

SLO Presentation

AUTO

Date: 09/11/2019

TECHNOLOGY
AUTO
Alternative Fuels Service Technician--Cert <ul style="list-style-type: none">• Student recognize the 1997 Standards for California Smog Technician Exam.• Students correlate energy resources with transportation and infrastructures.• Students distinguish between AC and DC voltage, primary and secondary ignition, and data bus communication systems.• Students employ appropriate safety practices while conducting automotive service.• Students explain the advantages and disadvantages of various alternative fuels.• Students identify the electrical hazards for servicing electrically powered vehicles.• Students recognize the major components of a diesel engine.
Alternative Fuels Service Technician--Degree <ul style="list-style-type: none">• Students explain the advantages and disadvantages of various alternative fuels.• Student recognize the 1997 Standards for California Smog Technician Exam.• Students correlate energy resources with transportation and infrastructures.• Students distinguish between AC and DC voltage, primary and secondary ignition, and data bus communication systems.• Students employ appropriate safety practices while conducting automotive service.• Students identify the electrical hazards for servicing electrically powered vehicles.• Students recognize the major components of a diesel engine.
Automotive Management--Cert <ul style="list-style-type: none">• Students employ appropriate safety practices while conducting automotive service.• Students employ effective automotive communication skills.• Students examine automotive organizational management.• Students recognize appropriate automotive marketing strategies.• Students develop a retail automotive follow-up system.• Students explain BAR "Write It Right" regulations.
Automotive Management--Degree <ul style="list-style-type: none">• Students develop a retail automotive follow-up system.• Students employ appropriate safety practices while conducting automotive service.• Students employ effective automotive communication skills.• Students examine automotive organizational management.• Students explain BAR "Write It Right" regulations.• Students recognize appropriate automotive marketing strategies.
Electrical/Diagnosis Technician--Cert <ul style="list-style-type: none">• Student recognize the 1997 Standards for California Smog Technician Exam.• Students conduct the AC performance test on expansion valve and orphus tube systems.• Students distinguish between AC and DC voltage, primary and secondary ignition, and data bus communication systems.• Students distinguish between electronic engine control fuel system and emission control components.• Students employ appropriate safety practices while conducting automotive service.

- Students use proper engine diagnosis and service techniques.

Electrical/Diagnosis Technician--Degree

- Student recognize the 1997 Standards for California Smog Technician Exam.
- Students conduct the AC performance test on expansion valve and orphus tube systems.
- Students distinguish between AC and DC voltage, primary and secondary ignition, and data bus communication systems.
- Students distinguish between electronic engine control fuel system and emission control components.
- Students employ appropriate safety practices while conducting automotive service.
- Students use proper engine diagnosis and service techniques.

Engine/Machining Technology--Cert

- Students employ appropriate safety practices while conducting engine/machining procedures.
- Students identify properly appropriate machining procedure for engine reconditioning.
- Students identify the primary engine performance enhancing techniques.
- Students use proper engine diagnosis and service techniques.

Engine/Machining Technology--Degree

- Students employ appropriate safety practices while conducting engine/machining procedures.
- Students identify properly appropriate machining procedure for engine reconditioning.
- Students identify the primary engine performance enhancing techniques.
- Students use proper engine diagnosis and service techniques.

General Technician--Cert

- Students demonstrate appropriate diagnostic skills for automotive braking systems.
- Students demonstrate appropriate diagnostic skills for automotive suspension and steering systems.
- Students distinguish between AC and DC voltage, primary and secondary ignition, and data bus communication systems.
- Students employ appropriate diagnostic and service skills while repairing manual drive train systems.
- Students employ appropriate safety practices while conducting automotive service.
- Students use proper automatic transmission diagnostic and service techniques.
- Students use proper engine diagnosis and service techniques.

General Technician--Degree

- Students demonstrate appropriate diagnostic skills for automotive braking systems.
- Students demonstrate appropriate diagnostic skills for automotive suspension and steering systems.
- Students distinguish between AC and DC voltage, primary and secondary ignition, and data bus communication systems.
- Students employ appropriate diagnostic and service skills while repairing manual drive train systems.
- Students employ appropriate safety practices while conducting automotive service.
- Students use proper automatic transmission diagnostic and service techniques.
- Students use proper engine diagnosis and service techniques.

