AVI ON-SITE

LIVE TRAINING CATALOG

Accredited Training Provider

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LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

A Series - Automobile & Light Truck

Brakes

Course Code	ASE	Course Name	Audience	Icons	CEU
FL-1A109-03-LEC	A1	Cooling Systems and Coolants			3 - 4

Description

Vehicle functional requirements, emission regulations, and performance all impact on the cooling systems. Severe climates, disrupted air or water flow, and coolant routing present unique challenges to technicians servicing vehicle cooling systems. This course introduces the components, diagnostics and service that affect cooling system operation and performance.

The goal of this course is to introduce technicians and service personnel to the basic principles of cooling systems for light and medium duty vehicles. Participants will learn about components that are directly and indirectly related to coolant flow, system pressure, fans, radiators, heater cores, closed loop thermal recirculation, and overall system performance. Basic concepts will be reinforced with examples and a cooling performance calculation of a typical automotive cooling system.

Objective

By participating in this course, you'll be able to:

- Understanding the relationship of the cooling system and efficient engine operation
- Identifying design and functional features of individual cooling system components
- Discuss various types of cooling fluids and the use in associated vehicles
- Identifying maintenance procedures applicable to cooling systems
- Diagnose cooling airflow issues
- Describe radiator/ heat exchanger operation sizing and factors that influence thermal effectiveness and performance.
- Diagnose heater core failure and describe procedures to repair
- Troubleshoot electrical issues related to the operation of a cooling system
- Explain the impact of coolant system issues to closed loop and ignition system operation
- Diagnose cooling system issues using pressure testing.
- Diagnose thermostat and water pump failure
- Perform transmission and A/C diagnostics to verify proper cooling system operation

Course Code	ASE	Course Name	Audience	Icons	CEU
SS-4A109-03-LEC	A4	Alignment Angles - Need to build out			3 - 4

Description

In its most basic form, a wheel alignment consists of adjusting the angles of the wheels so that they are perpendicular to the ground and parallel to each other. The purpose of these adjustments is maximum tire life and a vehicle that tracks straight and true when driving along a straight and level road. This course covers important steps used to perform different alignment on a variety of vehicles.

Objective

- Perform a pre-alignment inspection
- Interpret alignment angles
- Determine proper alignment procedure
- Recognize scrub radius changes
- Determine tow out on turns
- Analyze vehicle symmetry

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Brakes

Course Code	ASE	Course Name	Audience	Icons	CEU
BK-5A109-03-LEC	A5	Brake System Service			3 - 4

Description

Brake System Service is a 4-hour classroom instructional session covering proper brake service on today's modern vehicles. Participants will also learn about power assist, ABS, parking, and drum brake systems and associated components.

Topics include: Hydraulic systems, fluids, lines, hoses, valves, switches, repair, power assist units, and various strategies for associated electrical systems.

This course is ideal for both the new student looking to learn about braking systems and the more seasoned automotive professional seeking diagnostic techniques and ASE A-5 test preparation assistance.

Objective

- Describe Standard Brake System Components and Operation
- Explain Master Cylinder Operation and Repair Procedures
- Review Brake Bleeding, Flushing, and Leak Testing Procedures
- Describe Drum Brake Diagnosis and Repair
- Describe Disc Brake Diagnosis and Repair
- Understand Brake Power Assist Units
- Describe Anti-Lock Braking Systems, Diagnosis and Repair

Course Code	ASE	Course Name	Audience	Icons	CEU
BK-5A109-16-HOT	A5	Brake System Service			16
BK-5A109-24-HOT					24

Description

In this hands-on workshop, your instructor will present information on how to perform proper brake service on today's modern vehicles, as well as practical information on hydraulic, power assist, parking, and drum brake systems and associated components such as wheel bearings and brake control units.

Topics include: Hydraulic systems, fluids, lines, hoses, valves, switches, repair, power assist units, and various strategies for associated electrical systems.

This course is ideal for both the new student looking to learn about braking systems and the more advanced technician seeking diagnostic techniques and ASE A-5 test preparation assistance.

Objective

- Describe Standard Brake System Components and Operation
- Understand Hydraulic Braking Systems and Components
- Explain Master Cylinder Operation and Repair Procedures
- Recall Brake Bleeding, Flushing, and Leak Testing Procedures
- Describe Drum Brake Diagnosis and Repair Schemas Understand Brake Power Assist Units
- Relate Disc Brake Systems, Diagnostics and Repair
- Illustrate the Operation of Non-ABS Brake Valves and Switches
- Describe Anti-Lock Braking Systems, Diagnosis and Repair

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Electrical & Electronics

Course Code	ASE	Course Name	Audience	Icons	CEU
EL-6A109-16-HOT	A6	Electrical Fundamentals	C, Gen Svc		16

Description

This comprehensive 2 day session will provide the entry level teammates with the core skills that will allow them to develop into a skilled A-level technician in the future. Practical hands-on training will be performed by the teammate on electrical testing training aids. All learning will be reinforced with hands-on exercises. Electrical testing boards for hands-on testing will be provided during class.

Objective

- Recognize the Personal Protection Equipment needed and understand the correct procedures and applications.
- Gain confidence in how best to utilize your multimeter and apply its different functions.
- Read and interpret Schematic Diagrams
- Perform real world testing and learn use the results as part of a diagnostic strategy.
- Understand the benefits of performing voltage drop testing versus open circuit resistance testing.
- Use Ohm's law to identify component level failures and describe where it falls short.
- Apply electrical theories to identify component level failures.

Course Code	ASE	Course Name	Audience	Icons	CEU
EL-6A109-08-HOT	A6	Electrical Fundamentals	C, Gen Svc		8

Description

Looking to get your entry level and novice techs familiar with the fundamentals of electrical system diagnostics? AVI's 8-hour Hands on Entry Level Electrical training is a great place to start. Participants will learn essential skills and concepts using our e-trainer boards. They will apply concepts including circuit types, Ohm's law and voltage drop testing as identifying primary components used on most vehicles today. This training is a great launching point for engaging your team in learning that will benefit the productivity of your shop!

Objective

- Recognize the Personal Protection Equipment needed and understand the correct procedures and applications.
- Familiarity with your multimeter; identify all of its different functions.
- Read and interpret Schematic Diagrams
- Perform real world testing and learn what the results mean.
- Perform voltage drop testing and open circuit resistance testing.
- Become familiar with Ohm's Law and use it to solve shorts to ground.
- Understand basic electrical theories.

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AVI ON-SITE

Electrical & Electronics

Course Code	ASE	Course Name	Audience	Icons	CEU
EL-6A110-16-HOT	A6	Electrical Diagnostic Strategies	A, B		16

Description

Electrical Diagnostic Strategies

Objective

- Recognize the Personal Protection Equipment needed and understand the correct procedures and applications.
- Identify circuit requirements and build circuits using real world components.
- View current flow between components using a DVOM.
- Examine the load on different types of circuits and components
- Build and test series and parallel circuits
- Apply voltage drop testing to identify the power consumption of a component and determine why it is not functioning correctly.
- Describe aftermarket grounding kits and what they are used for.
- Examine solenoids and relays and describe their operation and troubleshooting.

Course Code	ASE	Course Name	Audience	Icons	CEU
EL-6A110-08-HOT	A6	Electrical Diagnostic Strategies	A, B		8

Description

For technicians with a good grasp of basic electrical concepts and principles, this training will amp your skills up to a higher level. Building on the foundations of our entry level electrical course, this 8 hour intermediate level electrical training goes into greater detail and applies more sophisticated diagnostic processes to complex circuits found on modern vehicles.

Objective

- Recognize the Personal Protection Equipment needed and understand the correct procedures and applications.
- Use schematic diagrams to identify specific components
- Identify circuit requirements
- Explain current flow
- Identify testing differences between series and parallel circuits
- Select different methods of measuring current flow
- Perform volt drop testing on circuits

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Electrical & Electronics

Course Code	ASE	Course Name	Audience	Icons	CEU
EL-6A209-08-HOT	A6	Introduction to Lab Scopes	C, B		8
EL-6A209-03-LEC					3 - 4

Description

In this hands-on course, you will learn how to set your scope to capture the signals you will use to diagnose faults in today's cars. From gathering preliminary baseline signals to deep diagnostics with pressure waveform we will teach you the processes required to be successful with your scope. We encourage you to bring your lab scope to use in class. Learning how to diagnose with your tools is the best way to learn! Accelerate your automotive diagnostic skills with our Automotive Lab Scope Diagnostics course. Dive into the world of oscilloscopes and learn to interpret waveforms for pinpoint accuracy in identifying vehicle issues. Explore hands-on exercises and real-world case studies to master the art of using lab scopes for quick and efficient troubleshooting. This course empowers you to elevate your diagnostic prowess, making you indispensable in the rapidly evolving field of electrical automotive technology.

Objective

- Gain confidence in how best to utilize your lab scope and all of its different functions.
- Perform real world testing and learn what the results mean.
- Learn about all the different systems you can test with your lab scope and what good waveforms look like compared to faulty ones.
- Become familiar with pressure transducers and all of their applications.
- Understand how and when to integrate lab scope usage into your diagnostic routines.

Course Code	ASE	Course Name	Audience	Icons	CEU
EL-6A210-16-HOT	A6	Advanced Lab Scope Testing Techniques	A & B Technicians, Shop Foreman/Lead Technician, Owners/ Managers & Vocational Instructors		16

Description

In this hands-on course, you will learn how to set your scope to capture the signals you will use to diagnose faults in today's cars. From gathering preliminary baseline signals to deep diagnostics with pressure waveform we will teach you the processes required to be successful with your scope. We encourage you to bring your lab scope to use in class. Learning how to diagnose with your tools is the best way to learn! Accelerate your automotive diagnostic skills with our Automotive Lab Scope Diagnostics course.

