

Transportation Technology/Diesel

Level III Unit Outline

Unit 1: Safety in the Shop

- Identify safety concerns in the shop.
- Protective clothing/equipment- Safety glasses, boots, pants, gloves etc.
- Identify safety equipment i.e., fire extinguishers, eye wash etc.
- Demonstrate first aid procedures.
- OSHA
- Tool safety
 - Hand tool safety
 - Power tool safety
- Shop equipment safety
- Spills, Blood Borne Pathogens (BBP's)
- Around the vehicle safety
- Hazards in the work place

Unit 2: General Electrical Systems

- Read, check and interpret general electrical circuits in wiring diagrams for continuity.
- Check voltages (applied, circuit, and drops), current flow, and resistance in components.
- Locate, identify and inspect problems in electrical/electronic circuits.
- Check frequency and pulse signals in circuits.

Unit 3: Battery

- Battery load test and state of charge
- Batteries and related components
 - Inspect, clean and service batteries
 - Inspect and clean battery boxes, mounts and hold downs
 - Inspect, test, and clean battery cables and connectors
- Methods of testing and charging batteries

Unit 4: Starting System

- Perform, inspect, and test components in starter control circuit
- Inspect, test, and replace starter relays and solenoids
- Remove and replace starter and related components

Unit 5: Charging System Diagnosis and Repair

- Testing meters and lamps and determining charge malfunctions

- Voltage, amperage, and AC tests
- Alternator repair and/or replacement

Unit 6: Lighting Systems

- Interface and diagnose vehicle computer systems
- Causes and repairs of lighting malfunctions
- Diagnosis, repair and replacements of lighting components in heavy trucks.

Unit 7: Gauges and Warning Devices

- Interface and diagnose vehicle computer systems
- Identifying causes of gauge and warning devices malfunctions.
- Inspection & Testing of circuit sensor/sending units and components in gauges and warning devices.

Unit 8: Related Electrical Systems

- Wipers, horn, and window operation
- Cruise control, door locking devices and auxiliary power components
- Heating, cooling, block heaters, and data bus communication problems.

Unit 9: Preventive Maintenance in Engine Systems

- Engine check
- Fuel system check
- Air induction and exhaust systems check
- Cooling/lubrication systems check

Unit 10: Cab and Hood

- Instruments and controls, i.e., ignition switch, warning instruments, and speed controls, etc.
- Safety equipment, i.e., horns, backup devices, seat belts, sleeper restraints, and wiper blades, etc.
- Hardware, i.e., wipers, windshield, seat operation, mirrors, etc.
- HVAC

Unit 11: Preventative Maintenance for Electrical/Electronic Systems

- Battery and starting systems
- Charging systems
- Lighting system

Unit 12: Frame/Chassis

- Air brakes
- Hydraulic brakes
- Drive train
- Suspension and steering systems
- Tires and wheels
- Frame and fifth wheel

Transportation Technology/Diesel
New Jersey Student Learning Standards (NJSLS)

NJ Learning Standards: CTE.9.3

<i>CONTENT AREA:</i>	<i>9.3 CAREER AND TECHNICAL EDUCATION</i>
TRANSPORTATION, DISTRIBUTION & LOGISTICS CAREER CLUSTER[®]	
Number	Standard Statement
<i>By the end of Grade 12, Career and Technical Education Program completers should be able to:</i>	
<i>CAREER CLUSTER[®]:</i>	<i>TRANSPORTATION, DISTRIBUTION & LOGISTICS (TD)</i>
<i>PATHWAY:</i>	<i>SALES & SERVICE (TD-SAL)</i>
9.3.12.TD-SAL.1	Analyze the ongoing performance of transportation, logistics and distribution-related sales and service operations.
9.3.12.TD-SAL.2	Demonstrate the use of sales and ongoing service of products and services that are transportation related to promote development of existing and future clients and customers.