Manufacture Specialty--Cert

- Students conduct the AC performance test on expansion valve and orphus tube systems.
- Students demonstrate appropriate diagnostic skills for automotive braking, suspension, and steering systems.
- Students distinguish between AC and DC voltage, primary and secondary ignition, and data bus communication systems.
- Students distinguish between electronic engine control fuel system and emission control components.
- Students use proper automatic and manual transmission diagnostic and service techniques.
- Students use proper engine diagnosis and service techniques.

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CSLO

AUTO54 - Introduction To Electric Vehicle

- Eighty percent (80%) of the completing students will be able to use electrical test equipment to service and troubleshoot electrically powered vehicles.
- Students will explain electrical theory, including Ohm's law and Watt's law
- Students will identify high voltage drive-train components and explain their function
- Students will be able to disassemble an electric vehicle battery pack and identify specifications

AUTO55 - Advanced Technology Electric Vehicle

- Eighty percent (80%) of the completing students will have the ability to describe and apply the concepts of electrical energy production and how it operates the vehicle propulsion systems.
- Students will identify calculate electrical theory equations using Ohm's and Watts laws
- Students will identify high voltage components on electric vehicles
- Students will explain the difference between vehicle manufacturer high voltage systems

AUTO73 - Automotive Mechanical Repair Occupational Work Experience

- Complete the assigned ASE technical tasks related to this subject.

AUTO80 - Bureau of Automotive Repair (BAR) ASE Alternative Courses for Advanced Emissions Special

- Compare emissions, gases, HC, CO, NOX, CO2, and O2 with factory specifications
- Demonstrate whether driveability problems are mechanically or electronically endured
- Describe the operation of emission control systems
- Employ appropriate safety practices while conducting automotive service
- Identify the emission control systems components on the vehicle
- Operate the scan-tool to identify Diagnostic Trouble Codes(D.T.C.)
- Use the proper tools to diagnose and repair electrical problems

AUTO100 - Automotive Maintenance and Operation

- Students perform a thorough automobile safety inspection.
- Students perform basic preventative maintenance on an automobile.
- Students describe base engine components and the process of internal combustion.
- Students explain the major concepts of electrical theory.
- Students identify the braking system components.
- Students explain the operation of the fuel and ignition systems.

AUTO101 - Auto Service Tools & Equipment

- Use the appropriate personal protective equipment
- Identify the proper thread repair tool to repair damaged threads
- Identify the common automotive hand tools
- Explain the different types of sealers used in automotive service
- Differentiate between metric and standard fasteners

AUTO105 - Hydraulics and Pneumatics

- A. Identify the principal components of pneumatics and hydraulics
- B. Calculate the appropriate pressure or force required to operate pneumatic and hydraulic system appropriately
- C. Select the appropriate material and construction design of components for pneumatic or hydraulic operation
- D. Identify differing types of valves and explain their operation
- E. Compare and contrast pneumatic versus hydraulic applications
- F. Identify components schematics of pneumatic and hydraulic systems

AUTO110 - Automotive Engines

- Students demonstrate proper safety precautions in using tools and equipment.
- Students compare different measurements mean in both U.S and metric measurement systems.
- Students identify and describe different cylinder and valve arrangements.
- Students describe overhead camshaft engine components, for proper timing using manufactures special tools.
- Students describe proper techniques in de-torquing and torquing of torque to yield fastness.
- Students demonstrate proper engine disassembly and assembly using special tool and equipment.

AUTO120 - Automatic Transmissions and Transaxles

1. Use appropriate safety practices while conducting automotive transmission service
2. Identify the four major areas of the automatic transmission design: electrical, hydraulic, torque converters, and gear train
3. Demonstrate the overhaul procedures for an automatic transmission clutch assembly
4. Employ a scan tool supporting transmission diagnostics
5. Explain the methods used in valve body service

AUTO121 - Drivetrain Transmissions and Axles

- Students use appropriate safety practices while conducting automotive transmission service.
- Students identify the major components of a manual clutch system.
- Students use calculations to determine torque multiplication.
- Students explain the difference between all-wheel drive systems and four wheel drive systems.
- Students explain the theory and operation of transfer cases.
- Students identify the four major areas of automatic transmission design. Electrical, hydraulic, torque converter, and gear train.
- Students demonstrate the overhaul of an automatic transmission clutch assembly.
- Students employ a scan tool supporting transmission diagnostics.