Objective

- Gain confidence in how best to utilize your lab scope and all of its different functions.
- Use schematic diagrams to identify components and apply how they relate to complex systems
- Perform real world testing and learn what the results mean.
- Learn about all the different systems you can test with your lab scope and what good waveforms look like compared to faulty ones.

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Electrical & Electronics

Description

Dive into the world of oscilloscopes and learn to interpret waveforms for pinpoint accuracy in identifying vehicle issues. Explore hands-on exercises and real-world case studies to master the art of using lab scopes for quick and efficient troubleshooting. This course empowers you to elevate your diagnostic prowess, making you indispensable in the rapidly evolving field of electrical automotive technology.

Objective

- Become familiar with pressure transducers and all of their applications.
- Understand how and when to integrate lab scope usage into your diagnostic routines.

Course Code	ASE	Course Name	Audience	Icons	CEU
EL-6A309-03-LEC	A6	Modern Lighting Systems			3
EL-6A309-08-HOT		Modern Lighting Systems Workshop			8

Description

Headlights have been a part of automobiles back to the beginning when lanterns were used as headlights. Headlights serve one main purpose which is to illuminate the road. Headlight bulbs have evolved from simple filaments to complex HID, LED, and laser designs. Headlights must provide enough light at highway speeds to ensure the safety of the driver but at the same time cannot blind oncoming traffic. Nanotechnology has led to LED micromirror designs that were not possible in the earlier years of the automobile. This course will explore new headlight designs, and break down the differences between Candelas, lumens, watts, Kelvin, and pixels. This course covers generic headlight aiming procedures and DOT regulations. We have also included a section on headlight control systems which illustrates the complex design used in late model vehicles.

Objective

Topics:

- Modern Lighting Overview
- Modern Lighting/Adaptive Headlights
- Modern Lighting Testing
- Modern Lighting Controls
- Aiming Headlights
- Diagnostics

Course Objectives:

- Define the difference between candela, lumens, lux, and kelvin temperature
- Measure light output with a Lux meter
- Determine the difference between HID, LED, laser, and halogen lights
- Recognize the difference between projector and reflector lights
- Identify all the different adaptive lighting features

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Heating & Air Conditioning

Course Code	ASE	Course Name	Audience	Icons	CEU
AC-7A609-03-LEC	A7	Advanced A/C - 609 Certification			3 - 4

Description

This live 4-hour instructor-led course will educate the automotive air conditioning technician on the new trends in both systems and refrigerants and the diagnostic tools and techniques needed to repair today's advanced A/C systems.

A heavy emphasis will be placed on automatic temperature control systems, R-1234yf, and advanced procedures and tools, pressure gauges, reclaimers/recyclers, and thermal imaging cameras

Objective

- A/C System Evolution
- Advanced Pressure Gauge Usage
- New Uses for Scan Tools in A/C Diagnostics
- PIDs and the Automatic Temperature Control System
- Advanced Leak Detection
- R-1234yf and Legacy Refrigerants
- A/C Diagnostics Using Thermal Imaging
- New A/C Components Such As Plastic Pressure Lines and "Line in Line"

Course Code	ASE	Course Name	Audience	Icons	CEU
AC-7A110-03-LEC	A7	Air Conditioning & Heating Systems			3 - 4

Description

This live classroom training will explain and all thermal-related vehicle system's fundamentals, laying out practical tips for the working tech who wants to become more experienced with heating and air conditioning systems. HVAC is becoming more complex in today's vehicles, and this course will present both traditional and cutting-edge HVAC diagnostic procedures. As the days of simple air conditioning and heating repairs are long gone, the savvy technician must develop new strategies for maintaining and repairing today's HVAC systems.

This course will cover conventional HVAC systems and discuss electric and hybrid electric heating and cooling systems.

Objective

- Understand the Difference Between Conventional and Electric Vehicle HVAC Systems
- Describe the Difference Between R-134a and R-1234yf Systems
- Explain Proper HVAC Testing Procedures
- Explain When a Scan Tool Can Help
- Describe Common Causes of Failures of HVAC Components
- List Common HVAC Diagnostic, Recovery, and Maintenance tTools
- Identify When to Flush and When to Replace Components
- Define an Automotive HVAC System

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Heating & Air Conditioning

Course Code	ASE	Course Name	Audience	Icons	CEU
AC-7A110-08-HOT	A7	Air Conditioning & Heating Systems Workshop			8

Description

This 8 hour, hands-on training will demonstrate thermal-related vehicle system's fundamentals, laying out practical tips for the working tech who wants to become more experienced with heating and air conditioning systems. HVAC is becoming more complex in today's vehicles, and this course presents both traditional and cutting-edge HVAC diagnostic procedures. As the days of simple air conditioning and heating repairs are long gone, the savvy technician must develop new strategies for maintaining and repairing today's HVAC systems.

This course gives participants hands-on training on conventional HVAC systems as well as becoming familiar with electric and hybrid electric heating and cooling systems.

Objective

- Understand the Difference Between Conventional and Electric Vehicle HVAC Systems
- Describe the Difference Between R-134a and R-1234yf Systems
- Explain Proper HVAC Testing Procedures
- Explain When a Scan Tool Can Help
- Describe Common Causes of Failures of HVAC Components
- List Common HVAC Diagnostic, Recovery, and Maintenance Tools
- Identify When to Flush and When to Replace Components
- Define an Automotive HVAC System

Engine Performance

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A109-03-LEC	A8	CAN/FD CAN			3 - 4

Description

Effectively diagnosing C.A.N./C.A.N. FD concerns poses a significant challenge to diagnostic technicians. This intensive course offers unparalleled coverage of the design, operation, and testing of C.A.N. FD systems. Students will be presented with an overview of multiplexing, networking systems and how the various modules are integrated onto a common communication network.

Objective

Advantages and disadvantages of this process from both a design and diagnostic view.

- **Types of CAN:** (Loop/Star) the two common ways these vehicles are wired by way of the loop and star configurations. They will learn the necessary steps involved with isolating various modules on each of these designs.
- **High Speed vs. Low:** difference between high and low speed circuits, and the priority of various modules dictating their placements. They will also be presented with various node and sub node scenarios.
- **Diagnosing with scan tools:** how to use a scan tool effectively to diagnose various types of network issues, including the dreaded no communications message.
- **Case studies reviewed:** Case studies utilizing various tooling will be used to show the thought process used when confronted with a controller area networking issue.

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Engine Performance

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A108-08-HOT	A8	Enhanced Networking Diagnostics			8

Description

Enhanced Networking Diagnostics offers comprehensive training on two key network types used in modern vehicles: C.A.N. and C.A.N. FD. This course covers the theory, operation, and diagnostics of automotive, light, and heavy-duty truck communication networks, along with the procedures and tools necessary for effective analysis. Our mobile training program delivers Enhanced Networking Diagnostics to repair shops, schools, municipalities, and warehouse distributors, helping them gain a deeper understanding of these intricate network systems. The course is designed for A and B Service Technicians, service professionals, and Automotive Technology Instructors seeking to enhance their skills in diagnosing and servicing modern vehicles. The training is delivered on location and features a hybrid approach that combines PowerPoint presentations, videos, case studies, and hands-on exercises. ASE-certified instructors lead these sessions, providing practical demonstrations in a workshop environment. Trainees also have access to online videos and courseware before and after the class to reinforce their learning.

Objective

- Identify different network types
- Measure operating speed of a network
- Determine best network testing method for multiple types of networks
- Decode CAN communications
- Interpret CAN lab scope waveforms
- Analyze transceiver operation
- Use network wiring diagrams to identify components and effectively repair network systems
- Distinguish between CAN & CAN FD
- Differentiate between various types of automotive ethernet protocols
- Describe LIN Mapping and its application for controlling vehicle accessories
- Describe functions of STAR and Loop configurations in newer network applications
- Repair twisted pair wiring
- Correctly use test equipment required for diagnostics and repair
- Apply a troubleshooting approach to simplify complicated network systems

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A110-03-LEC	A8	Push Button Automatic Start-Stop Systems			3

Description

Automatic start-stop is an emerging, and evolving technology. Automatic start-stop technology is used in many vehicles as a strategy to increase fuel economy, as well as reduce exhaust emissions. With vehicles using this technology, there's no more fumbling with your keys, and trying to find the lock in the dark. Your vehicle will sense the presence of the key/fob on your person and electronically unlock the door for you. Along with this convenience come the diagnostic challenges from the key fob to the starter and everything in between. This course presents the systems and diagnostic strategies today's technicians should use in troubleshooting these systems.

Objective

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Engine Performance

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A111-03-LEC	A8	Ford Engine Performance			3 - 4

Description

Ford systems have changed over the years leaning toward turbocharged vehicles with dual fuel systems. New technology requires training. This class will cover Ford's new cloud-based scan tool along with the new J2716 SENT sensor protocol. We will also explore variable cam timing systems and the inherent problems they present. We will discuss new issues arising in cam and crank signal testing and dive into the triple spark ignition systems.

Objective

- Identify features of the FDRS
- Diagnose new technology sensors
- Analyze critical sensors
- Determine throttle body faults
- Diagnose variable cam timing issues

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A113-03-LEC	A8	Ford FDRS Scanner Diagnostics			3 - 4
EP-8A113-08-HOT					8

Description

If you're a technician working on Ford vehicles, you may have heard of FDRS. Short for Ford Diagnostic and Repair System. FDRS is a powerful diagnostic tool used by Ford dealerships and repair shops worldwide to interface with the systems, networks and components found on modern Ford products. The FDRS is next generation scan tool technology designed to interface with the multi-network, multi-control module vehicles of today. This interactive class provides technicians with the skills and knowledge required for using this tool.

