



Course Outline

BASIC COURSE INFORMATION

Course Number: ATCH 264

Course Title: EMISSION CONTROL/SMOG LICENSE PREPARATION

Total Student Hours and Credit		
	Hours/Week	Hours/Term
Lecture Hours	in-class	6.00
	out-of-class	12.00
Lab Hours	in-class	0
	out-of-class	0
Activity Hours	in-class	0
	out-of-class	0
TBA Hours Per Term		0
Total Student Hours Per Term:		324.00
Hours-per-unit Divisor		54.00
Units of Credit:		6.00

Fall semester term is 18 weeks. Spring semester term is 17 weeks. The term length multiplier is 17.5 weeks.
Curriculum is calculated based on 18 weeks.

Catalog Description:

Covers the rules and regulations governing the Smog Check Program, inspection procedures using the Emissions Inspection System (EIS), and the OBDII inspection system (OIS). Successful completion of ATCH 264 meets a portion of the requirements for technicians seeking a Smog Check Technician License (EO).

Schedule Description:

Covers the rules and regulations governing the Smog Check Program, inspection procedures using the Emissions Inspection System (EIS), and the OBDII inspection system (OIS). Successful completion of ATCH 264 meets a portion of the requirements for technicians seeking a Smog Check Technician License (EO). Transfer: CSU (Formerly: ATCH 164)

Division: Engineering & Technology

Department: Automotive Technology

Minimal Qualification

Discipline Designation (MQDD): Automotive Technology AND ASE Certification

Degree Applicability: Credit - Degree Applicable

Methods of Instruction:

- Lecture and/or discussion
- Laboratory/Studio/Activity
- Lecture/Lab

Grading Method:

- Letter Grade or P/NP

Repeatability: 0

Course Cap: 24

STUDENT LEARNING OUTCOMES

1. Demonstrate the necessary skill proficiency and the technical knowledge for success as a licensed Smog Check Technician in the California automotive service industry as evidenced by successful completion of the required tasks established by the California Bureau of Automotive Repair (BAR).
2. Demonstrate the knowledge necessary to pass the BAR Smog Technician Exam.

COURSE CONTENT**Objectives:**

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

1. Explain the basic four-stroke cycle engine theory for both gasoline and diesel engines.
 - Class Performance(s)
 - Quizzes/Exams
 - Written/Typed Homework
2. Explain the components of vehicle exhaust emissions and describe the negative health effects of these emissions.
 - Class Performance(s)
 - Quizzes/Exams
 - Written/Typed Homework
3. Demonstrate the ability to identify and describe the function and operation of emission control equipment used on vehicles that are regulated by the Smog Check Program.
 - Class Performance(s)
 - Quizzes/Exams
 - Written/Typed Homework
4. Perform visual inspections of vehicle emission control systems used on 1976 to present vehicles.
 - Class Performance(s)
 - Group Work

- Lab Reports
 - Performance Exams
 - Quizzes/Exams
 - Written/Typed Homework
5. Perform functional tests of various emission control systems as required by California Smog Check Regulations.
 - Class Performance(s)
 - Essay Exams
 - Written/Typed Homework
 6. Demonstrate the ability to calibrate the test equipment used in performing vehicle smog inspections.
 - Class Performance(s)
 - Quizzes/Exams
 - Written/Typed Homework
 7. Demonstrate the ability to operate the Emission Inspection System Analyzer (EIS) and the On-Board Diagnostics II Inspection System (OIS).
 - Class Performance(s)
 - Group Work
 - Lab Reports
 - Quizzes/Exams
 - Written/Typed Homework
 8. Explain the laws and regulations that apply to the Smog Check Program in the following California Codes: Business and Professions Code, California Code of Regulations, Health and Safety Code, Department of Motor Vehicles Code, and the California Penal Code.
 - Class Performance(s)
 - Quizzes/Exams
 - Written/Typed Homework
 9. Describe and discuss methods of discharging obligations to consumers, such as: obtaining customer authorization for the smog inspection, required estimates and invoices.
 - Class Performance(s)
 - Quizzes/Exams
 - Written/Typed Homework
 10. Apply the knowledge necessary to successfully complete the Bureau of Automotive Repair Licensing Exam for a Smog Check Inspector License.
 - Class Performance(s)
 - Quizzes/Exams
 - Written/Typed Homework

Topics & Scope:

1. Four-stroke cycle theory, including the need for compression, volumetric efficiency and mechanical timing, and its relation to emission control.
(Obj 1)
2. Function and operation of emission equipment including, but not limited to, the following: Crankcase Controls (PCV), Fuel Evaporative Controls (EVAP), Air Injection Systems (AIR/SAI/PAIR), Exhaust Gas Recirculation Systems (EGR), Catalytic

Converter Systems (TWC), OBD II controls.

(Obj 2, 3)

3. Perform a visual inspection of all the required emission control equipment on the vehicle, including, but not limited to: evaporative emissions, PCV, catalytic converters, temperature sensors, spark timing, mechanical timing, EGR, and air injection.

(Obj 4)

4. Perform the following test procedures on applicable vehicles being inspected: ignition timing functional test, EGR functional test, Check Engine Light (MIL) functional test, Visible Smoke Test, and Low-Pressure Fuel Evap Test.

(Obj 5)

5. Calibrate and analyze test equipment, including smog analyzers, 4 and 5 gas analyzers, and scan tools.

(Obj 6)

6. Making prompted entries to both the EIS and OIS emission test equipment.

(Obj 7)

7. California Laws and Regulations applicable to the Smog Check Program

(Obj 8, 9)

8. Consumer rights (Bureau of Auto Repair Publication: "*Write It Right*".)

(Obj 9)

Assignments:

Examples of independent assignments to fulfill 216 total hours of required out-of-class work:

1. Reading from textbooks. (Obj 1, 2, 3, 7, 8, 9)
2. Web Based reading assignments on BAR website. (Obj 2, 3, 6, 7, 8, 9)

Class participation and assignments require and develop critical thinking.

1. Inspect and analyze functional test results and operation of emission control components as required by Smog Check manual. (Obj 5, 6, 7)
2. Understand and explain emissions results to the consumer. (Obj 2, 3, 5, 6, 7, 8, 9)

Methods of Evaluation:

- Written/Typed Homework
- Class Performance(s)
- Group Work
- Quizzes/Exams
- Performance Exams
- Lab Reports

Texts, Readings, and Materials:

● Textbooks

Halderman, James, D *Automotive Fuels and Emissions Control Systems* (4th Edition/e).
Pearson, (2016).

● Manuals

Smog Check Inspector Training Level II Bureau of Automotive Repair, , 01-01-2017.

- **Other**

Instructor selected materials.

CSU Transfer Course

California State Polytechnic University, Pomona