I. GENERAL COURSE INFORMATION

Subject and Number: Automotive Technology 28
Descriptive Title: BAR Level II Smog Check Inspector Training
Course Disciplines: Automotive Technology
Division: Industry and Technology

Catalog Description:
This course covers the California Bureau of Automotive Repair (BAR) Level II course content training requirements for California Smog Check Inspector candidates. Smog Check Level II training is intended to provide students the knowledge, skills and abilities needed to perform Smog Check Inspections. Covered topics include Smog Check program regulations, law and procedures encompassing Smog Check visual inspections, emission and functional tests. Students who successfully complete this training will have met the BAR training requirements to qualify to take the Smog Check Inspector state licensing examination.

Conditions of Enrollment:
Prerequisite: Automotive Technology 27 with a minimum grade of C

Recommended Preparation: Automotive Technology 21 and Automotive Technology 22A and Automotive Technology 22B or Automotive Technology 23 and Automotive Technology 24 and Automotive Technology 25 and Automotive Technology 26

Note: Automotive Technology 23, 24, 25 and 26 are the equivalent of Automotive Technology 22A and 22B

Course Length: X Full Term
Hours Lecture: 1.50 hours per week TBA
Hours Laboratory: 3.00 hours per week TBA
Course Units: 2.50

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: No
Transfer UC: No

General Education:
El Camino College:
CSU GE:
IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. SLO #1

Given an in class exam, based on readings, classroom discussions and demonstrations , the student will be able to work in the Automotive Shop safely and pass the Automotive Safety Exam with 100% accuracy.

2. SLO #2

Perform a State of California Smog Inspection according to Bureau of Automotive Repair guidelines and appropriate procedures. Complete a smog inspection worksheet.

3. SLO #3

Describe the laws, regulations, and procedures associated with consumer authorization of inspections and the overall administration of the Smog Check Program.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at http://www.elcamino.edu/academics/slo/.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Describe and demonstrate personal, shop, equipment, and vehicle safety practices.
   - Multiple Choice

2. Describe the laws, regulations, and procedures associated with consumer authorization of inspections and the overall administration of the Smog Check Program (Write It Right), including describing and demonstrating the standards of practice expected of Smog Check Inspectors.
   - Class Performance

3. Demonstrate the knowledge, skills and abilities required in performing Smog Check emission tests, visual inspections and functional tests on various vehicle designs.
   - Performance exams

4. Demonstrate the ability to calibrate an emission inspection system.
   - Performance exams

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	1.5	I	Overview of Smog Check Program A. Safety instructions and procedures 1. Personal, shop, equipment, vehicle 2. Required safety test B. Shop procedures C. Clean up assignments D. Employment opportunities
Lab	3	II	Overview of Smog Check Program A. Safety instructions and procedures 1. Personal, shop, equipment, vehicle 2. Required shop safety tour B. Shop procedures C. Clean up assignments
Lecture	1.5	III	Station Obligations and Standards of Practice A. Providing complete estimates for inspection 1. Write It Right B. Providing complete estimates for diagnosis and repairs C. Applicable program options D. Informing customers of possible warranty coverage for defective emission related components
Lab	3	IV	Station Obligations and Standards of Practice A. Providing complete estimates for inspection 1. Write It Right 2. Work order exercise B. Providing complete estimates for diagnosis and repairs C. Informing customers of possible warranty coverage for defective emission related components
Lecture	4	V	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
Lab	6	VI	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
Lecture	1.5	VII	Consumer Authorization and Consultation A. Estimates B. Invoices
Lab	3	VIII	Consumer Authorization and Consultation A. Creating Repair Orders 1. Write It Right B. Estimates C. Invoices
Lecture	3	A. IX	B. Vehicle Identification C. Affected vehicles D. Exempted vehicles E. Directed vehicles F. Certification type G. Specially Constructed vehicles H. Military Personnel vehicles I. Fleet vehicles J. Emissions Inspection System Vehicle Entries
Lab	6	X	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
Lecture	2.5	XI	Calibration of Inspection Equipment and Devices A. Maintenance and updates of equipment 1. Schedule and procedures B. Emissions Inspection System (EIS) 1. Bureau of Automotive Repair (BAR)-97 2. Dynamometer calibration C. On Board Diagnostics 2 (OBDII) Inspection System (OIS) D. Low Pressure Fuel Evaporative Tester (LPFET)
Lab	4	XII	Calibration of Inspection Equipment and Devices A. Maintenance and updates of equipment 1. Schedule and procedures B. EIS

