

DAY TIME PROGRAM DESCRIPTIONS

California State Smog Inspector

School Name: Smog Tech Institute

Course Name: Smog inspector

Course Number: TBA

Program Title: California State Inspector

Course Hours: 112

Course Completion: 3.5 weeks

Meeting Times: Weekdays 9:00AM – 6:00PM

Meeting Days: Monday, Tuesday, Wednesday, Thursday

Total Meetings: 14

Days Per Week: 4

Instructor's Name: Mark Keiser

Locations: 4070 North Palm St Fullerton, CA 92503 &
21208 Nordhoff St Chatsworth, CA 91311

Meeting Dates: TBD

Contact Information:

Phone: 714-441-1620

Email Address: mkeiser@smogtechinstitute.com

Course Description:

- Level 1 Engine and Emission Control Training is intended 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 first step of the

Bureau of Automotive Repair's training requirements for inexperienced or minimally experienced candidates for the Smog Check Inspector license.

- Level 2 Inspector Training is intended to provide students the knowledge, skills, and abilities needed to perform Smog Check inspections. Students who successfully complete this training will have met the Bureau's training requirements to qualify to take the Smog Check Inspector state licensing examination.

- Smog Exam Test Prep is a module that specifically prepares the student for the state exams by covering many of the questions he will see on the test not just memorization but teaches the knowledge to answer them correctly through lecture and interpretation. This is not a required module but is included to give the student a better chance of success.

Required Textbook: All text books included in tuition cost and are given 1st day of class

- Level 1 Inspector
- 300 question Test prep
- Smog Check Inspection Procedures Manual
- Smog Check Reference Guide
- Laws and Regulations Manual
- Write It Write Booklet
- Low Pressure Fuel Evaporative Training Video
- Gasoline Visible Smoke Test Training- multimedia
- Diesel Vehicle Inspection Training – multimedia

Required Materials:

- Textbooks, given out the first night of class.
- Lab sheets will be provided during labs.
- Pencils, pens, and paper will be provided in classroom.
- My Automotive Lab for online Technical simulations. Access to web site is provided in book

Other Requirements:

- Students are expected to arrive to class on-time
- Cell phones should be on vibrate and no texting during class
- Participate in class discussions and labs.

Course Objectives: By completion student should have strong knowledge of

Level 1

1. Describe and demonstrate personal, shop, equipment, and vehicle safety practices.
2. Describe engine theory, design, and operation for both gasoline and diesel vehicles.
3. Demonstrate their knowledge, skills and abilities in identifying engine systems, parts and Components.

4. Describe emission control systems theory, design and operation for both gasoline and Diesel vehicles.

5. Demonstrate their knowledge, skills and abilities in identifying emission control systems
On various vehicle designs.

6. Demonstrate their knowledge, skills and abilities in checking ignition timing on various Vehicle designs.

7. Demonstrate their knowledge, skills and abilities in checking the operation of exhaust Gas recirculation systems on various system designs.

8. Demonstrate their knowledge, skills and abilities in checking monitor readiness on Vehicles equipped with second generation on-board diagnostics systems (OBDII).

Level 2 Inspector

9. Describe the laws, regulations, and procedures associated with consumer authorization of

Inspections and the overall administration of the Smog Check Program.

10. Describe the standards of practice expected of Smog Check Inspectors.

11. Demonstrate ability to calibrate an emission inspection system.

12. Demonstrate their knowledge, skills and abilities in performing Smog Check emission tests on

Various vehicle designs.

13. Demonstrate their knowledge, skills and abilities in performing Smog Check visual inspections on

Various vehicle designs.

14. Describe and demonstrate they have the knowledge, skills and abilities to perform smog check

Functional tests on various vehicle designs.

Smog Test Prep

15. Sample test questions and analysis for EO State exams

Course Format & Methods of instruction:

Methods of instruction used to achieve learning outcomes must include hands-on exercises and laboratory/shop demonstrations in combination with any of the following:

- Lectures & discussions
- Written materials
- Audio-visual instruction
- Computer-based instruction
- Class is taught in 3 modules allowing for new students to begin at the beginning of each module

Module	Course name	Clock hours
Module 01	Inspector Level 1	68
Module 02	Inspector Level 2	28
Module 03	Smog Examination Test-Prep	16
	TOTAL HOURS	112
	Total Cash Price	\$2386.00
	Total Price with Financial Aid	\$2636.00

California State Test & Repair Technician

School Name: Smog Tech Institute

Course Name: Test & Repair Technician

Course Number: TBA

Program Title: Day Time Californian State Test & Repair Technician

Course Hours: 140

Course Completion: 4.5 weeks

Meeting Times: Weekdays 6:30PM – 10:30PM

Meeting Days: Monday, Tuesday, Wednesday, Thursday

Total Meetings: 17

Days Per Week: 4

Instructor's Name: Mark Keiser

Locations: 4070 North Palm St Fullerton, CA 92503 &
21208 Nordhoff St Chatsworth, CA 91311

Meeting Dates: TBD

Contact Information:

Phone: 714-441-1620

Email Address: mkeiser@smogtechinstitute.com

Course Description:

- BAR Specified Diagnostic and Repair Training is intended to provide students a high level of competency in the diagnosis and repair of Smog Check failures. This training focuses on the areas of electrical/electronic systems and engine and emission control performance. Students with at least two years of engine performance repair experience and who successfully complete this training may qualify for the state licensing examination for the Smog Check Repair Technician License.
- Level 2 Inspector Training is intended to provide students the knowledge, skills, and abilities needed to perform Smog Check inspections. Students who successfully complete this training will have met the Bureau's training requirements to qualify to take the Smog Check Inspector state licensing examination.

- Smog Exam Test Prep is a module that specifically prepares the student for the state exams by covering many of the questions he will see on the test not just memorization but teaches the knowledge to answer them correctly through lecture and interpretation. This is not a required module but is included to give the student a better chance of success.

Required Textbook: Books provided on first day of class

- Bar specified Diagnostic and Repair
- 300 question Test prep
- Smog Check Inspection Procedures Manual
- Smog Check Reference Guide
- Laws and Regulations Manual
- Write It Write Booklet
- Low Pressure Fuel Evaporative Training Video
- Gasoline Visible Smoke Test Training- multimedia
- Diesel Vehicle Inspection Training – multimedia

Required Materials:

- Textbook, given out the first night of class.
- Lab sheets will be provided during labs.
- Pencils, pens, and paper will be provided in classroom.
- My Automotive Lab for online Technical simulations. Access to web site is provided in book

Other Requirements:

- Students are expected to arrive to class on-time
- Cell phones should be on vibrate and no texting during class
- Participate in class discussions and labs.

