Miami Dade College

Course Description

AER0605 | Tesla Electronic System Technician | 13.25 Credits

This course prepares the student to apply technical knowledge and skills to repair, service, and maintain Tesla vehicles. At the end of the course, the student will be able to diagnose malfunctions in and repair electrical, charging, penthouse, driver assist and infotainment systems and components. Co-Req: AER0606.

Course Competencies:

Competency 1: The student will explain and apply proficiently the diagnosis, service, and repair of electrical systems and components by:

1. Analyzing and interpreting the theories of electricity and applying scientific and mathematical problem-solving skills to diagnose and rectify faults on TESLA electrical circuits
2. Interpreting and evaluating wiring diagrams
3. Practicing electrical diagnostic skills on a variety of electrical systems
4. Utilizing various electrical diagnostic tools, including CAN and LIN diagnostics
5. Developing skills based on electrical theory, analyzing circuits, controlling electricity, analyzing wiring diagrams and procedural troubleshooting

Competency 2: The student will explain and apply proficiently the diagnosis, service, and repair of electric vehicles charging bus systems and components by:

1. Identifying vehicle isolation and describe how it is monitored
2. Demonstrating and analyzing isolation testing procedures
3. Describing and analyzing the purpose and function of high voltage interlock loop (HVIL)
4. Diagnosing isolation and HVIL issues
5. Identifying and describing the purpose of pre-charge
6. Interpreting the function of pilot and proximity circuits
7. Categorizing and identifying the different generations of EV charging equipment
8. Analyzing EVSE variations and diagnosing EVSE systems
9. Identifying and diagnosing charge port, pilot and proximity issues

Competency 3: The student will explain and apply proficiently the diagnosis, service and repair of contactors and penthouse systems and components by:

1. Analyzing and complying with all safety steps and risks associated with the penthouse and ancillary tray
2. Demonstrating the related service procedures for contactor and PCS replacement
3. Identifying and describing the components and functions of the model 3 penthouse
4. Interpreting and describing the functions and operation of the BMS and HV battery

Competency 4: The student will explain and apply proficiently the diagnosis, service and repair of driver assist systems and components by:

1. Identifying and explaining the operation and functions of the driver assist systems
2. Analyzing the DAS components and identifying how they function within the system
3. Diagnosing multiple DAS concerns ranging from customer education to internal system faults
4. Analyzing and performing camera and radar calibration procedures

Competency 5: The student will explain and apply proficiently the diagnosis, service and repair of infotainment systems and components by:

1. Identifying and demonstrating the use of all infotainment systems and subsystems

2. Achieving Teleforce level 2 access
3. Researching and presenting a topic, in technical detail, of a concept from the tesla vehicle theory of operations guide

Learning Outcomes:

- Solve problems using critical and creative thinking and scientific reasoning
- Use computer and emerging technologies effectively
- Describe how natural systems function and recognize the impact of humans on the environment