

# AUTO 054D: SMOG CHECK INSPECTOR TRAINING LEVEL 1&2

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**Originator**

dredman

**Co-Contributor(s)****Name(s)**

Anderson, Dorothy

**Justification / Rationale**

The Automotive Faculty are reviewing and/or updating this course to assure compliance with local, State, and Federal regulations; support consistency within the curriculum; practice relevance regarding automotive industry and community; and to make improvements that will strengthen the learning environment this course creates thus benefiting the learners.

**Effective Term**

Fall 2022

**Credit Status**

Credit - Degree Applicable

**Subject**

AUTO - Automotive Technology

**Course Number**

054D

**Full Course Title**

Smog Check Inspector Training Level 1&amp;2

**Short Title**

SMOG INSPECTOR 1 &amp; 2

**Discipline****Disciplines List**

Automotive Technology

**Modality**

Face-to-Face

**Catalog Description**

This course is designed to provide students with fundamental knowledge of engine and emission control theory, design and operation. Students who successfully complete this training at a BAR-certified school will have met the BAR's training requirements to qualify to take the Smog Check Inspector state licensing examination.

**Schedule Description**

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**Lecture Units**

3

**Lecture Semester Hours**

54

**Lab Units**

1

**Lab Semester Hours**

54

**In-class Hours**

108

**Out-of-class Hours**

108

**Total Course Units**

4

**Total Semester Hours**

216

**Prerequisite Course(s)**

Advisory: AUTO 014A

**Required Text and Other Instructional Materials****Resource Type**

Book

**Author**

Bureau of Automotive Repair

**Title**

Smog Check Reference Guide

**Edition**

2014

**Publisher**

State of California

**Year**

2014

**College Level**

Yes

**Flesch-Kincaid Level**

13

**Resource Type**

Book

**Author**

Bureau of Automotive Repair

**Title**

Laws and Regulations Manual, Smog Check

**Edition**

2014

**Publisher**

State of California

**Year**

2014

**College Level**

Yes

**Flesch-Kincaid Level**

13

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**Resource Type**

Book

**Author**

Bureau of Automotive Repair

**Title**

Smog Check Inspection Procedures Manual

**Edition**

2013

**Publisher**

State of California

**Year**

2013

**College Level**

Yes

**Flesch-Kincaid Level**

13

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**Resource Type**

Web/Other

**Description**

Other new test books or resource material that may be required by the State of California, Department of Consumer Affairs, Bureau of Automotive Repair.

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**For Text greater than five years old, list rationale:**

The texts are the industry standard.

**Class Size Maximum**

21

**Entrance Skills**

Fuel and emission systems familiarization.

**Requisite Course Objectives**

AUTO 014A-Learners will characterize relationships between fuel, ignition, air induction, exhaust and emissions system to interpret unique faults pertaining to each individual system. Once the student has distinguished which system is at fault, sequence applicable diagnostic repair procedures.

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**Entrance Skills**

Fuel and emission system diagnostic skills.

**Requisite Course Objectives**

AUTO 014A-Learners will demonstrate engine diagnosis by applying manufacturer provided repair information while diagnosing engine mechanical, engine management systems faults and computer input and output sensor faults.

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**Course Content**

1. Safety
  - a. Personal
  - b. Shop
  - c. Equipment
  - d. Vehicle
2. Engine Theory, Design and Operation (gasoline and diesel).
  - a. Engines
  - b. Cooling Systems
  - c. Exhaust Systems
  - d. Electrical Systems
3. Engine Performance (gasoline and diesel).
  - a. Ignition Systems
  - b. Induction Systems
  - c. Fuel Metering-fuel Injection and carburetion.
  - d. Engine Management
  - e. On-Board Diagnostics
4. Emission Controls (gasoline and diesel).
  - a. Crankcase Emission Controls
  - b. Evaporative Emission Controls
  - c. Thermostatic Air Cleaner
  - d. Air Injection Systems
  - e. Ignition Spark Controls
  - f. Exhaust After Treatment Systems
  - g. Exhaust Gas Recirculation Systems
5. Standards of Practice / Station Obligations
6. Program Administration
  - a. Laws and Regulations
  - b. Station Requirements
  - c. Inspector Requirements
  - d. Technician Requirements
  - e. Station Operation
  - f. Station Audits
  - g. Repair Assistance and Cost Waivers
  - h. Referee Services
7. Consumer Authorization and Consultation
  - a. Estimates
  - b. Invoices
8. Vehicle Identification
  - a. Affected Vehicles
  - b. Exempted Vehicles
  - c. Directed Vehicles
  - d. Certification Type
  - e. Specially Constructed Vehicles
  - f. Military Personnel Vehicles
  - g. Fleet Vehicles
  - h. Emissions Inspection System Vehicle Entries
9. Calibration of Inspection Equipment and Devices
  - a. Equipment Maintenance
  - b. Emissions Inspection System
  - c. Low Pressure Fuel Evaporative Tester