Course Objectives: By completion student should have strong knowledge of

General information

1. Describe and demonstrate personal, shop, equipment, and vehicle safety practices.
2. Explain the causes and effects of air pollution as it relates to the automotive industry.
3. Explain the standards of practice pertaining to Smog Check licensure.
4. Locate, assess and apply vehicle service / repair information, in the process of Smog Check diagnosis and repair.

5. Employ appropriate diagnostic and repair processes based on the customer's complaint, the cause of inspection failure, or vehicle data / information.
6. Establish a level of priority with respect to the repair of a Smog Check failure using inspection and vehicle data / information.

Electrical/Electronic Systems

7. Describe principles of electricity and electronics.
8. Define electrical terms of watts, voltage, current and resistance.
9. Describe and identify the types of automotive electrical circuits (series, parallel, and series/parallel).
10. Describe and identify the types of electrical and electronic components used in computer controlled automotive systems.
11. Describe theory, design and operation of automotive electrical and electronic systems.
12. Identify standard electrical and electronic symbols.
13. Demonstrate full understanding of electrical principals in detecting defects in electrical/electronic circuits, including, but not limited to, continuity tests, resistance tests, current/amperage tests, voltage drop tests.
14. Interpret electrical wiring diagrams and schematics to diagnose automotive electrical and electronic systems.
16. Employ various types of test equipment, including but not limited to a digital multi-meter (DMM) and a digital storage oscilloscope (DSO).

Engine and Emission Control Performance

17. Describe engine theory, design, and operation.
18. Describe the theory, design and operation of induction and exhaust systems.
19. Describe the theory, design and operation of fuel systems.
20. Describe the theory, design and operation of ignition systems.
21. Describe theory, purpose, design and operation of emission control systems, including, but not limited to, crankcase controls, fuel evaporative controls, air injection, exhaust gas recirculation, catalyst and other exhaust gas after treatment systems, and integrated emission control management strategies, such as spark control and variable valve timing.

22. Describe the exhaust byproducts of internal combustion and define the primary emissions resulting from this combustion process. (Oxygen, carbon dioxide, carbon monoxide, hydrocarbon, oxides of nitrogen, sulphur dioxide, particulate matter).
23. Explain the relationship of the air/fuel ratio to the combustion process and the resulting emissions (stoichiometric, rich, and lean).
24. Analyze exhaust gas readings to determine the best diagnostic strategy (4 - 5 gas analysis).
25. Employ engine and emission control diagnostic test equipment, including, but not limited to, cylinder compression gauge, cylinder leak down tester, fuel pressure gauge, ignition oscilloscope, timing light, pressure/vacuum gauge, DMM, OBD diagnostic scan tool, DSO, and exhaust gas analyzer.
26. Diagnose engine mechanical malfunctions or defects and determine appropriate repairs.
27. Diagnose induction and fuel system malfunctions or defects and determine appropriate repairs.
28. Diagnose emission control systems malfunctions/defects and determine appropriate repairs. Including, but not limited to, crankcase controls, fuel evaporative controls, exhaust gas recirculation, secondary air, and catalytic converter efficiency.
29. Diagnose ignition system malfunctions or defects and determine appropriate repairs.
30. Identify root or underlying causes of engine and emission control malfunctions and differentiate between mechanical, electrical/electronic and fuel system problems and determine appropriate repairs.
31. Describe the theory, design and operation of computerized engine and emission control management systems, OBDI and OBDII.
32. Identify computerized engine and emissions control systems, subsystems and components.
33. Describe OBDII monitors: catalyst efficiency, misfire detection, fuel system, heated exhaust gas oxygen sensors, EGR, and comprehensive component monitors, evaporative emissions, secondary air injection, thermostat, and PCV monitor.
34. Describe the OBDII system modes of operation, modes 1-9.
35. Evaluate a vehicle's OBD data, to determine the systems operational status and condition, including, but not limited to, supported monitors, monitor enabling criteria,

monitor readiness, generic and vehicle manufacturer fault codes, freeze frame data, and fuel control.

36. Demonstrate comprehensive knowledge and ability in using an OBDII diagnostic scan tool to detect various engine and emission control malfunctions.

37. Demonstrate comprehensive knowledge and ability in using a DSO to detect various system / component malfunctions.

38. Evaluate a vehicle's OBD data to verify proper engine / emission controls management functionality- repair verification.

Level 2 Inspector

39. Describe the laws, regulations, and procedures associated with consumer authorization of

Inspections and the overall administration of the Smog Check Program.

40. Describe the standards of practice expected of Smog Check Inspectors.

41. Demonstrate ability to calibrate an emission inspection system.

42. Demonstrate their knowledge, skills and abilities in performing Smog Check emission tests on

Various vehicle designs.

43. Demonstrate their knowledge, skills and abilities in performing Smog Check visual inspections on

Various vehicle designs.

44. Describe and demonstrate they have the knowledge, skills and abilities to perform smog check

Functional tests on various vehicle designs.

Smog Test Prep

45. Sample test questions and analysis for both EO and EI State exams

Course Format & Methods of instruction:

Methods of instruction used to achieve learning outcomes must include hands-on exercises and laboratory/shop demonstrations in combination with any of the following:

- Lectures & discussions
- Written materials
- Audio-visual instruction
- Computer-based instruction
- Class is taught in 5 modules allowing for new students to begin at the beginning of each module

Module	Test and Repair Technician	Clock hours
Module 01	Bar Specified Diagnostic Training-Alternative A6 Electrical	28
Module 02	Bar Specified Diagnostic Training-Alternative A8 Engine Performance	32
Module 03	Bar Specified Diagnostic Training-Alternative L1 Advanced Engine	36
Module 04	Inspector Level 2	28
Module 05	Smog Examination Test-Prep	16
	TOTAL HOURS	140
	Total Cash Price	\$2386.00
	Total Price with Financial Aid	\$2636.00

California State Repair Only Technician

School Name: Smog Tech Institute

Course Name: Repair only Technician

Course Number: TBA

Program Title: Californian State Repair only Technician

Course Hours: 112

Course Completion: 3.5 weeks

Meeting Times: Weekdays 6:30PM – 10:30PM

Meeting Days: Monday, Tuesday, Wednesday, Thursday

Total Meetings: 14

Days Per Week: 4

Instructor's Name: Mark Keiser

Locations: 4070 North Palm St Fullerton, CA 92503 &
21208 Nordhoff St Chatsworth, CA 91311

Meeting Dates: TBD

Contact Information:

Phone: 714-441-1620

Email Address: mkeiser@smogtechinstitute.com

Course Description:

- BAR Specified Diagnostic and Repair Training is intended to provide students a high level of competency in the diagnosis and repair of Smog Check failures. This training focuses on the areas of electrical/electronic systems and engine and emission control performance. Students with at least two years of engine performance repair experience and who successfully complete this training may qualify for the state licensing examination for the Smog Check Repair Technician License.
- Smog Exam Test Prep is a module that specifically prepares the student for the state exams by covering many of the questions he will see on the test not just memorization but teaches the knowledge to answer them correctly through lecture and interpretation. This is not a required module but is included to give the student a better chance of success.