			1. BAR-97 2. Dynamometer calibration C. OBDII Inspection System (OIS) D. LPFET
Lecture	4.5	XIII	Visual Inspection Procedures A. Pass/Fail criteria 1. Tampered, defective B. Vehicle Emission Control Information (VECI) label C. BAR Referee label D. Aftermarket Parts label E. Crankcase emission controls F. Evaporative emission controls G. Themostatic air cleaner H. Air injection systems I. Ignition spark controls J. Exhaust gas recirculation (EGR) systems K. Liquid fuel leak inspection L. Aftermarket parts 1. Executive Order (EO) numbers A. Catalytic converters B. Other engine and emission control systems C. Gasoline visible smoke test D. Diesel visible smoke test E. EIS entries
Lab	8	XIV	Visual Inspection Procedures A. Pass/Fail criteria 1. Tampered, defective A. VECI label B. BAR Referee label C. Aftermarket Parts label D. Crankcase emission controls E. Evaporative emission controls F. Themostatic air cleaner G. Air injection systems H. Ignition spark controls I. EGR systems J. Liquid fuel leak inspection K. Aftermarket parts 1. Executive Order (EO) numbers A. Catalytic converters B. Other engine and emission control systems C. Gasoline visible smoke test D. Diesel visible smoke test E. EIS entries
Lecture	3	XV	Emission Test Procedures A. Safety precautions B. Test application C. Vehicle Preconditioning D. Acceleration Simulation Mode E. Two-speed Idle test

Lab	8	XVI	Emission Test Procedures A. Safety precautions B. Test application 1. Vehicle setup 2. Operation of equipment A. Vehicle Preconditioning B. Acceleration Simulation Mode C. Two-speed Idle test
Lecture	3	XVII	Functional Test Procedures A. Test application B. Malfunction Indicator Light (MIL) C. OBDII system 1. Diagnostic Trouble Codes (DTC's) 2. Monitors 3. Permanent DTC's A. Ignition timing B. EGR system C. Fuel cap integrity D. LPFET E. EIS entries
Lab	8.5	XVIII	Functional Test Procedures A. Test application B. MIL C. OBDII system 1. DTC's 2. Monitors 3. Permanent DTC's D. Ignition timing E. EGR system F. Fuel cap integrity G. LPFET H. EIS entries
Lecture	2.5	XIX	Smog Check Inspection Results A. Vehicle Inspection Report (VIR) B. Vehicle passes inspection C. Vehicle fails inspection 1. Gross Polluter 2. Customer options 3. Regulations on subletting repairs
Lab	4.5	XX	Smog Check Inspection Results A. VIR B. Vehicle passes inspection C. Vehicle fails inspection 1. Gross Polluter 2. Customer options
Total Lecture Hours		27	
Total Laboratory Hours		54	
Total Hours		81	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:

Skills demonstrations

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:

After demonstrating the ability to calibrate an Emission Inspection System (EIS), perform a Smog Check emission test, visual inspection and emission control systems functional test on an OBDII vehicle. Determine whether the vehicle passes or fails the emissions test and submit a one-page Vehicle Inspection Report (VIR) to the instructor.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

1. A vehicle fails a Smog Check inspection and the reason given on the VIR is "MIL" even though the MIL is not illuminated. On a one-page report/vehicle repair order (RO), provide the customer information about why the vehicle failed due to the non-completion of all required OBD readiness monitors and the reasons for performing an OBD drive cycle to completion to reset those monitors and bring the vehicle into compliance to pass the Smog Check inspection. Submit completed RO to the instructor.

2. A vehicle fails the visual inspection part of the Smog Check inspection due to a non-compliant aftermarket catalytic converter (no Executive Order number). On a one-page report/vehicle RO, referencing the Laws and Regulations Manual, provide the customer information about why the vehicle failed and the laws and regulations regarding aftermarket parts and available smog check assistance programs such as the Parts Locator and Repair Cost Waivers. Submit a completed RO/estimate with the approved catalytic converters for that vehicle and applicable EO numbers to the instructor.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Performance exams
Quizzes
Written homework
Laboratory reports
Class Performance
Multiple Choice

V. INSTRUCTIONAL METHODS

Demonstration
Discussion
Laboratory
Lecture
Multimedia presentations
Other (please specify) Written materials