Objective

Topics include:

- Setting you the FDRS including, components, preferences, vehicle identification
- Multi-module self-testing and datalogger
- Active Commands
- Module programming
- FDRS Self-Tests
- DTC Types and Interpretation
- Network Monitor, Power Balance, Relative Compression, Misfire Monitor
- Programmable Module Installation (PMI)
- FDRS Service Functions

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A113-16-HOT	A8	Ford FDRS Scanner Diagnostics			

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A113-24-HOT	A8	Ford FDRS Scanner Diagnostics			

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Engine Performance

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A114-03-LEC	A8	GM Engine Performance			3 - 4

Description

Discover the cutting-edge world of General Motors Diagnostics with our General Motors Diagnostics course. This course provides the knowledge and skills you need to excel in diagnosing and repairing GM vehicles. Master the GM Global Diagnostic System (GDS) scan tool and learn to navigate its advanced features for efficient vehicle trouble-shooting. Identify common engine problems quickly and accurately, and gain proficiency in essential transmission procedures to ensure optimal vehicle performance. Stay ahead in the industry by recognizing new sensor technologies and understanding their applications in GM vehicles. Enhance your diagnostic capabilities with a focus on brushless low-pressure fuel pumps, equipping yourself to handle complex fuel system issues.

Objective

- Describe the use of GDS scan tool
- Identify common engine problems
- Identify important transmission procedures
- Recognize new sensor technology
- Diagnose brushless low pressure fuel pumps

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A115-03-LEC	A8	Catalyst Efficiency, Misfire, and EGR Systems			3 - 4

Description

This comprehensive live course is designed for automotive service professionals seeking to deepen their understanding of EGR misfire and catalyst diagnostics. Participants will learn to:

Define What a Misfire Is: Gain a clear understanding of what constitutes a misfire and its impact on vehicle performance.
Identify Possible Misfire Causes: Explore the various causes of misfires, including ignition system failures, fuel delivery issues, and mechanical problems.
Identify Misfire Tools: Learn about the essential diagnostic tools and equipment used to detect and analyze misfires.
Identify EGR System Components: Understand the components of the Exhaust Gas Recirculation (EGR) system and their functions in emission control.
Analyze EGR NOx Failures: Delve into the common causes of EGR-related NOx emissions failures and learn diagnostic strategies to address them.

Objective

- Identify most common type of ignition systems
- Examine spark plug to help identify combustion problems
- Analyze primary ignition waveforms
- Analyze secondary ignition waveforms
- Recognize ignition transistor failure
- Interpret cam and crank sensor waveforms

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Engine Performance

Description

Interpret Catalyst Mode 6 Test Results: Acquire skills to interpret Mode 6 data for catalyst efficiency and identify potential issues.
Analyze O2 Sensor Operation: Learn to analyze oxygen sensor data to ensure proper engine and emission system performance.

This course combines theoretical knowledge with practical diagnostic techniques, providing attendees with the skills necessary to effectively diagnose and repair EGR misfire and catalyst-related issues.

Objective

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A116-03-LEC	A8	Ignition Systems			3 - 4

Description

Whether you're new to ignition systems or looking to deepen your diagnostic skills, this course provides hands-on experience and expert guidance to elevate your proficiency in automotive ignition technology. Unlock the secrets of automotive ignition systems with AVI's specialized course designed for automotive professionals. In this comprehensive training, you will delve into the heart of vehicle performance and diagnostics by mastering the intricacies of ignition systems. Gain a thorough understanding of the most common types of ignition systems, from traditional distributor-based setups to modern coil-on-plug configurations, ensuring you're equipped to tackle any vehicle model. Learn to harness the power of spark plug analysis to uncover underlying combustion issues, from misfires to fuel mixture irregularities. Dive into the realm of ignition waveform analysis, where you'll decipher both primary and secondary ignition patterns to pinpoint ignition system faults and optimize engine performance. Explore the nuances of ignition transistor failures and their impact on engine operation, mastering techniques to diagnose and rectify these issues efficiently. Develop expertise in interpreting camshaft and crankshaft sensor waveforms, essential for diagnosing timing-related problems and ensuring precise engine synchronization. Join us and unlock the key to diagnosing and optimizing ignition systems with confidence.

Objective

- Identify most common type of ignition systems
- Examine spark plug to help identify combustion problems
- Analyze primary ignition waveforms
- Analyze secondary ignition waveforms
- Recognize ignition transistor failure
- Interpret cam and crank sensor waveforms

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Engine Performance

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A117-03-LEC	A8	Misfire Diagnostics			3 - 4

Description

A misfire, the moment when an engine cylinder fails to ignite the air-fuel mixture at the right time, is more than just an annoyance; it's a critical indicator of engine health and performance. In this course, you'll dive deep into understanding the root causes of misfires, ranging from mechanical issues such as worn piston rings or valves to ignition and fuel system anomalies like faulty spark plugs, coils, or injectors. Equip yourself with specialized misfire diagnostic tools and techniques tailored for precise troubleshooting. Learn to interpret scope waveforms with precision, uncovering vital insights into ignition timing, cylinder pressure variations, and fuel delivery dynamics crucial for pinpointing misfire origins. Master the skills to diagnose mechanical-related misfires, where issues with engine components directly affect cylinder performance. Explore the complexities of ignition and fuel-related misfires, where anomalies in spark generation or fuel mixture distribution disrupt combustion efficiency. By the end of this course, you'll be equipped with the expertise to confidently diagnose and resolve misfires, ensuring optimal engine performance and reliability for your customers. Join us and elevate your diagnostic prowess in automotive engine misfire troubleshooting.

Objective

- Define what a misfire is
- Identify possible misfire causes
- Identify misfire tools
- Diagnose mechanical related misfires
- Diagnose Ignition/fuel related misfires
- Interpret scope waveforms

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A118-24-HOT	A8	Drivability Diagnostics with Launch Scan Tools	B Tech		

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A119-03-LEC	A8	GDI			

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A120-03-LEC	A8	Is It The Engine?			

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Engine Performance

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A121-03-LEC	A8	Is It The Fuel?			

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-8A122-03-LEC	A8	Diagnostic Insights			

Light Vehicle Diesel

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-9A110-03-LEC	A9	LD Diesel Emission Systems			3 - 4

Description

LD Diesel Emissions
More and more shops and fleets are faced with increasing numbers of light duty diesel vehicles with emissions system related issues. Accurately diagnosing and repairing these motors can be challenging at times. This course presents interactive classroom training on proper diagnosis of light duty diesel engine emissions systems, operation and proper diagnosis.

Objective

By participating in this course, you'll be able to:

- Describe proper shop safety practices while servicing engines.
- Identify light duty diesel engine emissions applications and how they differ from HD engines.
- Diagnosis light duty diesel engine emissions codes and identify failures which cause them.
- Evaluate light duty diesel engine DOC and DPF systems.
- Describe the service procedures for urea system heaters and SCR systems.
- Describe how to perform preventative maintenance diesel emission systems
- Describe how to perform scan tool diagnosis of emissions systems on light duty diesel applications.

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-9A111-03-LEC	A9	Diesel Fuel System			3 - 4

Description

This course covers diesel fuel system testing on Power-stroke, Duramax and Cummins motors. If yoru shop is experiencing comebacks related to diesel fuel or you find yourself replacing pumps and injectors without resolving driveability issues, you need to take this course. We will cover correct diesel fuel testing in great detail as well as the

Objective

Topics Covered:

- Diesel Fuel Systems
- Fuel Filter Assemblies and updates
- Supply and return systems
- Fuel Testing tools
- Asphaltenes and other fuel contaminants

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Light Vehicle Diesel

Description

pumps, filters and associated components and plumbing that comes together to make the system work. We will show you some tools and diagnostic techniques that make the testing safe, accurate, and easy. We will cover fuel supply testing to lift pumps and high-pressure pumps. Step by step testing, diagnostics, and repairs will be discussed.

Objective

Course Objectives:
Upon completion participant will be able to:

- Discuss the many aspects of proper diesel fuel system testing
- Verbalize the steps to properly test the suction side fuel system
- Review how to properly test low side fuel systems

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-9A112-03-LEC	A9	Duramax Diagnostics			3 - 4
DS-9A112-24-HOT	A9	Duramax Diagnostics Hands-On Workshop			24
DS-9A113-03-LEC	A9	Power Stroke 6.7 Diagnostics			3 - 4
DS-9A113-24-HOT	A9	Power Stroke 6.7 Diagnostics Hands-On Workshop			24
DS-9A113-32-HOT	A9	Power Stroke 6.7 Diagnostics Hands-On Workshop			32

Description

Elevate your skills and join us for an intensive training session focused on diagnostic and repair techniques for Power Stroke, Cummins, and Duramax diesel systems. This training provides essential techniques needed to diagnose and repair these systems efficiently. In our Hands-On Cummins, Duramax and Power Stroke Diagnostics Workshop we bring a variety of training props. Our instructors are the best of the best with working knowledge of the entire system.

This Master Diesel course we bring the entire engine to be disassembled and diagnosed. The Fuel System will be discussed in detail. Fuel quality is a major concern causing Drivability issues. Perform safe, accurate, and easy fuel testing in class. We will cover fuel supply to lift pumps and high-pressure pumps. Diagnosing hard start and no start conditions can be a difficult challenge. Develop a proven process when testing drivability issues. Reduce your diagnostic time and prevent unneeded parts replacement. Understand the cause and its effect on the entire system.

Objective

Develop a solid diagnostic strategy for diagnosing mechanical engine failures. You will understand the importance of the disassembly and assembly process of the 6.7 Power Stroke engine.