Required Textbook: Books provided on first day of class

- Bar specified Diagnostic and Repair
- 300 question Test Prep

Required Materials:

- Textbook, given out the first night of class.
- Lab sheets will be provided during labs.
- Pencils, pens, and paper will be provided in classroom.
- My Automotive Lab for online Technical simulations. Access to web site is provided in book

Other Requirements:

- Students are expected to arrive to class on-time
- Cell phones should be on vibrate and no texting during class
- Participate in class discussions and labs.

Course Objectives: By completion student should have strong knowledge of

General information

1. Describe and demonstrate personal, shop, equipment, and vehicle safety practices.
2. Explain the causes and effects of air pollution as it relates to the automotive industry.
3. Explain the standards of practice pertaining to Smog Check licensure.
4. Locate, assess and apply vehicle service / repair information, in the process of Smog Check diagnosis and repair.
5. Employ appropriate diagnostic and repair processes based on the customer's complaint, the cause of inspection failure, or vehicle data / information.
6. Establish a level of priority with respect to the repair of a Smog Check failure using inspection and vehicle data / information.

Electrical/Electronic Systems

7. Describe principles of electricity and electronics.
8. Define electrical terms of watts, voltage, current and resistance.
9. Describe and identify the types of automotive electrical circuits (series, parallel, and series/parallel).
10. Describe and identify the types of electrical and electronic components used in computer controlled automotive systems.

11. Describe theory, design and operation of automotive electrical and electronic systems.
12. Identify standard electrical and electronic symbols.
13. Demonstrate full understanding of electrical principals in detecting defects in electrical/electronic circuits, including, but not limited to, continuity tests, resistance tests, current/amperage tests, voltage drop tests.
14. Interpret electrical wiring diagrams and schematics to diagnose automotive electrical and electronic systems.
16. Employ various types of test equipment, including but not limited to a digital multi-meter (DMM) and a digital storage oscilloscope (DSO).

Engine and Emission Control Performance

17. Describe engine theory, design, and operation.
18. Describe the theory, design and operation of induction and exhaust systems.
19. Describe the theory, design and operation of fuel systems.
20. Describe the theory, design and operation of ignition systems.
21. Describe theory, purpose, design and operation of emission control systems, including, but not limited to, crankcase controls, fuel evaporative controls, air injection, exhaust gas recirculation, catalyst and other exhaust gas after treatment systems, and integrated emission control management strategies, such as spark control and variable valve timing.
22. Describe the exhaust byproducts of internal combustion and define the primary emissions resulting from this combustion process. (Oxygen, carbon dioxide, carbon monoxide, hydrocarbon, oxides of nitrogen, sulphur dioxide, particulate matter).
23. Explain the relationship of the air/fuel ratio to the combustion process and the resulting emissions (stoichiometric, rich, and lean).
24. Analyze exhaust gas readings to determine the best diagnostic strategy (4 - 5 gas analysis).
25. Employ engine and emission control diagnostic test equipment, including, but not limited to, cylinder compression gauge, cylinder leak down tester, fuel pressure gauge, ignition oscilloscope, timing light, pressure/vacuum gauge, DMM, OBD diagnostic scan tool, DSO, and exhaust gas analyzer.

26. Diagnose engine mechanical malfunctions or defects and determine appropriate repairs.
27. Diagnose induction and fuel system malfunctions or defects and determine appropriate repairs.
28. Diagnose emission control systems malfunctions/defects and determine appropriate repairs. Including, but not limited to, crankcase controls, fuel evaporative controls, exhaust gas recirculation, secondary air, and catalytic converter efficiency.
29. Diagnose ignition system malfunctions or defects and determine appropriate repairs.
30. Identify root or underlying causes of engine and emission control malfunctions and differentiate between mechanical, electrical/electronic and fuel system problems and determine appropriate repairs.
31. Describe the theory, design and operation of computerized engine and emission control management systems, OBDI and OBDII.
32. Identify computerized engine and emissions control systems, subsystems and components.
33. Describe OBDII monitors: catalyst efficiency, misfire detection, fuel system, heated exhaust gas oxygen sensors, EGR, and comprehensive component monitors, evaporative emissions, secondary air injection, thermostat, and PCV monitor.
34. Describe the OBDII system modes of operation, modes 1-9.
35. Evaluate a vehicle's OBD data, to determine the systems operational status and condition, including, but not limited to, supported monitors, monitor enabling criteria, monitor readiness, generic and vehicle manufacturer fault codes, freeze frame data, and fuel control.
36. Demonstrate comprehensive knowledge and ability in using an OBDII diagnostic scan tool to detect various engine and emission control malfunctions.
37. Demonstrate comprehensive knowledge and ability in using a DSO to detect various system / component malfunctions.
38. Evaluate a vehicle's OBD data to verify proper engine / emission controls management functionality- repair verification.

Smog Test Prep

39. Sample test questions and analysis for EI State exams

Course Format & Methods of instruction:

Methods of instruction used to achieve learning outcomes must include hands-on exercises and laboratory/shop demonstrations in combination with any of the following:

- Lectures & discussions
- Written materials
- Audio-visual instruction
- Computer-based instruction
- Class is taught in 4 modules allowing for new students to begin at the beginning of each module

Module	Repair only Technician day time	Clock hours
Module 01	Bar Specified Diagnostic Training-Alternative A6 Electrical	28
Module 02	Bar Specified Diagnostic Training-Alternative A8 Engine Performance	32
Module 03	Bar Specified Diagnostic Training-Alternative L1 Advanced Engine	36
Module 04	Smog Examination Test-Prep	16
	TOTAL HOURS	112
	Total Cash Price	\$2386.00
	Total Price with Financial Aid	\$2636.00

(APET) Automotive Performance Emission Training

School Name: Smog Tech Institute

Course Name: Automotive Performance Emissions Training

Course Number: TBA

Program Title: Day Time Automotive Performance Emission Training

Course Hours: 720

Course Completion: 22 weeks

Meeting Times: Weekdays 9:00AM – 6:00PM

Meeting Days: Monday, Tuesday, Wednesday & Thursday

Total Meetings: 90

Days Per Week: 4

Instructor's Name: Mark Keiser

Locations: 4070 North Palm St Fullerton, CA 92503 &
21208 Nordhoff St Chatsworth, CA 91311

Meeting Dates: TBD

Contact Information:

Phone: 714-441-1620

Email Address: mkeiser@smogtechinstitute.com

Course Description:

The Automotive Performance & Emissions Technology (APET) course curriculum consists of seventeen modules. Most modules have laboratory demonstrations as well as classroom presentation. Some modules cover single subject matter and some cover multiple subjects. Certificates are awarded for each module successfully completed. This is a 720 class intended to satisfy the BAR requirement for one of the methods of attaining a Smog Repair license for the state Of California: Note even though this class will meet and exceed the education requirements it is still up to the applicant to prove 1 year experience of working on vehicles in an automotive repair facility before he can take the state exam.

