

AUTOMOTIVE TECHNOLOGY: INDUSTRIAL VEHICLE TECHNICIAN (CERT)

CERTIFICATE OF ACHIEVEMENT

This program is designed to give the completer the necessary skills to enter the automotive service industry working with industrial vehicles in public and private organizations. Forklifts and material handling equipment have unique systems integrated within the vehicle. Entry level incumbent workers will benefit from increasing their skills as they move toward advancement in industrial vehicle service.

Program Student Learning Outcomes

- Identify the proper materials and equipment to protect a vehicle during service
- Properly set up the safety equipment for servicing a hybrid or electric vehicle
- Identify the common hand tools and explain their uses
- Identify tool sets for various automotive service areas
- Demonstrate the safe and proper way to use common automotive hand tools
- Identify the common automotive measuring tools
- Identify and demonstrate the proper use of common automotive power tools
- Describe the function of fasteners and the fastener nomenclature
- Identify fuel handling and safety procedures
- Discuss origins and nature of natural gas
- Discuss the various alternative fuels 1. Propane 2. Methanol 3. Hydrogen
- Understand physical and chemical properties of natural gas
- Define internal combustion process
- Examine natural gas pressures at various stages in CNG system
- Identify general operation and function of components
- Define pneumatic systems and components
- Define hydraulic systems and components
- Describe the operating principles of pneumatics
- Describe the operating principles of hydraulics
- Provide applications for pneumatics and hydraulics
- Provide the generally accepted dangers of pneumatics and hydraulics
- Define automotive electrical systems and components
- Describe the operating principles of electrical systems
- Create series, parallel, and series-parallel circuit
- Perform Ohm's law calculations
- Calculate total resistance and amperage for series and parallel circuits
- Use a digital multimeter (DMM) to test voltage, amperage, and resistance
- Perform a parasitic draw test using an inductive meter and multimeter
- illustrate advances that EV's bring to vehicular travel and emission reduction

- Identify key features of EV technology that meet existing transportation needs as well as environmental requirements today
- Examine the differences between "real transportation performance requirements and what the general public "perceives" as their transportation performance requirement
- List the required components of a basic Electric Vehicle and a source for each component
- Demonstrate safe methods of EV operation, repair, and conversion

Program Requirements

Code Number	Course Title	Units
Required Courses		
AUTO 101	Automotive Service Tools and Equipment	4.0
AUTO 103	Introduction to High Voltage Vehicles	3.0
AUTO 105	Hydraulics and Pneumatics	2.0
AUTO 160	Introduction to Automotive Electrical	5.0
AUTO 182	Introduction to Alternative Fuel	3.5
Total Units		17.5