- Verbalize the steps to properly test the suction side fuel system
- Review how to properly test low side fuel systems
- Review how to properly test the high pressure fuel system.
- No start Causes
- Preventing unneeded parts replacement
- Servicing the no start cause and its effects
- Fuel testing
- Fuel return testing

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Light Vehicle Diesel

Description

DPF and SCR issues can be hard to diagnose and repair. The DPF and SCR systems are two separate systems but can affect each other, and this part of the class we will take you through information and procedures to solve complaints involving SCR/DPF related issues.

Learn Diesel Computer Strategies when using your Scan Tool for Engine Performance issues. Get the most out of your Scan Tool. A in-depth discussion on features and functions to help determine in which system where the problem originates.

Objective

- Electrical concerns
- Define UREA testing
- Understand DEF system operation
- Explain NOx sensor operations

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-9A114-03-LEC	A9	Cummins 6.7 System Operations & Diagnostics			3 - 4

Description

Learn about what's new with 6.7 Cummins engines as of 2019. This course will cover key areas that were changed, and what makes diagnosing and servicing them different along with the performance and durability improvements provided by these changes. We will also take a deep dive into the fuel systems and what to watch out for concerning high-pressure pump and injector failures. This course will also cover valvetrain, emissions systems, and turbocharger concerns.

Objective

- Identify the upgrades to the Cummins engine
- Recognize problems associated with diesel fuel
- Evaluate the complete fuel system including injector testing
- Evaluate critical sensors operation
- Identify turbo & EGR problems
- Analyze SCR system for proper operation

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-9A114-24-HOT	A9	Cummins 6.7 System Operations & Diagnostics Workshop			24

Description

Three days of hands on learning where you will learn about what's new with 6.7 Cummins engines as of 2019. This course will cover key areas that were changed, and what makes diagnosing and servicing them different along with the performance and durability improvements provided by these changes. We will also take a deep dive into the fuel systems and what to watch out for concerning high-pressure pump and injector failures. This course will also cover valvetrain, emissions systems, and turbocharger concerns.

Objective

- Identify the upgrades to the Cummins engine
- Recognize problems associated with diesel fuel
- Evaluate the complete fuel system including injector testing
- Evaluate critical sensors operation
- Identify turbo & EGR problems
- Analyze SCR system for proper operation

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Light Vehicle Diesel

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-9A115-08-HOT	A9	6.7l Power Stroke Preventative Maintenance	A, B, C		

Shop Management/Service Advisor

Course Code	ASE	Course Name	Audience	Icons	CEU
SM-1C109-08-LEC	C1	Shop Management (Service Advisor training, Hire the Best Forget the Rest, Preparing Your Shop for EVs)			3 - 4

Description

Learn strategies and processes focused on recruiting and keeping the best talent for your business. More important than the technology to repair vehicles are the people who do the work. The landscape for hiring has drastically changed. New online tools create new challenges and benefits for how and who we hire. This course will help you find and keep the best talent in your shop.

Objective

- Where to begin the hiring process
- Identifying why people leave jobs
- Determining the needs of your company
- Matching what your company has to offer with what employees want
- The importance of a mission and vision
- Where the best employees work
- Creating a strategic hiring process
- Making an employment offer
- Orienting new employees
- Creating a team-based commitment

Advanced Engine Performance Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-1L110-24-HOT	L1	Advance Networking Diagnostics Hands-On			24

Description

Effectively diagnosing C.A.N./C.A.N. FD concerns poses a significant challenge. This intensive hands-on course offers unparalleled coverage of the design, operation, and testing of C.A.N. FD systems with AVI's exclusive Networking Training Aid. Guided by expert instructors, AVI's Advanced Networking Diagnostics workshop provides the solutions you need to diagnose the C.A.N. FD system efficiently.

Objective

- Decode C.A.N. Communications
- Analyze Transceiver Operation
- LIN Mapping
- Understand automotive Ethernet Protocols
- Understanding the Functions of STAR and Loop Configurations in Modern Network Systems
- Properly Repair Twisted Pair Wiring
- Interpret C.A.N. Labscope Waveforms

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Advanced Engine Performance Specialist

Description	Objective
	What You'll Learn: **Identify different network types:** • Understand the differences between C.A.N. & C.A.N. FD Systems. • **Advanced Diagnostics:** • Learn the best network testing method and correct equipment required to diagnose network functionality. • Comprehensive Systems Understanding: • Learn a troubleshooting approach to simplify complicated network systems.

Course Code	ASE	Course Name	Audience	Icons	CEU
EP-1L111-04-LEC	L1	Pressure Transducer Testing			

Description	Objective
Measuring pressure within specific cylinders is a relatively new form of automotive diagnostic testing, It uses amplified and non-amplified pressure transducers to determine specific cylinder misfires, engine blow-by percentage, restrictions in fuel injectors, valve timing, concerns, and other volumetric efficiency issues. AVI Instructor John Barclay takes a deep look at pressure transducer waveforms, determining cam timing. and how to Use pressure transducers to determine engine mechanical, fuel system, and misfire concerns. Valve train including intake and exhaust issues can all be diagnosed using a pressure transducer and a labscope. This class shows detailed interpretation of wave forms and timing.	• Understand what a pressure transducer is and how it works • Identify multiple types of pressure transducers • Connecting a pressure transducer to a labscope • Overview of when to use an in cylinder pressure transducer • Comparison of other tests available and problems • Precautions to take with CPT • Using waveforms to diagnose timing and related issues • Using a cranking, Idle and Acceleration check procedure • Detailed scope pattern interpretation • Evaluating use of pressure transducer diagnostic and when this procedure should be considered.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L109-03-LEC	L3	Electrified Vehicles - Air Conditioning Service	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

Expand your service offerings to include electric and hybrid vehicle air conditioning (AC) systems with this dynamic live course. Gain a comprehensive understanding by identifying all components of the AC system and delving into the theory of AC operation. Learn to correlate temperature with refrigerant pressure and categorize various compressor types utilized in hybrid and battery electric vehicles (HEV/BEV). Hands-on demonstrations will enable you to conduct precise gauge and temperature testing, enhancing your diagnostic prowess. Additionally, discover the strategic placement of inverters within HEV/BEV setups, ensuring you're equipped to tackle AC system challenges with confidence and expertise.

Objective

- Identify all components of AC system
- Describe theory of AC operation
- Compare temperature to refrigerant pressure
- Categorize compressor types
- Perform gauge and temperature testing
- Identify inverter location on HEV/BEV

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L109-08-LEC	L3	Electrified Vehicles - Air Conditioning Service	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		8
EV-3L109-16-HOT					16

Description

This course will cover the design, operation, and testing of A/C systems on hybrid and electric vehicles. These systems can come in many forms of compressor drive from belt only, belt/electric combination to full electric in either AC or DC voltage supply. A condensed discussion of the refrigeration cycle will be included. Operation, testing, and diagnostics of these systems will be the bulk of the course time.

Objective

- Identify all components of AC system
- Describe theory of AC operation
- Compare temperature to refrigerant pressure
- Categorize compressor types
- Perform gauge and temperature testing
- Identify inverter location on HEV/BEV

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L110-03-LEC	L3	Electrified Vehicles - Systems & Diagnostics Workshop	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

The service opportunities for hybrid and electric vehicles are increasing for all shops. Fluid service and battery maintenance are critical care items for the longevity of these vehicles. Poorly maintained batteries cause a loss of fuel economy. in this intensive live training course we train on the intricacies of HEV/BEV components, from electric motors and batteries to regenerative braking systems and power electronics. Gain practical insights into the specialized maintenance requirements unique to these vehicles, including battery management and thermal management systems. Understand the critical role of oils and coolants in maintaining optimal vehicle performance and longevity, and learn to identify and rectify common technician errors that can impact vehicle efficiency and safety. Equip yourself with essential knowledge of correct power down and procedures during repairs to ensure safety and prevent damage to sensitive electronic components. Whether you're new to electric vehicle maintenance or looking to deepen your expertise, this course provides hands-on experience and expert guidance to prepare you for the growing opportunities in the HEV/BEV maintenance sector.

Objective

- Describe common HEV-BEV components
- Explain the maintenance needed on HEV-BEV's
- Understand the importance of oils and coolants
- Determine common mistakes Technicians may make
- Determine correct power down procedures based on repair

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L110-08-HOT	L3	Electrified Vehicles - Maintenance Services Workshop	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		8

Description

Safety will be reviewed along with proper usage of Personal Protective Equipment (PPE) and when it is to be used. Vehicle type identification leading into covering the basics of hybrid and EV operation such as how to: Enter, Start and Drive a Tesla and other out of the normal style vehicle types. Engaging the learner with a mix of in-shop hands on activities will define maintenance opportunities and create a culture that motivates customers to have their Hybrid or EV serviced at your location. We will explain the wide variety of low voltage system services you should offer as well as provide information on the various high voltage system services to offer. Tools, tips and tricks will be discussed along with many step-by-step processes and critical services which can currently be performed. Highlighted too, will be a variety of hybrid/EV specific procedures for systems such as cooling and fuel services.

Objective

- Recognize the Personal Protection Equipment needed and understand the correct procedures and applications
- Learn about the differences in servicing Hybrid and EV braking, cooling, and low voltage systems.
- Understand some of the basic theories of how Hybrids and EVs operate.
- Learn about differences when servicing the Internal Combustion Engines on Hybrid vehicles.
- Identify different hybrid system platforms along with their components and functions.

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L111-08-HOT	L3	Electrified Vehicles - Maintenance Services Workshop			8
EV-3L111-16-HOT					16
EV-3L111-24-HOT					24

Description

In this hands-on workshop, students will learn diagnostic and repair techniques for working with high-voltage vehicles. The course covers the components that make these vehicles unique and delves deep into their operation, their specialized components, and effective diagnostic procedures. It also extensively covers the most critical subject of the lessons: safety. This class explains the vehicle's workings, preparing the vehicle for safe diagnostic interaction, proper personal protective equipment for the technician, and recommended procedures for servicing HV systems.