The subjects in this class include:

- Automotive Safety & Information
- Engine Technology

- Electrical Systems Technology
- Fuel Management Technology
- Diagnostic Tools & Test Equipment Operation
- Automotive Service and Administration
- Practical Applications
- Bar Specified Diagnostic Training-Alternative A6 Electrical
- Bar Specified Diagnostic Training-Alternative A8 Engine Performance
- Bar Specified Diagnostic Training-Alternative L1 Advanced Engine
- Inspector Level 1
- Inspector Level 2
- Bar Update Training
- Smog Examination Test-Prep
- Diesel Fundamentals and Emission Controls
- Direct Injection
- Hybrid Fundamentals and Safety

Required Textbook: All Books provided by school as part of their paid tuition.

- Bar Specified Diagnostic
- Level 1 Inspector
- Level 2 Inspector
- Automotive Diesel specialist
- Advanced Engine Performance Specialist
- Hybrid Specialist
- Automotive Electrical Specialist
- .300 question smog prep
- 2013 update books
- Smog Check Inspection Procedures Manual
- Smog Check Reference Guide
- Laws and Regulations Manual
- Write It Write Booklet
- Low Pressure Fuel Evaporative Training Video
- Gasoline Visible Smoke Test Training- multimedia
- Diesel Vehicle Inspection Training – multimedia

Required Materials:

- Textbooks will be given at the beginning of each module.
- Lab sheets will be provided during labs.
- Pencils, pens, and paper will be provided in classroom.
- My Automotive Lab for online Technical simulations. Access to web site is provided in book

Other Requirements:

- Students are expected to arrive to class on-time
- Cell phones should be on vibrate and no texting during class
- Participate in class discussions and labs.

Course Objectives: By completion student should have strong knowledge of

General information

- Describe and demonstrate personal, shop, equipment, and vehicle safety practices.
- Explain the causes and effects of air pollution as it relates to the automotive industry.
- Explain the standards of practice pertaining to Smog Check licensure.
- Locate, assess and apply vehicle service / repair information, in the process of Smog Check diagnosis and repair.
- Employ appropriate diagnostic and repair processes based on the customer's complaint, the cause of inspection failure, or vehicle data / information.
- Establish a level of priority with respect to the repair of a Smog Check failure using inspection and vehicle data / information.

Electrical/Electronic Systems

- Describe principles of electricity and electronics.
- Define electrical terms of watts, voltage, current and resistance.
- Describe and identify the types of automotive electrical circuits (series, parallel, and series/parallel).
- Describe and identify the types of electrical and electronic components used in computer controlled automotive systems.
- Describe theory, design and operation of automotive electrical and electronic systems.
- Identify standard electrical and electronic symbols.
- Demonstrate full understanding of electrical principals in detecting defects in electrical/electronic circuits, including, but not limited to, continuity tests, resistance tests, current/amperage tests, voltage drop tests.
- Interpret electrical wiring diagrams and schematics to diagnose automotive electrical and electronic systems.
- Employ various types of test equipment, including but not limited to a digital multi-meter (DMM) and a digital storage oscilloscope (DSO).

Engine and Emission Control Performance

- Describe engine theory, design, and operation.
- Describe the theory, design and operation of induction and exhaust systems.
- Describe the theory, design and operation of fuel systems.
- Describe the theory, design and operation of ignition systems.
- Describe theory, purpose, design and operation of emission control systems, including, but not limited to, crankcase controls, fuel evaporative controls, air injection, exhaust gas recirculation, catalyst and other exhaust gas after treatment systems, and integrated emission control management strategies, such as spark control and variable valve timing.
- Describe the exhaust byproducts of internal combustion and define the primary emissions resulting from this combustion process. (Oxygen, carbon dioxide, carbon monoxide, hydrocarbon, oxides of nitrogen, sulphur dioxide, particulate matter).
- Explain the relationship of the air/fuel ratio to the combustion process and the resulting emissions (stoichiometric, rich, and lean).
- Analyze exhaust gas readings to determine the best diagnostic strategy (4 - 5 gas analysis).
- Employ engine and emission control diagnostic test equipment, including, but not limited to, cylinder compression gauge, cylinder leak down tester, fuel pressure gauge, ignition oscilloscope, timing light, pressure/vacuum gauge, DMM, OBD diagnostic scan tool, DSO, and exhaust gas analyzer.
- Diagnose engine mechanical malfunctions or defects and determine appropriate repairs.
- Diagnose induction and fuel system malfunctions or defects and determine appropriate repairs.
- Diagnose emission control systems malfunctions/defects and determine appropriate repairs. Including, but not limited to, crankcase controls, fuel evaporative controls, exhaust gas recirculation, secondary air, and catalytic converter efficiency.
- Diagnose ignition system malfunctions or defects and determine appropriate repairs.

- Identify root or underlying causes of engine and emission control malfunctions and differentiate between mechanical, electrical/electronic and fuel system problems and determine appropriate repairs.
- Describe the theory, design and operation of computerized engine and emission control management systems, OBDI and OBDII.
- Identify computerized engine and emissions control systems, subsystems and components.
- Describe OBDII monitors: catalyst efficiency, misfire detection, fuel system, heated exhaust gas oxygen sensors, EGR, and comprehensive component monitors, evaporative emissions, secondary air injection, thermostat, and PCV monitor.
- Describe the OBDII system modes of operation, modes 1-9.
- Evaluate a vehicle's OBD data, to determine the systems operational status and condition, including, but not limited to, supported monitors, monitor enabling criteria, monitor readiness, generic and vehicle manufacturer fault codes, freeze frame data, and fuel control.
- Demonstrate comprehensive knowledge and ability in using an OBDII diagnostic scan tool to detect various engine and emission control malfunctions.
- Demonstrate comprehensive knowledge and ability in using a DSO to detect various system / component malfunctions.
- Evaluate a vehicle's OBD data to verify proper engine / emission controls management functionality- repair verification.

