working under a shop foreman (Instructor/lead student)
   3. Knowing when to ask for help or guidance
C. Build hands-on experience to further their career in the automotive field
D. Construct and adapt critical thinking skills to diagnose and repair vehicles
E. Create time and labor estimates using Alldata

V. CONTENT:

A. Shop safety and Handling of hazardous waste materials
   1. Occupational Safety Health Administration (OSHA) Shop standards applied
   2. Industry safety standards applied
   3. Hazardous material handling; waste oil, as well as other chemicals related to the automobile
B. Professional environment
   1. Safety glasses (Clear lenses) 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 of debris and spills
   6. Working with and next to other students in a shop environment
C. Hands-on experience
   1. Using hand tools and diagnostic equipment to repair vehicles for example
      a. Proper repair of intake manifold leak
      b. Replacement of air conditioning compressor
      c. Brake pad/shoe service
      d. Diagnosis of Service Engine Soon Light using scanner
      e. Evaluation of computer data stream using scanner
D. Critical Thinking
   1. Reading diagnostic equipment and interpreting data
   2. Reading shop manual information and applying technical reading to repairing vehicles
E. Providing guidance to other students
F. Ability to work without help from others
G. Using Alldata to find and apply time and labor guides for estimates

VI. METHODS OF INSTRUCTION:

A. **Observation and Demonstration** -
B. **Lab** - Safety Presentation and Laboratory assignment, Collaborative lab projects and exercises, Individual lab projects and exercises, Individual Learning Contract

VII. TYPICAL ASSIGNMENTS:

A. Collaborative Learning
   1. Safety Test
   2. Perform Safety Test
   3. Overview of Safety test with correct answers and explanation of answers.
   4. Laboratory tour and assignment, showing exits, evacuation plan, fire extinguishers, MSDS location, and location of shop equipment.
B. Individual Learning Contract
   1. What does the student wish to accomplish?
   2. Are the units taken sufficient to complete the project(s)?

VIII. EVALUATION:

A. **Methods**

   1. Exams/Tests
   2. Group Projects
   3. Class Participation
   4. Lab Activities

B. **Frequency**

   1. Lab Activites will be observed and graded daily, assigned daily
   2. Group Project will be observed and graded daily, assigned by instructor discrestion
   3. Class Participation will be graded Daily
   4. One exam, Final (Learning Contract) will be given

IX. TYPICAL TEXTS:

1. *Automotive Service.* 5 ed., Cengage, 2015.
2. *Modern Automotive Technology.* 8 ed., Goodheart-Wilcox, 2014.
3. *Auto Heating and Air Conditioning.* 4 ed., Goodheart-Wilcox, 2015.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. Safety Glasses