Objective

- Safety fundamentals and testing procedures.
- Wiring schematics.
- Hybrid/EV configurations and components.
- Regenerative braking.
- Scan tool diagnostics.
- EV cooling systems.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L112-08-HOT	L3	Electrified Vehicles - Motors & Power Management	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		8

Description

Elevate your expertise in electric and hybrid vehicles with our immersive, hands-on training course designed for automotive professionals. This comprehensive program takes you deep into the heart of HEV technology, where you'll master the critical components that power modern vehicles.

Gain a solid grasp of inverter operations and the role of Insulated Gate Bipolar Transistors (IGBTs), while honing your skills in analyzing voltage and amperage waveforms. You'll also learn to diagnose DC-DC converters with confidence, distinguish between buck and boost operations, and perform essential tests on high voltage systems—all crucial for ensuring vehicle safety and performance. But we don't stop there. This course also provides in-depth training on three-phase automotive motors, from identifying every motor component to advanced diagnostics. You'll learn to differentiate between permanent magnet and induction motors, evaluate motor windings, and tackle motor and bearing failures with ease. Plus, explore how these motors interact with gear trains to ensure seamless vehicle operation.

By the end of this course, you'll be equipped with expert-level skills to troubleshoot and maintain the critical electronics and motors that drive today's cutting-edge automotive technology. Don't miss this opportunity to stay ahead in the rapidly evolving world of vehicle electrification.

Objective

- Describe the operation of an inverter
- Define how an IGBT functions
- Analyze inverter voltage and amperage waveforms
- Measure the high voltage system for isolation faults
- Evaluate capacitors
- Develop a diagnostic plan for DC-DC converters
- Determine the difference between buck and boost
- Perform testing on high voltage contactors
- Identify all parts of a three-phase motor
- Differentiate the operation between permanent magnet motor & induction motor
- Identify the interaction of three phase motor with gear train
- Evaluate motor windings using specialized equipment
- Analyze motor and bearing failures

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L113-03-LEC	L3	Electrified Vehicles - Ford Mach-e	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

Ford Mach E - This platform uses cutting edge technology, are you ready. AVI's Mach-E course will explain how to navigate these cars with in-depth discussion of computer strategies and scan data interpretation, including battery testing, charging and maintenance. Learn proper safety; and develop a diagnostic process specific to electrified vehicles.

Objective

- Recognize the Personal Protection Equipment needed and understand the correct procedures and applications.
- Learn about how the low voltage system interacts with the high voltage systems.
- Learn about how high voltage systems operate. This will include a deep dive on inverters, battery technology, 3 phase motors and more.
- Learn how to quickly and effectively diagnose no starts and other concerns with EVs.
- Learn about charging infrastructure, on board chargers, charging cables, and more.
- Learn about the differences in electrified air conditioning systems.

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L114-03-LEC	L3	Electrified Vehicles - Ford Lightning	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

Ford Lightning pickups are selling well, be ready to service this platform. AVI's Ford Lightning coures will prepare you to work on these high-tech vehicles with in-depth discussion on computer strategies and scan data interpretation, including battery testing, charging and maintenance. Learn proper safety; and develop a diagnostic process specific to electric vehicles. Safety will be discussed along with proper usage of Personal Protective Equipment (PPE) and specialty tools required for EV service. Description and operation

Objective

- Recognize the Personal Protection Equipment needed and understand the correct procedures and applications.
- Learn about how the low voltage system interacts with the high voltage systems.
- Learn about how high voltage systems operate. This will include a deep dive on inverters, battery technology, 3 phase motors and more.
- Learn how to quickly and effectively diagnose no starts and other concerns with EVs.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Description	Objective
sections will include E/V drivetrain components, inverter/-converter systems, motor types and design differences, air conditioning system designs, cooling systems for the components. Diagnostic procedures and proper tool usage will be covered in depth as the electronic testing tools required for these vehicles are different from those commonly used in shops at this time.	• Learn about charging infrastructure, on board chargers, charging cables, and more. • Learn about the differences in electrified air conditioning systems.

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L115-03-LEC	L3	Electrified Vehicles - Nissan Leaf	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description	Objective
Learn specific Ev Technology on the Nissan Leaf with in-depth discussion on computer strategies and scan data interpretation, including battery testing, charging and maintenance. Learn proper safety; and develop a diagnostic process specific to electric vehicles.	• Recognize the Personal Protection Equipment needed and understand the correct procedures and applications. • Learn about how the low voltage system interacts with the high voltage systems. • Learn about how high voltage systems operate. This will include a deep dive on inverters, battery technology, 3 phase motors and more. • Learn how to quickly and effectively diagnose no starts and other concerns with EVs. • Learn about charging infrastructure, on board chargers, charging cables, and more. • Learn about the differences in electrified air conditioning systems.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L116-03-LEC	L3	Electrified Vehicles - Toyota Sienna Hybird	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

The Toyota Sienna hybrid has evolved substantially over the years. This training will provide you with the latest updates on the Sienna's advanced systems including the predictive HV Battery State-Of-Charge technology. You will also learn about the GTS Toyota scan tool as well as essential tools and procedures for diagnosing electrical issues related to the battery, inverter and motor generators. Essential safety protocols as well as routine maintenance items are also covered.

Objective

- Develop good safety practices that apply to hybrids
- Identify factory scan data functions
- Determine torque paths from engine and electric motors
- Understand how three phase motors, inverters, DC-to DC converts operate
- Perform testing on hybrid components

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L117-03-LEC	L3	Electrified Vehicles - Chevy Bolt 1 day	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

The Chevy Bolt EV was introduced in 2017. There is also another Chevy Bolt that is called The Bolt EUV. Both vehicle powertrains are the same and are becoming more and more common on the road as an affordable EV. The Chevy Bolt technology started with what GM learned developing the Chevy Spark EV. GM's major target was to exceed 200 mile driving range to reduce range anxiety. Explore the components, diagnostics and strategies to work on these intriguing vehicles.

Objective

The Chevy Bolt EV was introduced in 2017. There is also another Chevy Bolt that is called The Bolt EUV. Both vehicle powertrains are the same and are becoming more and more common on the road as an affordable EV. The Chevy Bolt technology started with what GM learned developing the Chevy Spark EV. GM's major target was to exceed 200 mile driving range to reduce range anxiety. Explore the components, diagnostics and strategies to work on these intriguing vehicles.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L118-03-LEC	L3	Electrified Vehicles - Tesla – needs book 1 day "Tesla Diagnostic Fundamentals"	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

AVI's Tesla Training Class is designed exclusively for automotive technicians seeking expertise in servicing Tesla vehicles. This comprehensive course equips you with the essential skills and knowledge to handle Tesla's advanced technology effectively. Learn to navigate and utilize Tesla's comprehensive service information resources, ensuring access to accurate repair procedures and technical specifications. Master proper shutdown and isolation procedures specific to Tesla vehicles, essential for ensuring technician safety and preventing electrical hazards. Gain an in-depth understanding of Tesla's self-driving hardware and software, including sensors, cameras, and autonomous driving capabilities. Explore how to select and utilize scan tools to access and interpret data Parameter IDs (PIDs), enabling thorough diagnostics and troubleshooting. Practice procedures for jump-starting a Tesla vehicle with a dead 12-volt battery, understanding the unique considerations and safety protocols involved. Analyze the operation of three-phase motors and high-voltage batteries used in Tesla vehicles, gaining insights into their performance characteristics and maintenance requirements. Identify Tesla charge port terminals and understand the various charge voltage options available, essential for safely and efficiently managing vehicle charging. By the end of this course, you will be equipped with the specialized skills and confidence needed to service Tesla vehicles competently, ensuring customer satisfaction and enhancing your career in automotive technology.

Objective

- Locate and use service information
- Identify proper shut down and isolation procedures
- Gain understanding of self driving hardware and software
- Select scan tools and obtain data PIDS
- Jump starting a vehicle with dead 12-volt battery
- Analyze three phase motors and high voltage batteries
- Identify charge port terminals and charge voltage options

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L119-03-LEC	L3	Electrified Vehicles - Chevrolet Blazer EV Technology	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

Jump into the innovative world of the new electric-powered Chevy Blazer in AVI's live training course designed for automotive professionals. This course focuses on the safe handling of high-voltage systems, equipping you with essential safety practices for conducting high-voltage testing and ensuring technician safety and compliance. Explore the cutting-edge features of the Chevy Blazer's electric powertrain, including identifying the most common charge connectors used for electric vehicle charging. Gain a comprehensive understanding of inverter operation and the functions of Insulated Gate Bipolar Transistors (IGBTs) crucial to the vehicle's electrical system. Learn to measure the high-voltage system for isolation faults, using specialized tools and techniques to maintain system integrity and reliability. Discover the tools and equipment essential for HEV/BEV testing, from diagnostic scanners to specialized meters, empowering you to effectively diagnose and troubleshoot electric vehicle systems. Whether you're new to electric vehicles or expanding your expertise, this course provides practical knowledge and hands-on experience essential for servicing the new electric-powered Chevy Blazer and advancing your career in automotive technology

Objective

- Determine correct safety practices for high voltage testing
- Identify the most common charge connectors
- Describe the operation of an inverter
- Define how an IGBT functions
- Measure the high voltage system for isolation faults
- Identify tools used in HEV-BEV testing

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L120-03-LEC	L3	Electrified Vehicles - Hybrid and EV Drivetrains	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

This class covers the many different transaxle/drive axle designs that are on the market today. It is also meant to reveal that the inside of these transaxles is not scary, and most are very simple. We will cover power flow, gear reduction, and how torque is multiplied. In the first portion of this class, we will cover the torque and horsepower of electric motors and how it varies from gasoline engine designs. We will also cover why electric motors lose their torque with RPM. We will start with simple BEV gear trains and migrate to more sophisticated systems as we go. We hope that you will appreciate the knowledge we have presented throughout the class by taking some time to explain the concepts.