Diesel

- Prepare for ASE Engine Performance (A8) certification test content area "C" (Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair).
- Explain how a diesel engine works.
- Describe the difference between direct injection (DI) and indirect injection (IDI) diesel engines.
- List the parts of the typical diesel engine fuel system.
- Explain how glow plugs work.
- List the advantages and disadvantages of a diesel engine.
- Explain diesel fuel specifications.
- Identify the different types of injectors
- Identify the different types of injector nozzles
- Identify turbo chargers and boost controls
- List the advantages and disadvantages of biodiesel.
- Discuss API gravity.

- Explain E-diesel specifications.
- Learn about air supply requirements
- Turbo charging and blower operation
- Crank case ventilation
- PCM Sensors
- Intake throttle plates
- Intake filtering
- Identify emission control system
- Diagnose the onboard diagnostic system
- Understand diesel emissions output

Hybrid

- Describe the different types of hybrid electric vehicles.)
- Explain how a hybrid vehicle is able to achieve an improvement in fuel economy compared to a conventional vehicle design.
- Discuss the advantages and disadvantages of the various hybrid designs.
- Describe HEV components, including motors, energy sources, and motor controllers.
- Discuss the operation of a typical hybrid electric vehicle.
- Explain how a four-stroke-cycle gasoline engine operates.
- Explain the Atkinson cycle and how it affects engine efficiency.
- Describe the importance of using the specified oil in the engine of a hybrid-electric vehicle.
- Describe how the fuel injection and ignition systems work on hybrid gasoline engines.
- Explain how active control engine mounts function.
- Describe how wide-band oxygen sensors work.
- Explain how variable valve timing is able to improve engine power and reduce exhaust emissions
- Describe how auxiliary 12-volt and high-voltage hybrid vehicle batteries work
- List the safety precautions necessary when working with batteries
- Explain how to safely charge a battery
- Discuss how to jump start a vehicle safely
- Discuss hybrid electric vehicle auxiliary batteries
- Explain the types of high-voltage batteries used in most hybrid electric vehicles.
- Describe the operation of DC and AC electric motors.
- Discuss the advantages and disadvantages of using electric motors in hybrid electric vehicles.
- Explain how electric power steering works.
- Describe how a DC-to-DC converter works.

- Discuss how a DC-to-AC inverter works.
 - Describe how alternative fuels affect engine performance.
 - List alternatives to gasoline
 - Discuss how alternative fuels affect drivability
 - Explain how alternative fuels can reduce CO exhaust emissions
 - Discuss safety precautions when working with alternative fuel
 - Identify a Toyota/Lexus hybrid electric vehicle.
- Explain the operation of the various unique systems found in Toyota/Lexus hybrid electric vehicles.
- List the procedures necessary to depower the high-voltage circuits in Toyota/Lexus hybrid electric vehicles.
- Describe how to safely perform routine service on a Toyota/Lexus hybrid electric vehicle.
 - Identify Honda hybrid electric vehicles.
 - Describe how the Honda Integrated Motor Assist (IMA) system works.
 - Explain the precautions necessary when working on Honda hybrid electric vehicles
 - Describe the features and the operational characteristics of Honda hybrid electric vehicles
 - Explain the service procedures for Honda hybrid electric vehicles.
 - Explain the operation of a Ford/Mercury hybrid electric vehicle (HEV).
 - Describe the features of a Ford/Mercury HEV.
 - Discuss the safety precautions to be followed whenever working on a Ford/Mercury HEV.
 - Explain how the electronically controlled continuously variable transmission (CVT) allows the Ford/Mercury HEV to achieve maximum efficiency.
 - Describe the service procedures for Ford/Mercury HEVs.
- Identify General Motors hybrid electric and extended range electric vehicles
 - Describe how the parallel hybrid truck system works.
 - Describe the features and operating characteristics of the Saturn, Chevrolet, and Buick mild hybrids, and two-mode hybrid vehicles.
 - Describe how the Chevrolet VOLT works
 - Explain the precautions necessary when working on General Motors hybrid vehicles.
 - Explain the service procedures for General Motors hybrid vehicles.

Course Format & Methods of instruction:

- This is a lecture and hands on class

- Class consists of 720 hours of lecture and 120 hours of Hands on practical labs
- Each day will include a combination of lecture and labs to supports subjects learned in lecture. Class will formatted into 17 modules different hours in each. This allows for new students to start the class at the beginning of each module. Student must pass an assessment test for each module to get credit for the complete 720 program

Module	Automotive Performance Emissions Training	Clock hours
Module 1	Automotive Safety & Information	12
Module 2	Engine Technology	32
Module 3	Electrical Systems Technology	40
Module 4	Fuel Management Technology	40
Module 5	Diagnostic Tools & Test Equipment Operation	28
Module 6	Automotive Service and Administration	16
Module 7	Practical Applications	140
Module 8	Bar Specified Diagnostic Training-Alternative A6 Electrical	28
Module 9	Bar Specified Diagnostic Training-Alternative A8 Engine Performance	32
Module 10	Bar Specified Diagnostic Training-Alternative L1 Advanced Engine	36
Module 11	Inspector Level 1	68
Module 12	Inspector Level 2	28
Module 13	Bar Update Training	16
Module 14	Smog Examination Test-Prep	24
Module 15	Diesel Fundamentals and Emission Controls	120
Module 16	Direct Injection	20
Module 17	Hybrid Fundamentals and Safety	40
	TOTAL HOURS	720
	Total Cash Price	\$6954.00
	Total Price With Financial Aid	\$7203.00

Advanced Engine Performance Specialist

School Name: Smog Tech Institute

Course Name: Advanced Engine Performance specialist

Course Number: TBA

Program Title: Day Time Advanced Engine Performance specialist

Course Hours: 120

Course Completion: 3.75 weeks

Meeting Times: Weekdays 9:00AM – 6:00PM

Meeting Days: Monday, Tuesday, Wednesday & Thursday

Total Meetings: 15

Days Per Week: 4

Instructor's Name: Mark Keiser

Locations: 4070 North Palm St Fullerton, CA 92503 &
21208 Nordhoff St Chatsworth, CA 91311

Meeting Dates: TBD

Contact Information:

Phone: 714-441-1620

Email Address: mkeiser@smogtechinstitute.com

Course Description:

Vehicle Systems have become more complex over the years and it has become very difficult for technicians to keep up with this technology. This class was created to take the technician who already has a good automotive foundation and to enhance their diagnostic skills by teaching new techniques to enhance their bottom line and increase their profits. This course starts off with developing a sound diagnostic approach that can be applied to any repair. Technicians will learn how complicated computer network systems work and how to repair them. The technicians will learn the foundations for Global OBD II and how to use the system to repair vehicles. Proper use of circuit testers and Oscilloscopes, starting and charging system diagnostics including the new push button start systems, all ignition system theory and diagnosis, alternative and diesel fuels, all sensors used for fuel and timing controls air fuel ratio sensors, fuel trim diagnostic, electronic fuel injections systems and throttle control, emission control devices and how monitors work, and lastly emission based diagnosis. The materials utilized in this class are industry stander NATEF certified. These materials are

designed for higher education and have been perfected over the years. This course also includes time in the shop with practical labs to enhance materials learned in class. These labs will require the student to hook up a scan tool to monitor an OBD II system and determine codes, monitors readiness and mode 6 data and much more. Also included in the class is an online component that allows the technician to problem solve using online simulated technical concerns. At the end of this course students should have developed knowledge and skills necessary to diagnose all types of emission, OBD II, ignition, Network and other failures on modern vehicle systems. The certificate for completion is valid upon passing final exam.

