

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

Automotive Technology 284L – Level I Inspector Training Emission Control License Laboratory

3 hours laboratory, 1 unit

Catalog Description

This laboratory course describes and demonstrates proper inspection and testing techniques for various emission systems and conditions including, exhaust, evaporative fuel controls, monitors, forced air, and normally aspirated. This course is the laboratory practice opportunity for students taking courses AUTO 284 Level I Inspector Training lecture, AUTO 284T Level I Inspector Training Assessment Test Out, and/or for students taking a Work Experience course at a Smog Inspection Station who need additional instruction and practice completing required ASE competencies and tasks required to properly perform inspections.

Prerequisite

None

Course Content

- 1) Laboratory
 - a. Introduction and safety
 - b. Licensing of test and repair stations and technicians
 - c. Certificates of compliance and noncompliance
 - d. Consumer assistance programs
 - e. Exempted vehicles and fuel conversions
 - f. Referee services for consumers
 - g. Emission control devices and systems
 - h. Technician scores and evaluations
 - i. On Board Diagnostic Systems (OBD)
 - j. Perform visual inspections of emission control systems
 - k. Perform emission control tests using various testing equipment prescribed by the B.A.R.
 - l. Demonstrate knowledge of failed test results and passed test results using various test equipment

Course Objectives

Students will be able to:

- 1) Describe and demonstrate personal, shop, equipment, and vehicle safety practices.
- 2) Describe engine theory, design, and operation for both gasoline and diesel.
- 3) Demonstrate their knowledge identifying engines, engine systems, parts and components using manufacturer's service publications.
- 4) Describe emission controls systems theory and operation, and identify system components on various vehicle designs.
- 5) Describe and demonstrate knowledge of federal and state laws and regulations relating to the proper inspections of vehicle emissions.

Method of Evaluation

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration, or, where appropriate, the symbol system.

- 1) Quizzes, written exams, and hands-on performance exams that measure students' ability to safely identify necessary action or repair, diagnose and measure engine emissions, and perform necessary tasks related to engine emission repair.
- 2) Practical exercises that measure students' progress toward mastering tasks related to diagnosis, replacement, repair, testing, and adjustment of emission related systems and components.
- 3) Skills-based summative assessment that measures students' ability to successfully complete the necessary ASE tasks related to diagnosis, replacement, repair, testing, and adjustment of emission systems and components.

Special Materials Required of Student

- 1) Approved safety glasses
- 2) Access to high speed internet connection and a personal computer device to complete web based training assignments; since this course will be taught as a hybrid training course, minimal computer experience is required
- 3) Students must have an email address
- 4) Computer, tablet, or smart device capable of large screen functions
- 5) Web conferencing with microphone and camera

Minimum Instructional Facilities

- 1) Smart classroom
- 2) Required training materials
- 3) Computer Data Acquisition Device and other equipment prescribed by the B.A.R.
- 4) Lab facility for testing of emission components
- 5) College learning management system

Method of Instruction

- 1) Lecture and discussion
- 2) Demonstration
- 3) Individual assistance
- 4) College learning management system

Out-of-Class Assignments

- 1) **Reading:** assigned course materials, manuals, content on websites, and more.
- 2) **Writing:** assignments where students describe the required tasks related to diagnosis, replacement, repair, testing, and adjustment of emission related systems and components, and more.
- 3) **Other:** web-based training modules (pass online pretests prior to laboratory "Test Out"), portfolio performance projects related to emission related systems and components, and more.

Texts and Reference

- 1) Required (representative examples):
 - a. Student workbooks – will be provided electronically
 - b. Required: VanGelder, Kirk. Fundamentals of Automotive Technology. Jones and Bartlett Learning, 2023.
 - c. Web Based Training Modules will be provided electronically
 - d. Workshop Manuals will be provided electronically
- 2) Supplemental: None

Student Learning Outcomes

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

- 1) Accurately describe and test the compliance of various emission components and systems.
- 2) Identify and test emission systems by navigating multiple sources of industry standard manuals, special service messages, technical service bulletins, and BAR publications and websites for vehicle inspections.
- 3) Communicate effectively and professionally in a diverse setting that includes prospective colleagues, clients, and supervisors.
- 4) Comply with environmental health and safety regulations at the state and federal levels.