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Answer questions
Required reading
Written work
Journal

Estimated Independent Study Hours per Week: 5

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Bureau of Automotive Repair. Write It Right Book. Bureau of Automotive Repair, 2019.
Bureau of Automotive Repair. Smog Check Inspection Procedures Manual. Bureau of Automotive Repair, 2017.
Bureau of Automotive Repair. Smog Check Reference Guide. Bureau of Automotive Repair, 2018.
Bureau of Automotive Repair. Laws and Regulations Manual. Bureau of Automotive Repair, 2014.
Qualifier Text: Industry Standard

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

Shop manuals

D. OTHER REQUIRED MATERIALS

Three ring binder notebook and paper
Pen and pencil
Safety glasses
Shop safe clothing

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Course Prerequisite Automotive Technology-80	Sequential
Course Prerequisite Automotive Technology-80	Statute or Regulation
Course Prerequisite Automotive Technology-80	Program Requisite

B. Requisite Skills

Requisite Skills
Ability to demonstrate shop safety practices. ATEC 80 - Describe and demonstrate personal, shop, equipment and vehicle safety practices. Score 100% accuracy on a safety test.
Ability to explain design, theory and operation of gasoline and diesel engines. ATEC 80 - Explain engine theory, design and operation of gasoline engines and diesel vehicles.
Ability to identify engine systems and components. ATEC 80 - The students are to demonstrate their knowledge, and ability of identifying the engine systems and components.
Ability to describe, visually identify and inspect vehicle emission control systems and components. ATEC 80 - Explain and Identify emission control system theory, design and operation for both gasoline and diesel vehicles. ATEC 80 - The students are to Identify and explain their knowledge and ability to check the operation of exhaust gas recirculation systems of different designs.
Ability to check vehicle ignition timing. ATEC 80 - Identify and demonstrate their knowledge and ability to check ignition timing on a variety of different vehicles.
Ability to use a scan tool to check OBDII Readiness Monitors on 1996 and newer vehicles. ATEC 80 - The students demonstrate their knowledge and ability to check OBDII Monitor Readiness Status on vehicles equipped second generation on board diagnostic computer systems.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
Course Recommended Preparation AND Automotive Technology-21	
Course Recommended Preparation AND Automotive Technology-22A	
Course Recommended Preparation or Automotive Technology-22B	
Course Recommended Preparation AND Automotive Technology-23	

Course Recommended Preparation AND Automotive Technology-24	
Course Recommended Preparation AND Automotive Technology-25	
Course Recommended Preparation Automotive Technology-26	

D. Recommended Skills

Recommended Skills
Ability to inspect, test, diagnose and service ignition systems. ATEC 23 - Evaluate, test, and service ignition systems. ATEC 25 - Diagnose and repair ignition systems. ATEC 21 - Evaluate, test, and service an ignition system. ATEC 22A - Service, test, evaluate, and repair ignition systems. ATEC 22A - Identify ignition scope patterns.
Ability to inspect, test, diagnose and service fuel systems. ATEC 24 - Diagnose and repair a computer controlled fuel system. ATEC 26 - Evaluate and repair fuel injection systems. ATEC 21 - Evaluate, test and service fuel systems. ATEC 22B - Evaluate, test, diagnose and repair fuel injection systems. ATEC 22A - Evaluate, service, test, and repair fuel systems.
Ability to inspect, test, diagnose and service vehicle emission control systems. ATEC 26 - Diagnose and evaluate emission systems. ATEC 24 - Diagnose and repair emission control systems. ATEC 21 - Evaluate, test, and service emission control systems. ATEC 22B - Evaluate and test an emission system. ATEC 22A - Evaluate, service, test, and repair emission control systems.
Ability to test engine condition and performance using an OBDII engine scan tool and analyze computer controlled engine data to recommend repairs. ATEC 23 - Evaluate and test engine condition and performance using engine analyzer/scanner.

ATEC 22A - Test and evaluate engine condition and performance using an engine analyzer/scanner.
ATEC 26 - Analyze computer controlled engine data and recommend repairs.

ATEC 25 - Analyze computer controlled engine data and recommend needed repairs.

ATEC 22B - Analyze computer controlled engine data, form conclusions and recommend repairs.

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact

Course created by MIKE ANDERSON, Fall 2019

BOARD APPROVAL DATE: 01/21/2020

LAST BOARD APPROVAL DATE:

Last Reviewed and/or Revised by **Date:**

18897