Required Textbook:

- Advanced Engine Performance Specialist: provided by school as part of their paid tuition.

Required Materials:

- Textbook, given out the first night of class.
- Lab sheets will be provided during labs.
- Pencils, pens, and paper will be provided in classroom.
- My Automotive Lab for online Technical simulations. Access to web site is provided in book

Other Requirements:

- Students are expected to arrive to class on-time
- Cell phones should be on vibrate and no texting during class
- Participate in class discussions and labs.

Course Objectives: By completion student should have strong knowledge of

- Proper diagnostic processes
- Fundamentals of CAN Networks and diagnostic processes
- OBD II system operation and leveraging the ability of this system for diagnostics
- Proper use of circuit testers and Lab scopes.
- Charging and starting systems
- Ignition systems theory and testing
- Learn how each sensor interacts with the computer and how to test them when they fail
- Understand the importance of oxygen sensors and how to test them.

- Learn how monitors run test on emission control devices
- Understand the difference between port fuel injection and Direct fuel injection
- When the engine fails learn the test to determine the cause and the severity failure

Course Format & Methods of instruction:

- This is a lecture and hands on class
- Class consists of 90 hours of lecture and 30 hours of Hands on practical labs
- Each day will include a combination of lecture and labs to supports subjects learned in lecture. Class will formatted into 5 modules 24 hours each. This allows for new students to start the class at the beginning of each module.

Module	Advanced Engine Performance specialist	Clock hours
Module 01	Diagnostic processes	24
Module 02	Electronic, Electrical, Ignition and system theory and diagnostics	24
Module 03	Sensors and Actuators practical usage and diagnostics	24
Module 04	Fuel Injection systems operation and theory and diagnostics	24
Module 05	Emissions and emission control systems theory and diagnostics	24
	TOTAL HOURS	120
	Total cash price	\$2386.00
	Total price with financial aid	\$2636.00

Automotive Electrical Specialist

School Name: Smog Tech Institute

Course Name: Automotive Electrical Specialist

Course Number: TBA

Program Title: Day Time Automotive Electrical Specialist

Course Hours: 120

Course Completion: 3.75 weeks

Meeting Times: Weekdays 9:00AM – 6:00PM

Meeting Days: Monday, Tuesday, Wednesday & Thursday

Total Meetings: 15

Days Per Week: 4

Instructor's Name: Mark Keiser

Locations: 4070 North Palm St Fullerton, CA 92503 &
21208 Nordhoff St Chatsworth, CA 91311

Meeting Dates: TBD

Contact Information:

Phone: 714-441-1620

Email Address: mkeiser@smogtechinstitute.com

Course Description:

80 % of a time diagnosing a vehicle is spent working with electrical systems and components and vehicle electronics are becoming more sophisticated each year of new production vehicles. It is the objective of this course to start with the understanding the basic electrical foundation then move to the more advanced systems that are in use today. This class will tech Ohms law, Voltage Drop Testing, Opens, shorts, and circuit types. This course is for the beginner and the advanced electrical technician. This class will also offer broad understanding of electrical and Electronics that are used on vehicles today. This class will explain the use of volt meters and oscilloscopes and have hands on practice to put in to practice what is learned through lecture. It is the intent of the class to allow a technician to feel more comfortable while working around automotive electrical. This course utilizes Materials that are proven the industry and are NATEF certified. These materials are designed for higher education and have been perfected over the years. This manual also includes sound diagnostic strategies based on real world instruction. This course also includes time in the shop with practical labs to enhance materials learned in class. These labs will require the student to hook up a scan tool to monitor electronic systems, perform voltage drop test ohms test, amps test and much more.

Required Textbook:

- Automotive Electrical Specialist: provided by school as part of their paid tuition.

Required Materials:

- Textbook, given out the first night of class.
- Lab sheets will be provided during labs.
- Pencils, pens, and paper will be provided in classroom.
- My Automotive Lab for online Technical simulations. Access to web site is provided in book

Other Requirements:

- Students are expected to arrive to class on-time
- Cell phones should be on vibrate and no texting during class
- Participate in class discussions and labs.

Course Objectives: By completion student should have strong knowledge of

- Discuss the relationship among volts, amperes, and ohms.
- Explain how magnetism is used in automotive applications.
- Explain Ohm's law.
- Identify the parts of a complete circuit.
- Explain Watt's law.
- Describe the characteristics of an open, a short-to-ground, and a short-to-voltage.
- Identify a series, parallel circuit, series-parallel circuit.
- Calculate the total resistance in a parallel circuit.
- Calculate the total resistance in a parallel circuit.
- Discuss how to safely use a fused jumper wire, a test light, and a logic probe.
- Explain how to set up and use a digital meter to read voltage, resistance, and current.
- Explain meter terms and readings.
- Interpret meter readings and compare to factory specifications.
- Discuss how to properly and safely use meters.
- Explain the wire gauge number system.
- Describe how fusible links and fuses protect circuits and wiring.
- Discuss electrical terminals and connectors.
- Describe how to solder.
- Discuss circuit breakers and PTC electronic circuit protection devices.
- Explain the types of electrical conduit.