Objective

- Determine power flow in various transaxle designs.
- Perform total gear ratio calculations.
- Examine horsepower & torque charts .
- Observe the results of back EMF .
- Identify proper motor testing techniques.
- Perform the park lock release procedure.

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L121-03-LEC	L3	Electrified Vehicles - Battery Technology	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

Explore the intricate world of high voltage electric vehicle (EV) batteries in this comprehensive training course. Gain a deep understanding of battery design principles, focusing on Nickel-Metal Hydride (NiMH) technology, including the structure of cells, modules, and sections in series. Master safety protocols crucial for high voltage battery testing and learn to interpret scan data effectively to distinguish between healthy and faulty cells. Hands-on exercises will equip you with the skills to perform testing, balancing, and reconditioning procedures on NiMH batteries, ensuring optimal performance and longevity in EV applications.

Objective

- Describe the basic design of a NIMH battery
- Determine correct safety practices for high voltage battery testing
- Define how battery cells, modules, and sections are series together
- Analyze scan data to determine good and bad cells
- Perform testing-balancing-reconditioning on NIMH batteries

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L122-03-LEC	L3	Electrified Vehicles - Inverters	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

Enhance your knowledge of electric and hybrid vehicles with this comprehensive course. Learn the intricacies of HEV vehicle electronics by exploring the operation of inverters and understanding the fundamental workings of Insulated Gate Bipolar Transistors (IGBTs). Gain proficiency in analyzing inverter voltage and amperage waveforms, as well as measuring high voltage systems for isolation faults and evaluating capacitors. Develop expert-level skills in diagnosing DC-DC converters through structured diagnostic planning, and distinguish between buck and boost operations. Hands-on sessions will equip you to perform thorough testing on high voltage contactors, ensuring mastery of critical components in modern automotive electrification.

Objective

- Describe the operation of an inverter
- Define how an IGBT functions
- Analyze inverter voltage and amperage waveforms
- Measure the high voltage system for isolation faults
- Evaluate capacitors
- Develop a diagnostic plan for DC-DC converters
- Determine the difference between buck and boost
- Perform testing on high voltage contactors

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L123-03-LEC	L3	Electrified Vehicles - Three Phase Motors	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

This live training course provides a thorough understanding of three-phase automotive motors, covering essential aspects from identification of motor components to advanced diagnostic techniques. Participants will learn to identify all parts of a three-phase motor, differentiate between permanent magnet and induction motor operations, and evaluate motor windings using specialized equipment. The course also explores the interaction of three-phase motors with gear trains and equips learners with the skills to analyze motor and bearing failures. By the end of this training, participants will gain practical insights and proficiency in troubleshooting and maintaining automotive motors effectively.

Objective

- Identify all parts of a three-phase motor
- Differentiate the operation between permanent magnet motor & induction motor
- Identify the interaction of three phase motor with gear train
- Evaluate motor windings using specialized equipment
- Analyze motor and bearing failures

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L124-03-LEC	L3	Electrified Vehicles - Charging Stations	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

This live training course is designed to equip participants with essential knowledge and practical skills related to electric car charging stations. Participants will learn to identify the most common charge connectors used in electric vehicles, define pin assignments within these connectors, and understand their operational characteristics. The course will cover the operation of on-board chargers and differentiate between level 1, 2, 3, and 4 charging systems, highlighting their respective capabilities and applications. Participants will also gain expertise in calculating the appropriate size of home chargers to match specific vehicle requirements and learn to select mobile applications that facilitate finding and utilizing remote charging stations effectively. By the end of this course, participants will have a comprehensive understanding of electric car charging infrastructure, enabling them to make informed decisions in installation, operation, and utilization of charging stations.

Objective

- Identify the most common charge connectors
- Define pin assignments within charge connectors
- Describe operation of on-board charger
- Recognize the difference between level 1-2-3-4 charging
- Calculate size of home charger to match vehicle requirements
- Select phone APPS that will be helpful in finding and using remote charging stations

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L125-03-LEC	L3	Electrified Vehicles - GM Electric and Hybrid Vehicles	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

This live training presentation on GM Electric and Hybrid Vehicles offers an in-depth exploration into the cutting-edge technology and safety practices essential for working with these advanced automotive systems.

Objective

- Determine correct safety practices for high voltage testing
- Determine the differences between Bolt, Blazer, and Volt drivetrains

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Description

Participants will gain critical knowledge on determining the correct safety practices for high voltage testing, ensuring a secure and compliant working environment. The course will thoroughly examine the distinct differences between the drivetrains of the GM Bolt, Blazer, and Volt, providing a comprehensive understanding of their unique engineering and performance characteristics. Additionally, attendees will learn to describe the operation of an inverter, a key component in the power conversion process of electric vehicles.

Furthermore, the training will delve into the functionality of Insulated Gate Bipolar Transistors (IGBTs), highlighting their crucial role in electric vehicle systems. Participants will be equipped with the skills to measure high voltage systems for isolation faults, ensuring the integrity and safety of these systems. The course also includes an overview of the specialized tools used in Hybrid Electric Vehicle (HEV) and Battery Electric Vehicle (BEV) testing, offering hands-on demonstrations to reinforce learning. This comprehensive training is designed to empower automotive professionals with the knowledge and skills necessary to excel in the rapidly evolving field of electric and hybrid vehicles.

Objective

- Describe the operation of an inverter
- Define how an IGBT functions
- Measure the high voltage system for isolation faults
- Identify tools used in HEV-BEV testing

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L126-03-LEC	L3	Electrified Vehicles - Hybrid and EV Test Tools	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		3 - 4

Description

This Hybrid and EV Tools course will provide technicians with a comprehensive understanding of the operation of six essential diagnostic tools for troubleshooting and servicing electric and hybrid vehicles. These tools include:
Milli-Ohm Meter
Insulation Resistance Tester (Mega-Ohm Meter)
Cat III 1,000V DVOM
Fluke Proving Unit

Objective

- Identify tools used in HEV-BEV testing
- Perform specific test on HEV-BEV components
- Select the correct tool for testing
- Calculate total capacitance of a capacitor bank
- Examine motor test results
- Determine meter and testing equipment safety requirements

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Description	Objective
2-Pole Voltage & Continuity Tester Fluke 1503 Insulation Tester This course examines the proper use and inspection of personal protective equipment, including electrical safety gloves. In addition to presenting each tool, Hybrid and EV Tools gives specific application demonstrations for each tool with real world scenario diagnostic tests. Each tool is demonstrated in an application relating to Electric and Hybrid vehicles and how you can use your tools to be safe, efficient and fix the cars correctly.	

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L127-03-LEC	A8	Toyota 4th Generation			3 - 4

Description	Objective
Learn about the advanced technology of fourth-generation Toyota vehicles in this comprehensive live training course tailored for automotive technicians. Focuses primarily on the changes to the drivetrainLearn and practice essential safety protocols specific to hybrid systems, including high-voltage safety, battery handling procedures, and emergency response techniques. Gain proficiency in identifying and utilizing factory scan data functions crucial for diagnosing and troubleshooting complex hybrid vehicle systems. Explore the intricate torque distribution paths originating from both the gasoline engine and electric motors, understanding their synergistic roles in optimizing vehicle performance and fuel efficiency. Gain a deep understanding of the operation principles behind three-phase motors, inverters, and DC-to-DC converters, essential components in hybrid powertrains. Through practical hands-on sessions, develop the skills necessary to conduct thorough testing and diagnostics on hybrid components, ensuring accurate assessments and effective maintenance practices. Equip yourself with the expertise needed to confidently service and repair fourth-generation Toyota Prius hybrids, mastering the forefront of automotive technology and enhancing your career capabilities in hybrid vehicle maintenance.	• Develop good safety practices that apply to hybrids • Identify factory scan data functions and scan tool usage for diagnostics • Determine torque paths from engine and electric motors • Understand how three phase motors, inverters, DC-to DC converts operate • Perform testing on hybrid components

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hybrid/Electric Vehicle Specialist

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-3L128-08-HOT	L3	Hybrid/EV Safety Workshop			8
EV-3L129-03-LEC	L3	Ford F150 & Explorer Hybrid Systems			

Advanced Driver Assistance Systems

Course Code	ASE	Course Name	Audience	Icons	CEU
DA-4L109-03-LEC	L4	A Service Advisor's Guide to ADAS	MGR/Sales		3 - 4
DA-4L110-08-LEC	L4	ADAS Service & Diagnostics	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		8

Description

This live classroom training course will explain and discuss the various components included in ADAS, such as cameras, radars, blind spot detection moducles, and park assist sensors, and review service opportunities and procedures for the aftermarket. ADAS or "Advanced Driver Assistance Systems," is a relatively new technology, and as with any new technology, there is apprehension, fears and many rumors. Additionally, the students will participate in the setup, calibration and use of a portable Autel ADAS system, diagnosing a vehicle's detection systems.