AUTO130 - Manual Drivetrain and Axles

- Students use appropriate safety practices while conducting automotive transmission and drive train service.
- Students use appropriate lifting equipment for vehicles and components.
- Students identify the major components of a manual clutch system.
- Students use appropriate methods for calculating simple gear ratios.
- Students explain the difference between all-wheel drive systems.
- Students explain the four common selector positions of a simple transfer case.
- Students complete universal joint service using one of the three common techniques.
- Students explain the power flow through a manual transmission or transaxle.

AUTO140 - Automotive Steering and Suspension

- Students practice proper classroom and shop safety practices.
- Students describe suspension system components and operation.
- Students demonstrate front suspension diagnosis and service.
- Students practice rear suspension diagnosis and service.

- Students identify electronic suspension component operation and service.
- Students demonstrate power steering diagnosis and service.

AUTO150 - Automotive Brakes

- Students demonstrate proper safety procedures while servicing automotive brake systems.
- Students describe braking system components and operation.
- Students demonstrate hydraulic system diagnostic and service.
- Students practice disk brake diagnostic and service.
- Students demonstrate drum brake diagnostic and service.
- Students demonstrate drum brake diagnostic and service.

AUTO151 - Automotive Alignment Brake and Suspension

- Students describe the components of the braking system.
- Students explain the hydraulic brake system.
- Students recognize normal brake system operations.
- Students identify the components of the anti-lock brake and the traction control system.
- Students explain the construction and function of tires and wheels.

AUTO155 - Medium/Heavy Duty Brake Systems

- Identify the principal components of pneumatic braking systems
- Calculate the appropriate pressure or force required to operate pneumatic braking systems
- Select the appropriate material and construction design of components for pneumatic brake operation
- Identify differing types of pneumatic valves and explain their operation
- Compare and contrast pneumatic versus hydraulic brake systems
- Identify component schematics of pneumatic brake systems

AUTO160 - Introduction to Automotive Electrical

- Students employ appropriate safety practices while conducting automotive service.
- Students describe the function of the starting system.
- Students describe the function of the charging system.
- Students use wiring schematics to identify faults.
- Use a digital multimeter to measure resistance, voltage, and amperage
- Students demonstrate proper use of proper diagnostic tools.

AUTO161 - Automotive Electricity

- Students explain the basic principles of electricity.
- Students differentiate between the different electrical circuits.
- Students use the proper tools to diagnose and repair electrical problems.
- Students identify the basic components of automotive electrical wiring.
- Students describe the relationship between the battery, starting, and charging systems.
- Students recognize the basic components of automotive lighting and accessories.

AUTO170 - Automotive Air Conditioning

- Students identify the components of an A/C system.
- Students name the control types of the A/C system.
- Students demonstrate the use of the A/C charging station.
- Students explain the A/C leak testing procedure.
- Students identify the two types of A/C system designs.

AUTO179 - Automotive Air Conditioning

- Students identify the components of the A/C system.
- Students demonstrate cooling system pressure testing.
- Students demonstrate the use of the A/C charging station.
- Students explain the A/C leak testing procedure.
- Students identify the two types of A/C system designs.

AUTO180 - Electronic Engine Management Systems

- Students identify all fuel system components and their relationship to one another.
- Students will describe the operation of emission control systems.
- Students will operate the scan-tool to identify D.T.C. (Diagnostic Trouble Codes).
- Students will complete a under hood visual inspection of fuel system components.
- Students will disassemble, clean, and re-test fuel injections for proper fuel flow
- The student will identify the emission control systems components on the vehicle.
- Students employ appropriate safety practices while conducting automotive service.

AUTO181 - Electronic Engine Management Systems-Corporate

- Students demonstrate whether driveability problems are mechanically or electronically endured.
- Students identify all fuel system components and their relationship to one another.
- Students will disassemble, clean, and re-test fuel injections for proper fuel flow.
- Students will describe the operation of emission control systems.
- Students will complete a under hood visual inspection of fuel system components.
- Students will operate the scan-tool to identify D.T.C. (Diagnostic Trouble Codes).
- Student will identify the emission control systems components on the vehicle.

