DIESEL ELECTRICITY ADVANCED
Course Syllabus

Course Number: TRUK-0019  OHLAP Credit: No
OCAS Code: None
Course Length: 45 Hours
Career Cluster: Transportation, Distribution, and Logistics
Career Pathway: Medium/Heavy Diesel Truck Repair
Career Major(s): Diesel Service Technician

Pre-requisite(s): In this course students are taught the evolution of electronics, as it pertains to the diesel industry. They will learn the advantages of integrated circuits over transistorized circuits and use test equipment to check continuity in electronic circuits. Students will also interface with vehicle’s on-board computer and perform diagnostic procedures to determine needed repairs.

PTTTS Truck Web-Bases Training Online Courses

Course Objectives: A. Discuss Principles of Electronics.
1. Discuss the evolution of electronics, as it pertains to the diesel industry.
2. Locate and describe electronic monitoring devices used on diesel equipment.
3. Define diode, and explain its usage in a circuit.
4. Describe two methods of rating diodes, and give three common diode applications in vehicles of today.
5. Discuss the construction, basic types, and advantages of transistors.
6. Explain why thermistors are required to input engine coolant or inlet air temperature into computers.
7. Discuss the operation of throttle position transducers.
8. Give advantages of integrated circuits over transistorized circuits.
9. List general rules or precautions that should be followed when working with integrated circuits.
10. Discuss how static electricity can damage electronic components.
11. Check continuity in electronic circuits using appropriate test equipment.

B. Diagnose and Repair Accessory System Components.
1. Diagnose the cause of brighter than normal, intermittent, dim, or no headlight and daytime running light (DRL) operation. (P1-V.E.1.1)
2. Test, aim, and replace headlights. (P1-V.E.1.2)
3. Test headlight and dimmer circuit switches, relays, wires, terminals, connectors, socket and control components; repair or replace as needed. (P1-V.E.1.3)
4. Inspect and test switches, bulbs/LEDs, sockets, connectors, terminals, relays and wires of parking, clearance, and taillight circuits; repair or replace as
needed. (P1-V.E.1.4)

5. Inspect and test instrument panel light circuit switches, relays, bulbs, sockets, connectors, terminals, wires, and printed circuits/control modules; repair or replace as needed. (P2-V.E.1.5)

6. Inspect and test interior cab light circuit switches, bulbs, sockets, connectors, terminals and wires; repair or replace as needed. (P2-V.E.1.6) (P1-VII.C.3.1)

7. Inspect and test tractor-to-trailer multi-wire connector(s), cable(s), and holder(s); repair or replace as needed. (P1-V.E.1.7) (P1-VII.C.3.3)

8. Inspect, test, and adjust stoplight circuit switches, bulbs/LEDs, sockets, connectors, terminals, and wires; repair or replace as needed. (P1-V.E.2.2) (P1-V.V.I.2.1)

9. Inspect and test turn signal and hazard circuit flasher(s), switches, relays, bulbs/LEDs, sockets, connectors, terminals, and wires; repair or replace as needed. (P1-V.I.2.1)

10. Inspect and test auxiliary power outlet, integral fuse, connectors, terminals, and wires; repair or replace as needed. (P2-V.G.10)

11. Diagnose the cause of intermittent, high, low or no gauge readings; determine needed action. (P2-V.G.11)

12. Diagnose the cause of constant, intermittent, or no horn operation; determine needed action. (P2-V.G.12)

13. Inspect and test horn circuit relays, horns, switches, connectors, and wires; repair or replace as needed. (P2-V.G.13)

14. Inspect and test sideview mirror motors, heater circuit grids, relays, switches, connectors, and wires; repair or replace as needed. (P2-V.G.14)

15. Inspect and test heater and A/C electrical components including: A/C clutches, motors, resistors, relays, switches, connectors, terminals, and wires; repair or replace as needed. (P2-V.G.15)

16. Inspect and test auxiliary power outlet, integral fuse, connectors, terminals, and wires; repair or replace as needed. (P2-V.G.16)

17. Diagnose the cause of intermittent, high, low or no power side window operation; determine needed action. (P2-V.G.17)

18. Inspect block heaters; determine needed repairs. (P2-V.G.18)
28. Inspect and test engine cooling fan electrical control components; repair or replace as needed. (P2-V.G.14).
29. Diagnose the cause of data buss communication problems; determine needed action. (P3-V.G.15).
30. Check all exterior lights, lenses, reflectors, and conspicuity tape; check headlight alignment; determine needed action. (P1-VII.C.3.2)

1 ODCTE Objective
Coding indicates NATEF alignment.
All unmarked objectives are TTC instructor developed.

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

Grading Procedures: 1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment: Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit: The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility: The student must maintain a grade point average of 2.0 or better.