Objective

- Define ADAS
- Understand the different components of an ADAS system
- Describe the supportive ADAS systems and how they relate to each other
- Explain the use of a scan tool for ADAS calibration
- Identify the operation of ADAS as it relates to the vehicle operator
- Describe ADAS calibration equipment and how it is used
- List the different levels of ADAS
- Understand the future of ADAS and the automotive technician
- Explain the importance of proper ADAS calibration
- Understand V2V and V21 systems

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Advanced Driver Assistance Systems

Course Code	ASE	Course Name	Audience	Icons	CEU
DA-4L110-16-HOT	L4	ADAS Service & Diagnostics Workshop	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		16

Description

This two day, hands-on training course will explain and discuss the various components included in ADAS, such as cameras, radars, blind spot detection modules, and park assist sensors, and review service opportunities and procedures for the aftermarket. ADAS or "Advanced Driver Assistance Systems," is a relatively new technology, and as with any new technology, there is apprehension, fears and many rumors. Participants will learn by doing setup, calibration and use of a portable ADAS diagnostic system.

Objective

- Define ADAS
- Understand the different components of an ADAS system
- Describe the supportive ADAS systems and how they relate to each other
- Explain the use of a scan tool for ADAS calibration
- Identify the operation of ADAS as it relates to the vehicle operator
- Describe ADAS calibration equipment and how it is used
- List the different levels of ADAS
- Understand the future of ADAS and the automotive technician
- Explain the importance of proper ADAS calibration
- Understand V2V and V21 systems
- Use ADAS equipment to diagnose and calibrate

Course Code	ASE	Course Name	Audience	Icons	CEU
DA-4L110-24-HOT	L4	ADAS Service & Diagnostics Workshop	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		24

Description

Advanced Driver Assistance Systems (ADAS) is a relatively new technology, and as with any new technology, there is apprehension, fears and many rumors. This three day, hands-on training course will explain and discuss the various components included in ADAS, such as cameras, radars, blind spot detection modules, and park assist sensors, and review service opportunities and procedures for the aftermarket. " Participants will learn by doing setup, calibration and use of a portable ADAS diagnostic system.

Objective

- Define ADAS
- Understand the different components of an ADAS system
- Describe the supportive ADAS systems and how they relate to each other
- Explain the use of a scan tool for ADAS calibration
- Identify the operation of ADAS as it relates to the vehicle operator
- Describe ADAS calibration equipment and how it is used
- List the different levels of ADAS
- Understand the future of ADAS and the automotive technician
- Explain the importance of proper ADAS calibration
- Understand V2V and V21 systems
- Use ADAS equipment to diagnose and calibrate

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

School Bus

Course Code	ASE	Course Name	Audience	Icons	CEU
AC-7S109-03-LEC	S7	School Bus Systems - HVAC			3 - 4
AC-7S110-08-HOT	S7	School Bus Systems - HVAC Workshop			8

Description

School buses have to maintain a climate that is safe and comfortable for the travelers.. In some states, A/C is only mandated for special needs buses, but with high temperatures and humidity during much of the school year, more and more buses are equipped with A/C. Depending on their size, buses may have multiple, independent A/C systems installed side by side or in other configurations. Effectively servicing school bus HVAC systems relies on quality training. This course will show you the components that make up a school bus HVAC system and show you how to readily diagnose and service them. We will take a look at legacy systems and spend time on modern school bus HVAC systems and the procedures used to keep them operating properly.

Objective

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Medium & Heavy Truck Series

MD/HD Diesel Engines & Emissions

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-2T109-16-HOT	T2	Heavy Duty - Cummins 6.7, L9 & X15 Hands-On Workshop	A, B, C Technicians, Shop Foreman/ Lead Technician, Owners/ Managers, Service Advisors, Parts Professionals & Vocational Instructor		16
DS-2T109-24-HOT					24
DS-2T109-32-HOT	T2	Heavy Duty - Cummins 6.7, L9 & X15 Master Class			32

Description

Our newest HD class provides everything you need to be successful in diagnosing issues on the Cummins medium and heavy duty engine family. This course covers detailed overviews of design and function of mechanical and electrical and fuel systems along with the necessary knowledge needed to properly diagnose, program and calibrate these fuel systems. You will be provided with proper description and navigation of the Cummins engine families. Integrate your lab scope to validate engine and fuel system failures faster and easier than before. We will share procedures to help you and your shop save precious time when diagnosing these engines and highlight specialty tools such as tools to replace lifters and camshafts without cylinder head removal. With Cummins moving to hydraulic lifters in 2019 and the new 6.7 engines, be sure you stay up to date with all the tools, procedures and specs to get the job done. Participants will be given the hands-on opportunity to utilize said tools and demonstrate the procedures in this multi-day experience. Make sure you are the strongest asset in your shop with this Cummins focused course

Objective

- Learn about what causes high pressure pump failures.
- Understand how to test for fuel injector issues, and how to perform fuel testing.
- Learn how to perform engine diagnostics and repair quickly and efficiently.
- Understand the intricacies of emission system diagnostics.
- Gain an understanding of how SCR and DPF systems operate.
- Learn how to perform Nox sensor testing.
- Gain insights into effectively utilizing your Cummins Insight scanner.

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-2T110-24-HOT	T2	Heavy Duty – Emissions and After treatment Systems	A & B Technicians, Shop Foreman/ Lead Technician, Shop Owners/Managers & Vocational Instructors		16

Description

Heavy Duty Emission systems have grown more complicated in the last few years, are you up to date? The latest information on the systems and their operation & diagnosis. Covering all systems from the engine, fuel injection systems and strategies, to the after-treatment systems you'll be ready to fix them all.

Objective

- Investigate high pressure pump failures.
- Learn about injector Issues and how to effectively test them.
- Understand the intricacies of emission system diagnostics.
- Gain an understanding of how SCR and DPF systems operate.
- Learn how to perform Nox sensor testing.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

MD/HD Diesel Engines & Emissions

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-2T112-03-LEC	T2	Meduim Duty - International CV Duramax L5D			4

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-2T113-03-LEC	T2	Heavy Duty – Cummins Insite Scanner Diagnostics			4

Description

This course demonstrates the key features of Cummins Insite and QuickServe and how to use them to efficiently diagnose and repair Cummins diesel engines. Cummins Insite performs engine diagnostics and displays electronic engine information on your PC. Insite provides the tools needed to assist in properly and efficiently diagnosing heavy diesel engine performance faults. You will see how to use Insite to perform after-treatment diagnostics, bi-directional tests, ECM calibration, and many other tests used across multiple engine systems. You will also learn the features of Cummins QuickServe. QuickServe provides specific diagnostic information including step-by-step maintenance procedures, wiring diagrams, TSBs, tools, fault code search as well as parts lookup and ordering plus much more.

Objective

Topics:

- Insite Connection, Interface and Setup
- Fault Codes and Advanced ECM Diagnostics Tests
- Work Order Creation and Management
- Symptom Search
- ECM Calibration Revisions
- QuickServe Setup
- Parts Component ID & Catalog

Course Objectives:

- Navigate the interface for Cummins Insite and Quickserve.
- Create new and template word order using Insite.
- Retrieve and identify different types of fault codes.
- Perform diagnostic tests using advanced ECM data.
- Perform ECM and component calibrations.
- Use fault code identifiers to determine the proper operation of the engine and components.
- Initialize and access Cummins QuickServe to reference specific engines, systems, and components.
- Use QuickServe features to access tool, part, and procedure information.

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-2T114-16-HOT	T2	Heavy Duty – International Diamond Logic			16

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-2T115-32-HOT	T2	Medium Duty - International CV Duramax L5D Master Class			32

Course Code	ASE	Course Name	Audience	Icons	CEU
DS-2T116-24-HOT	T2	T2 ASE Test Prep Diesel Engines			24

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

MD/HD Brakes

Course Code	ASE	Course Name	Audience	Icons	CEU
BK-4T109-16-HOT	T4	Heavy Duty – Air Brake Operation & Diagnosis Workshop			16

Description

Mastering the complexities of HD Air Brake Systems can be both time-consuming and costly, particularly when dealing with compressors, governors, ABS, and their components. This 2 day workshop provides the essential training you need to diagnose and repair these systems efficiently. Participants will assemble an airbrake system that includes all of the components found on HD vehicles. Information on components such as wheel speed sensors and tone wheels as well as the circuits involved in transmitting that data to the controller will be covered. Participants will learn the importance of proper adjustments and conducting safe service procedures will be stressed.

Objective

- Understand the operation of all air brake components.
- Inspect a system for needed service items.
- Know how to evaluate and determine brake system concerns.
- Be able to diagnose air leaks.
- Understand basic tools needed to service air brake components.

Course Code	ASE	Course Name	Audience	Icons	CEU
BK-4T109-24-HOT	T4	Heavy Duty – Air Brake Operation & Diagnosis Workshop			24
BK-4T109-32-HOT					32

Description

This 3 day, hands-on training goes into great technical detial covering the components in an air brake system. Participants will assemble an airbrake system that includes all of the components found on HD vehicles. Information on components such as wheel speed sensors and tone wheels as well as the circuits involved in transmitting that data to the controller will be covered. Participants will learn the importance of proper adjustments and conducting safe service procedures will be stressed.

Objective

- Understand the operation of all air brake components.
- Inspect a system for needed service items.
- Know how to evaluate and determine brake system concerns.
- Be able to diagnose air leaks.
- Understand basic tools needed to service air brake components.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hydraulic Systems

Course Code	ASE	Course Name	Audience	Icons	CEU
HS-1E101-03-LEC	E1	MD/HD Hydraulic Systems	A, B, C		3 - 4

Description

This classroom course provides a comprehensive introduction to hydraulic systems, focusing on key concepts, maintenance practices, and diagnostic techniques. Students will begin by learning the basic principles of hydraulics, including the functioning of pistons, cylinder sizes, pressure dynamics, and fluid mechanics. Viewing learning aids including scale models, learners will gain a practical understanding of how different cylinder sizes affect system performance and pressure.
The course will cover critical topics such as air removal, fluid selection, and proper sizing of pistons to prevent system malfunctions. Participants will explore the operation of hydraulic pumps, including various pump types, their applications, and how to control pressure via mechanical or electronic valves.