AUTO182 - Introduction To Alternative Fuel

1. Describe operation and function of CNG system
2. Explain the CNG ignition combustion process
3. Differentiate between the three types of alternative fuels
4. Interpret the trouble shooting charts
5. Explain the general maintenance procedures

AUTO183 - Compressed Natural Gas Engines

- A. Demonstrate safe working procedures in working with high pressure and low temperature fuels
- B. Compare major fuel system components on light and heavy duty CNG vehicle chassis
- C. Collect measurements and perform diagnostics in relation to the CNG fuel system chassis components
- D. Identify major fuel system components on the Cummins engine model ISL-G heavy duty engine
- E. Identify common circuit problems in relation to the electrical components of the Cummins model ISL-G heavy duty engine
- F. Extract diagnostic information in relation to the electrical components of the Cummins model ISL-G heavy duty engine

AUTO190 - Automotive Management

- Students examine automotive organizational management.

- Students design an automotive shop layout.
- Students evaluate automotive shop equipment.
- Students recognize the importance of shop safety.
- Students demonstrate automotive accounting and bookkeeping practices.
- Students prepare an automotive management business plan.
- Students examine personnel management and motivation.
- Students identify automotive service quality control methods.

AUTO193 - Automotive Service Information Management

- Students examine 'B.A.R./Write It Right' service repair order regulations.
- Students design customer relations information management systems.
- Students assemble computerized service advisor repair order information system.
- Students assess vendor and supplier service information systems.
- Students formulate automotive service paper based references.
- Students interpret automotive service government regulations.

AUTO194 - Retailing Automotive Service

- Students formulate a retail automotive service labor rate.
- Students analyze retail automotive labor guides.
- Students interpret retail automotive technician productivity reports.
- Students create a retail automotive shop environment.
- Students setup a retail automotive customer environment.
- Students develop retail automotive customer follow up and promotional systems.

AUTO195 - Automotive Customer Relations

- Students recognize effective automotive service communication skills.
- Students manage automotive service customer conflict.
- Students will illustrate automotive service goal setting techniques.
- Students identify automotive service areas of improvement.
- Students examine ethical principles automotive customer service.
- Students demonstrate automotive service customer relationship management.

AUTO210 - Automotive Machine Shop

- Students assemble a piston and connecting rod assembly
- Students explain the different methods of cylinder resizing.
- Students identify a properly machined valve face and valve seat.
- Students use the appropriate measuring tool for a specific component measurement
- Students use the appropriate safety practices when performing automotive service.

AUTO212 - Advanced High Performance Engines

- Develop skills set related to the topic outlined in consultation with the instructor
- Complete a summary evaluation of skills attained or knowledge acquired during the advanced high performance engines assigned projects
- Conduct research related to the topic outlined in consultation with the instructor
- Evaluate the research and compare with project results
- Students demonstrate proper techniques in operating the chassis dynamometer
- students demonstrate proper techniques in operating the flow bench

AUTO260 - Intermediate Automotive Electrical

- Explain Ohm's law as it relates to series and parallel circuits
- Identify the symbols used in an electrical diagram
- Interpret electrical troubleshooting charts
- Demonstrate use of a digital multimeter and digital oscilloscope
- Identify electrical/electronic components
- Describe computer networking systems in modern vehicles

AUTO265 - Advanced Automotive Electrical

- Develop skills related to the topic outlined in consultation with the instructor
- Complete a summary evaluation of skills attained or knowledge acquired during the advanced electrical assigned projects
- Conduct research related to the topic outlined in consultation with the instructor
- Evaluate the research and compare with project results

AUTO280 - Diagnostic Engine Performance

- Students demonstrate an understanding of on-car computers P.C.M. (Powertrain Control Modules).
- Students identify drivability problems by the use of D.T.C. (Diagnostic Trouble Codes).
- Students demonstrate knowledge of OBD-II operation.
- Students operate an oscilloscope to diagnose engine sensors.
- Students identify and repair emission control failures.

AUTO281 - Emission Control Systems -1997 Standards

- Students use the appropriate safety practices when performing automotive service.
- Students identify the emission control systems components on the vehicle.
- Students compare emissions, gases, HC, CO, NOX, CO2, and O2 with factory specifications.
- Students describe the operation of the emission control systems.
- Students demonstrate a ASM test(Acceleration Simulation Mode).
- Students complete a under hood visual inspection of fuel system components.
- Students operate the scan tool to identify D.T.C. (Diagnostic Trouble Codes).