- List the steps for performing a proper wire repair.
- Interpret wiring schematics.
- Explain how relays work.
- Discuss the various methods that can be used to locate a short circuit.
- List the electrical troubleshooting diagnosis steps.
- Discuss the various methods that can be used to locate a short circuit.
- List the electrical troubleshooting diagnosis steps.
- Describe how a capacitor can store an electrical charge.
- Explain how a capacitor circuit can be used as a timer circuit.
- Explain magnetism.
- Describe how magnetism and voltage are related.
- Describe how an ignition coil works.
- Explain how an electromagnet works.
- Identify semiconductor components.
- Explain precautions necessary when working with semiconductor circuits.
- Discuss where various electronic and semiconductor devices are used in vehicles.
- Explain how diodes and transistors work.
- Describe how to test diodes and transistors.
- List the precautions that a service technician should follow to avoid damage to electronic components from electrostatic discharge.
- Describe the types of networks and serial communications used on vehicles.
- Discuss how the networks connect to the data link connector and to other modules.
- Explain how to diagnose module communication faults.
- List the precautions necessary when working with batteries.
- Explain how to safely charge a battery.
- Discuss how to perform a battery drain test.
- Describe how to perform a battery load test.
- Explain how to conduct a conductance test.
- Describe how the cranking circuit works.
- Discuss how a starter motor converts electrical power into mechanical power.
- Describe the hold-in and pull-in windings of a starter solenoid.
- List the parts of a typical alternator.
- Describe how an alternator works.
- Explain how the powertrain control module (PCM) controls the charging circuit.
- Describe how to perform a charging voltage test.
- Discuss how to perform an AC ripple voltage test.
- Explain how to perform an alternator output test.
- Explain how to disassemble an alternator and test its component parts.
- Discuss how to check the wiring from the alternator to the battery.

- Describe how to test the operation of a computer-controlled charging system.
- Read and interpret a bulb chart.
- Describe how interior and exterior lighting systems work.
- Read and interpret a bulb chart.
- Discuss troubleshooting procedures for lighting and signaling circuits.
- Be able to identify the meaning of dash warning symbols.
- Discuss how a fuel gauge works.
- Explain how to use a service manual to troubleshoot a malfunctioning dash instrument.
- Describe how a navigation system works.
- List the various types of dash instrument displays.
- Describe how the horn operates.
- List the components of a wiper circuit.
- Explain how the blower motor can run at different speeds.
- Discuss how to diagnosis faults in the horn, wiper, and blower motor circuits.
- Explain how the body control module or body computer controls the operation of electrical accessories.
- Explain how cruise control operates and how to diagnose the circuit.
- Describe how power door locks, windows, and seats operate.
- Describe how a keyless remote can be reprogrammed.
- Explain how the theft deterrent system works.
- List the appropriate safety precautions to be followed when working with airbag systems.
- Describe the procedures to diagnose and repair common faults in airbag systems.
- Explain how the passenger presence system works.
- Describe how AM and FM radio works.
- Explain how to test speaker polarity.
- Explain how to match speaker impedance.
- Explain how crossovers work.
- Describe how satellite radio works.
- Explain how Bluetooth systems work.
- Discuss voice recognition systems.
- List causes and corrections of radio noise and interference.

Course Format & Methods of instruction:

- This is a lecture and hands on class
- Class consists of 90 hours of lecture and 30 hours of Hands on practical labs
- Each day will include a combination of lecture and labs to supports subjects learned in lecture. Class will formatted into 5 modules 24 hours each. This allows for new students to start the class at the beginning of each module.

Course Modules

Module	Automotive Electrical Specialist	Clock hours
Module 01	Electrical Fundamentals	24
Module 02	Electrical Testing and components	24
Module 03	Battery, Charging and Starting Systems	24
Module 04	Electrical accessories	24
Module 05	Heating and Air-conditioning	24
	TOTAL HOURS	120
	Total Cash Price	\$2386.00
	Total Price with Financial Aid	\$2636.00

Diesel Automotive Specialist

School Name: Smog Tech Institute

Course Name: Diesel Automotive Specialist

Course Number: TBA

Program Title: Day Time Diesel Automotive Specialist

Course Hours: 120

Course Completion: 3.75 weeks

Meeting Times: Weekdays 9:00AM – 6:00PM

Meeting Days: Monday, Tuesday, Wednesday & Thursday

Total Meetings: 15

Days Per Week: 4

Instructor's Name: Mark Keiser

Locations: 4070 North Palm St Fullerton, CA 92503 &
21208 Nordhoff St Chatsworth, CA 91311

Meeting Dates: TBD

Contact Information:

Phone: 714-441-1620

Email Address: mkeiser@smogtechinstitute.com

Course Description:

Diesels are becoming more and more popular here in the USA every year. Diesel technology has improved over the years and the emissions are now comparable with that of gasoline engines and it stands that many manufacturers will now include the diesel power plants in their fleets due to their efficiency and improved millage. There is a general lack of understanding how diesel engines and fuel systems work and this course will address this lack of understanding by teaching students about diesel combustion principles, Types of fuel systems, Emissions systems and controls, Intake systems, onboard diagnostics and much more. This manual utilizes Materials that are proven the industry and are NATEF certified. These materials are designed for higher education and have been perfected over the years. This manual also includes sound diagnostic strategies based on real world instruction. This course also includes time in the shop with practical labs to enhance materials learned in class. These labs will require the student to hook up a scan tool to monitor a diesel OBD II system and determine codes, monitors readiness and mode 6 data.

At the end of this course students should have developed knowledge and skills necessary to diagnose tailpipe emissions and OBD II system failures on Diesel

fuel and emission systems. The certificate for completion is given upon completion of all course hours and passing final exam.

Required Textbook:

- Diesel Automotive Specialist: provided by school as part of their paid tuition.

Required Materials:

- Textbook, given out the first night of class.
- Lab sheets will be provided during labs.
- Pencils, pens, and paper will be provided in classroom.
- My Automotive Lab for online Technical simulations. Access to web site is provided in book

Other Requirements:

- Students are expected to arrive to class on-time
- Cell phones should be on vibrate and no texting during class
- Participate in class discussions and labs.

Course Objectives: By completion student should have strong knowledge of

- Prepare for ASE Engine Performance (A8) certification test content area “C” (Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair).
- Explain how a diesel engine works.
- Describe the difference between direct injection (DI) and indirect injection (IDI) diesel engines.
- List the parts of the typical diesel engine fuel system.
- Explain how glow plugs work.
- List the advantages and disadvantages of a diesel engine.
- Explain diesel fuel specifications.
- Identify the different types of injectors
- Identify the different types of injector nozzles
- Identify turbo chargers and boost controls
- List the advantages and disadvantages of biodiesel.
- Discuss API gravity.
- Explain E-diesel specifications.
- Learn about air supply requirements
- Turbo charging and blower operation
- Crank case ventilation

- PCM Sensors
- Intake throttle plates
- Intake filtering
- Identify emission control system
- Diagnose the onboard diagnostic system
- Understand diesel emissions output

Course Format & Methods of instruction:

- This is a lecture and hands on class
- Class consists of 90 hours of lecture and 30 hours of Hands on practical labs
- Each day will include a combination of lecture and labs to supports subjects learned in lecture. Class will formatted into 5 modules 24 hours each. This allows for new students to start the class at the beginning of each module.