Participants will receive information about hose building and including the importance of proper hose selection for different systems. Maintenance, including fluid changes, hose maintenance, and identifying issues related to hose wear and tear, which are common sources of system failures is also addressed. Videos and demonstrations will further support the learning of cylinder overhaul procedures.

Safety is emphasized throughout the course, with mandatory pre-course safety training and hydraulic procedures videos, ensuring that participants understand the risks and best practices before engaging in any hands-on work.
At the conclusion of the course, students will have a solid foundation in hydraulic systems and the skills necessary to maintain, repair, and diagnose hydraulic equipment, using industry-standard tools and techniques. Resource materials will be provided, offering detailed information on fitting styles, hose types, and system compatibility to support ongoing service and repair work.

Objective

1. Understand Hydraulic Fundamentals:
Gain a comprehensive understanding of basic hydraulic principles, including pressure dynamics, cylinder sizing, fluid mechanics, and the role of pistons in hydraulic systems.
2. Pump Operation and Control:
Learn the operation of various hydraulic pumps, their applications, and methods for controlling pressure using mechanical or electronic valves in different systems.
3. Maintenance Practices:
Review the skills to maintain hydraulic systems, focusing on hose construction, fluid changes, hose selection, and common issues associated with wear and tear.
4. Hydraulic Diagnostics and Troubleshooting:
Identify and diagnose hydraulic system issues, including pressure loss, improper fittings, and faulty components, through demonstrations and diagnostic techniques.
5. Cylinder Repair and Rebuilding:
Explain the process of rebuilding hydraulic cylinders, including seal replacement, through demonstrations and documentation.
6. Safety and Best Practices:
Prioritize safety with mandatory safety training and basic hydraulic procedures to ensure safe practices while handling hydraulic systems.
7. Resource Utilization:
Review supplier-provided resources to properly select and maintain hydraulic components, including hoses, fittings, and cylinders, ensuring compatibility and effectiveness in hydraulic system service and repair.
8. Prepare for Real-World Applications:
Identify the practical skills and knowledge needed to effectively service, maintain, and troubleshoot hydraulic systems in a variety of professional environments.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hydraulic Systems

Course Code	ASE	Course Name	Audience	Icons	CEU
HS-1E101-08-HOT	E2	MD/HD Hydraulic Systems	A, B, C		8

Description

This hands-on course provides a comprehensive introduction to hydraulic systems, focusing on key concepts, maintenance practices, and diagnostic techniques. Students will begin by learning the basic principles of hydraulics, including the functioning of pistons, cylinder sizes, pressure dynamics, and fluid mechanics. Viewing learning aids including scale models, learners will gain a practical understanding of how different cylinder sizes affect system performance and pressure.

The course will cover critical topics such as air removal, fluid selection, and proper sizing of pistons to prevent system malfunctions. Participants will explore the operation of hydraulic pumps, including various pump types, their applications, and how to control pressure via mechanical or electronic valves.

Participants will receive information about hose building and including the importance of proper hose selection for different systems. Maintenance, including fluid changes, hose maintenance, and identifying issues related to hose wear and tear, which are common sources of system failures is also addressed. Videos and demonstrations will further support the learning of cylinder overhaul procedures.

Safety is emphasized throughout the course, with mandatory pre-course safety training and hydraulic procedures videos, ensuring that participants understand the risks and best practices before engaging in any hands-on work.
At the conclusion of the course, students will have a solid foundation in hydraulic systems and the skills necessary to maintain, repair, and diagnose hydraulic equipment, using industry-standard tools and techniques. Resource materials will be provided, offering detailed information on fitting styles, hose types, and system compatibility to support ongoing service and repair work.

Objective

1. Understand Hydraulic Fundamentals:
Gain a comprehensive understanding of basic hydraulic principles, including pressure dynamics, cylinder sizing, fluid mechanics, and the role of pistons in hydraulic systems.
2. Pump Operation and Control:
Learn the operation of various hydraulic pumps, their applications, and methods for controlling pressure using mechanical or electronic valves in different systems.
3. Maintenance Practices:
Review the skills to maintain hydraulic systems, focusing on hose construction, fluid changes, hose selection, and common issues associated with wear and tear.
4. Hydraulic Diagnostics and Troubleshooting:
Identify and diagnose hydraulic system issues, including pressure loss, improper fittings, and faulty components, through demonstrations and diagnostic techniques.
5. Cylinder Repair and Rebuilding:
Explain the process of rebuilding hydraulic cylinders, including seal replacement, through demonstrations and documentation.
6. Safety and Best Practices:
Prioritize safety with mandatory safety training and basic hydraulic procedures to ensure safe practices while handling hydraulic systems.
7. Resource Utilization:
Review supplier-provided resources to properly select and maintain hydraulic components, including hoses, fittings, and cylinders, ensuring compatibility and effectiveness in hydraulic system service and repair.
8. Prepare for Real-World Applications:
Identify the practical skills and knowledge needed to effectively service, maintain, and troubleshoot hydraulic systems in a variety of professional environments.

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

Hydraulic Systems

Course Code	ASE	Course Name	Audience	Icons	CEU
HS-1E101-16-HOT	E3	MD/HD Hydraulic Systems	A, B, C		16
HS-1E101-32-HOT	E4	MD/HD Hydraulic Systems	A, B, C		32

Description

This hands-on course provides a comprehensive introduction to hydraulic systems, focusing on key concepts, maintenance practices, and diagnostic techniques. Students will begin by learning the basic principles of hydraulics, including the functioning of pistons, cylinder sizes, pressure dynamics, and fluid mechanics. Using hydraulic trainers and scale models, learners will gain a practical understanding of how different cylinder sizes affect system performance and pressure.
The course will cover critical topics such as air removal, fluid selection, and proper sizing of pistons to prevent system malfunctions. Participants will also explore the operation of hydraulic pumps, including various pump types, their applications, and how to control pressure via mechanical or electronic valves.

In addition to theoretical learning, students will engage in practical activities, including hose building and understanding the importance of proper hose selection for different systems. They will also receive instruction on hydraulic system maintenance, including fluid changes, hose maintenance, and identifying issues related to hose wear and tear, which are common sources of system failures.
The course will also include a hands-on approach to diagnostics and repair, with an emphasis on rebuilding hydraulic cylinders, replacing seals, and troubleshooting common hydraulic issues. Videos and demonstrations will further support the learning of cylinder overhaul procedures.

Safety is emphasized throughout the course, with mandatory pre-course safety training and hydraulic procedures videos, ensuring that participants understand the risks and best practices before engaging in any hands-on work.
At the conclusion of the course, students will have a solid foundation in hydraulic systems and the skills necessary to maintain, repair, and diagnose hydraulic equipment, using industry-standard tools and techniques. Resource materials will be provided, offering detailed information on fitting styles, hose types, and system compatibility to support ongoing service and repair work.

Objective

1. Understand Hydraulic Fundamentals:
Gain a comprehensive understanding of basic hydraulic principles, including pressure dynamics, cylinder sizing, fluid mechanics, and the role of pistons in hydraulic systems.
2. Hands-on Hydraulic Training:
Use hydraulic trainers to practice and observe how different piston sizes and fluid properties affect system performance and pressure, ensuring a deep understanding of system behavior.
3. Pump Operation and Control:
Learn the operation of various hydraulic pumps, their applications, and methods for controlling pressure using mechanical or electronic valves in different systems.
4. Maintenance Practices:
Develop the skills to maintain hydraulic systems, focusing on hose construction, fluid changes, hose selection, and common issues associated with wear and tear.
5. Hydraulic Diagnostics and Troubleshooting:
Learn how to identify and diagnose hydraulic system issues, including pressure loss, improper fittings, and faulty components, through hands-on exercises and diagnostic techniques.
6. Cylinder Repair and Rebuilding:
Understand the process of rebuilding hydraulic cylinders, including seal replacement, through demonstrations and hands-on experience.
7. Safety and Best Practices:
Prioritize safety with mandatory safety training and basic hydraulic procedures to ensure safe practices while handling hydraulic systems.
8. Resource Utilization:
Use supplier-provided resources to properly select and maintain hydraulic components, including hoses, fittings, and cylinders, ensuring compatibility and effectiveness in hydrau-

LIVE TRAINING: WORKSHOPS

Classroom Training | Hands-On Training | Season Pass Eligible

AVI ON-SITE

EV Safety

Course Code	ASE	Course Name	Audience	Icons	CEU
EV-XE109-08-HOT	xEV	Electricfied Vehicle Safety for First Responders			8

Description

In this AVI course on HEV, EV, and alternative fuel vehicle safety for first responders, we will cover what to do and how to handle incidents involving these types of vehicles. If you are a first responder, it is not a matter of if you have an incident with these vehicles but when. Knowing the dangers of dealing with these vehicles in first responder situations could be the difference between life and death.

Objective

Topics

- Electrical Theory
- Electric Vehicle Design
- Electric Vehicles Components
- Electric Vehicles Safety Systems
- Charging Infrastructure

Course Objectives

- Understand basic electrical theory,
- AC vs. DC
- Describe the different EV configurations
- Summarize standard EV components
- List responder EV shutdown procedures
- Explain EV safety systems
- Communicate on EV charging infrastructure
- List necessary Fire PPE

Custom Content

Course Code	ASE	Course Name	Audience	Icons	CEU
CC-CSTOM-03-LEC		Custom up to 4 hour lecture			3 or 4
CC-CSTOM-08-HOT		Custom 8 Hour Workshop			8
CC-CSTOM-16-HOT		Custom 16 Hour Workshop			16
CC-CSTOM-24-HOT		Custom 24 Hour Workshop			24
CC-CSTOM-32-HOT		Custom 32 Hour Workshop			32

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