10. Visual Inspection Procedures - Gasoline and Diesel.
  - a. Pass/Fail Criteria (tampered, defective)
  - b. Vehicle Emission Control Information Label
  - c. BAR Referee Label
  - d. Aftermarket Parts Label
  - e. Crankcase Emission Controls
  - f. Evaporative Emission Controls
  - g. Thermostatic Air Cleaner
  - h. Air Injection Systems
  - i. Ignition Spark Controls
  - j. Exhaust After Treatment Systems
  - k. Exhaust Gas Recirculation Systems
  - l. Liquid Fuel Leak Inspection
  - m. Other Engine and Emission Controls Systems
  - n. Aftermarket Parts
  - o. Gasoline Visible Smoke Test
  - p. Diesel Visible Smoke Test
  - q. Emissions Inspection System Entries
11. Emission Test Procedures
  - a. Safety Precautions
  - b. Test Application
  - c. Vehicle Preconditioning
  - d. Acceleration Simulation Mode
  - e. Two-Speed Idle
12. Functional Inspection Procedures
  - a. Test Application
  - b. Malfunction Indicator Light
  - c. OBDII
  - d. Ignition Timing
  - e. Exhaust Gas Recirculation System
  - f. Fuel Cap Integrity
  - g. Low Pressure Fuel Evaporation Test (LPFET)
  - h. Emissions Inspection System Entries
13. Smog Check Inspection Results
  - a. Vehicle Inspection Report
  - b. Vehicle Passes Inspection
  - c. Vehicles Fails Inspection

**Lab Content**

- A. Proper safety practices and procedures
- B. Identification of Vehicles, Engines, and Emission Controls
  1. Vehicle identification
  2. Systems application
  3. Grey market vehicles
  4. Engine changes
  5. After market smog related components
- C. Diagnosis and Testing of 1980 and Newer Vehicles
  1. Trouble codes and retrieval
  2. Scan tools
  3. Trouble shooting trees
  4. Diagnosis and repair

- a. Fuel systems
  - b. Timing controls
  - c. Emission systems
- D. Five-gas exhaust emissions and test failure
- 1. Hydrocarbons
  - 2. Carbon monoxide
  - 3. Carbon dioxide
  - 4. Oxides of nitrogen
  - 5. Oxygen
- E. Vehicle and equipment preparation of loaded mode testing
- 1. Performing a loaded mode test
  - 2. Discussion and explanation of Vehicle Inspection Report
- F. Perform SMOG tests
- 1. Diesel
  - 2. Containment
  - 3. Non-containment
- G. Other minimum competencies required by Bureau of Automotive Repair (BAR)

### Course Objectives

	Objectives
Objective 1	Identify basic components of a vehicle emission control system components.
Objective 2	Describe the operation of vehicle emission control system components.
Objective 3	Evaluate the laws, rules, and regulations pertaining to emission control system inspection and certification.
Objective 4	Analyze the proper procedure for conducting a vehicle emission inspection.
Objective 5	Demonstrate skill in the operation, diagnosis, and repair of automotive engine computer systems.
Objective 6	Analyze the relationship between proper engine operation and the environment.
Objective 7	Use and understand shop/service manuals, specifications, and electronic data retrieval systems as related to automotive engine computer systems.
Objective 8	Demonstrate the safe use of the chassis dynamometer.
Objective 9	Analyze the readings from the diagnostic test equipment in order to repair emission test failures.
Objective 10	Identify the differences between the OBD I and OBD II computer systems.
Objective 11	Compare and contrast the diagnostic techniques of OBD I and OBD II.

### Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Describe the laws, regulations, and procedures associated with consumer authorization of inspections and the overall administration of the Smog Check Program.
Outcome 2	Demonstrate their knowledge, skills and abilities in performing Smog Check emission tests on various vehicle designs.
Outcome 3	Describe and demonstrate they have the knowledge, skills and abilities to perform smog check visual and functional tests on various vehicle designs.

### Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Discussion	Discuss smog test scenarios and the proper steps to take when performing an inspection.
Demonstration, Repetition/Practice	Practice the steps and procedures required to perform a smog inspection.
Technology-based instruction	Use of BAR-90, on-board diagnostic inspection system (OIS), and scan tool.

Lecture	Lecture on State and Federal pollution systems, software, and inspection procedures.
Laboratory	Practice visual inspection, service information referencing, and functional inspection on vehicles for smog inspection.

### Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
College level or pre-collegiate essays	Short essays on engine or sub-system operation	In and Out of Class
Student participation/contribution	Respectful communication and teamwork in the classroom and laboratory.	In Class Only
Mid-term and final evaluations	State mandated exams.	In and Out of Class
Tests/Quizzes/Examinations	State mandated quizzes.	In and Out of Class
Laboratory projects	Perform the various tasks related to completing a smog inspection.	In Class Only
Written homework	State smog training mandated homework based off the text.	In and Out of Class

### Assignments

#### Other In-class Assignments

1. Readings from required text.
2. Assigned readings and written summaries from selected instructor handouts.
3. Written summaries and analysis of assigned websites.
4. Vehicle diagnosis, troubleshooting and repair of personal, shop and other vehicles to be evaluated by the instructor during lab time.
5. Hands-on lab worksheets matching each course objective. These will be graded by the instructor throughout the semester during lab time.
6. Must develop teamwork skills through lab activities.

#### Other Out-of-class Assignments

1. Homework from required text. (1hr per week)
2. Completion of 3 SP2 safety tests. (4hrs total)
3. Assigned readings and written summaries from selected instructor handouts. (1hr per week)
4. Written summaries and analysis of assigned websites. (8hrs total)
5. Worksheets provided by instructor. (1hr per week)
6. Must develop teamwork skills through assigned special projects. (8hrs total)

### Grade Methods

Letter Grade Only

### Comparable Transfer Course Information

#### University System

CSU

#### Campus

CSU Fullerton

#### Rationale

As GE. Other community colleges have this same designation

### MIS Course Data

#### CIP Code

47.0614 - Alternative Fuel Vehicle Technology/Technician.

**TOP Code**

094840 - Alternative Fuels and Advanced Transportation Technology

**SAM Code**

B - Advanced Occupational

**Basic Skills Status**

Not Basic Skills

**Prior College Level**

Not applicable

**Cooperative Work Experience**

Not a Coop Course

**Course Classification Status**

Credit Course

**Approved Special Class**

Not special class

**Noncredit Category**

Not Applicable, Credit Course

**Funding Agency Category**

Not Applicable

**Program Status**

Program Applicable

**Transfer Status**

Transferable to CSU only

**General Education Status**

Y = Not applicable

**Support Course Status**

N = Course is not a support course

**Allow Audit**

No

**Repeatability**

No

**Materials Fee**

No

**Additional Fees?**

No

**Approvals****Curriculum Committee Approval Date**

3/17/2022

**Academic Senate Approval Date**

3/24/2022

**Board of Trustees Approval Date**

4/22/2022



**Chancellor's Office Approval Date**

5/31/2022

**Course Control Number**

CCC000583743

**Programs referencing this course**

Automotive Air Conditioning Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=104>)  
Automotive Emissions Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=106>)  
Automotive Braking Systems Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=109>)  
Automotive Light and Medium Duty Diesel Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=111>)  
Automotive Steering, Suspension, Alignment Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=112>)  
Automotive Introductions Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=201>)  
Advanced Transportation Technologies AS Degree (<http://catalog.collegeofthedesert.eduundefined/?key=44>)  
Advanced Transportation Technologies AS Degree (<http://catalog.collegeofthedesert.eduundefined/?key=45>)  
Automotive Technology AS Degree (<http://catalog.collegeofthedesert.eduundefined/?key=57>)