Course Modules

Module	Automotive Diesel Specialist	Clock hours
Module 01	Diesel engine operating principals	28
Module 02	Diesel Fuel Systems	36
Module 03	Air induction and exhaust systems	20
Module 04	Emission systems	20
Module 05	On board Diagnostics	16
	TOTAL HOURS	140
	Total Cash Price	\$2386.00
	Total Price with Financial Aid	\$2636.00

Hybrid Specialist

School Name: Smog Tech Institute

Course Name: Hybrid Specialist

Course Number: TBA

Program Title: Day Time Hybrid Specialist

Course Hours: 120

Course Completion: 3.75 weeks

Meeting Times: Weekdays 9:00AM – 6:00PM

Meeting Days: Monday, Tuesday, Wednesday & Thursday

Total Meetings: 15

Days Per Week: 4

Instructor's Name: Mark Keiser

Locations: 4070 North Palm St Fullerton, CA 92503 &
21208 Nordhoff St Chatsworth, CA 91311

Meeting Dates: TBD

Contact Information:

Phone: 714-441-0620

Email Address: mkeiser@smogtechinstitute.com

Course Description:

Hybrids are becoming Mainstream in the USA and as the EPA mandates stricter requirements for gas mileage and emissions the manufacturers will be forced to produce more of them to meet these demands. The California smog program will begin certifying Hybrids soon and as it stands smog technicians have very limited exposure to even the basics on these complex vehicles. It is the intention of this class to teach hybrids from a generic prospective and to give basic understanding of all the systems involved that could be of potential danger. This class will also offer a fundamental understanding in the use of hybrid technology in terms of Series and Parallel Design. This class will expand on the use of generators, inverters, converters, Internal Combustion Engine Design and Features, Heating and ventilation and a quick look at the successful Toyota hybrids. Safety is a major concern and this book will give a thorough understanding of the difference between high voltage and low voltage systems and show technicians proper procedures for powering down the high voltage system. It is the intent of the class to allow a technician to feel more comfortable while working around or with hybrid technology.

This course utilizes Materials that are proven the industry and are NATEF certified. These materials are designed for higher education and have been

perfected over the years. This manual also includes sound diagnostic strategies based on real world instruction. This course also includes time in the shop with practical labs to enhance materials learned in class. These labs will require the student to hook up a scan tool to monitor a diesel OBD II system and determine codes, monitors readiness and mode 6 data. This course will give the student critical safety techniques and fundamental understanding of hybrid vehicles.

Required Textbook:

- Hybrid Specialist: provided by school as part of their paid tuition.

Required Materials:

- Textbook, given out the first night of class.
- Lab sheets will be provided during labs.
- Pencils, pens, and paper will be provided in classroom.
- My Automotive Lab for online Technical simulations. Access to web site is provided in book

Other Requirements:

- Students are expected to arrive to class on-time
- Cell phones should be on vibrate and no texting during class
- Participate in class discussions and labs.

Course Objectives: By completion student should have strong knowledge of

- Describe the different types of hybrid electric vehicles.)
- Explain how a hybrid vehicle is able to achieve an improvement in fuel economy compared to a conventional vehicle design.
- Discuss the advantages and disadvantages of the various hybrid designs.
- Describe HEV components, including motors, energy sources, and motor controllers.
- Discuss the operation of a typical hybrid electric vehicle.
- Explain how a four-stroke-cycle gasoline engine operates.
- Explain the Atkinson cycle and how it affects engine efficiency.
- Describe the importance of using the specified oil in the engine of a hybrid-electric vehicle.
- Describe how the fuel injection and ignition systems work on hybrid gasoline engines.
- Explain how active control engine mounts function.
- Describe how wide-band oxygen sensors work.
- Explain how variable valve timing is able to improve engine power and reduce exhaust emissions

- Describe how auxiliary 12-volt and high-voltage hybrid vehicle batteries work
- List the safety precautions necessary when working with batteries
- Explain how to safely charge a battery
- Discuss how to jump start a vehicle safely
- Discuss hybrid electric vehicle auxiliary batteries
- Explain the types of high-voltage batteries used in most hybrid electric vehicles.
- Describe the operation of DC and AC electric motors.
- Discuss the advantages and disadvantages of using electric motors in hybrid electric vehicles.
- Explain how electric power steering works.
- Describe how a DC-to-DC converter works.
- Discuss how a DC-to-AC inverter works.
- Describe how alternative fuels affect engine performance.
- List alternatives to gasoline
- Discuss how alternative fuels affect drivability
- Explain how alternative fuels can reduce CO exhaust emissions
- Discuss safety precautions when working with alternative fuel
- Identify a Toyota/Lexus hybrid electric vehicle.
- Explain the operation of the various unique systems found in Toyota/Lexus hybrid electric vehicles.
- List the procedures necessary to depower the high-voltage circuits in Toyota/Lexus hybrid electric vehicles.
- Describe how to safely perform routine service on a Toyota/Lexus hybrid electric vehicle.
- Identify Honda hybrid electric vehicles.
- Describe how the Honda Integrated Motor Assist (IMA) system works.
- Explain the precautions necessary when working on Honda hybrid electric vehicles
- Describe the features and the operational characteristics of Honda hybrid electric vehicles
- Explain the service procedures for Honda hybrid electric vehicles.
- Explain the operation of a Ford/Mercury hybrid electric vehicle (HEV).
- Describe the features of a Ford/Mercury HEV.
- Discuss the safety precautions to be followed whenever working on a Ford/Mercury HEV.
- Explain how the electronically controlled continuously variable transmission (CVT) allows the Ford/Mercury HEV to achieve maximum efficiency.
- Describe the service procedures for Ford/Mercury HEVs.

- Identify General Motors hybrid electric and extended range electric vehicles
- Describe how the parallel hybrid truck system works.
- Describe the features and operating characteristics of the Saturn, Chevrolet, and Buick mild hybrids, and two-mode hybrid vehicles.
- Describe how the Chevrolet VOLT works
- Explain the precautions necessary when working on General Motors hybrid vehicles.
- Explain the service procedures for General Motors hybrid vehicles.

Course Format & Methods of instruction:

- This is a lecture and hands on class
- Class consists of 90 hours of lecture and 30 hours of Hands on practical labs
- Each day will include a combination of lecture and labs to supports subjects learned in lecture. Class will formatted into 5 modules 24 hours each. This allows for new students to start the class at the beginning of each module.

Course Modules

Module	Hybrid Specialist	Clock hours
Module 01	Introduction to hybrid vehicle	24
Module 02	Hybrid power systems	24
Module 03	Hybrid Transmission and Ventilation systems	24
Module 04	Hybrid from manufactures systems prospective	24
Module 05	Hybrid safety ad vehicle diagnostics	24
	TOTAL HOURS	120
	Total Cash Price	\$2386.00
	Total Price with financial Aid	\$2636.00