



Course Outline

Course Title: EV Maintenance & Repair

Course Framework: 40 hours

Course Methods: Lecture, active learning exercises, on-the-job training

Course Designer: WestEd

Course Purpose:

This course provides a foundational understanding on repair and maintenance as it pertains to Electric Vehicles (EV). Throughout the duration of this course, learners will develop their mechanical aptitude and enhance their literacy of EV safety, mechanics, and general maintenance.

Course Description:

This course engages learners in understanding the fundamentals of EV standards for safety, maintenance and repair, and methods for addressing critical issues pertaining to EV maintenance.

Learning Objectives:

By the end of this course, learners will have:

1. Master basic to intermediate EV repair and maintenance skills
2. Perform diagnostics, battery swaps, and routine maintenance
3. Troubleshoot common EV issues, including charging and connectivity problems
4. Understand the types of EV chargers and how to troubleshoot charging issue

Assessment:

Learners will be assessed on the attainment of knowledge and competencies in each module. The instructor will provide the opportunity for each learner to demonstrate their proficiencies in an activity representing each course competency. The instructor will provide feedback to the learner on areas in which they excel and itemize areas in need of improvement.

Course Policies:

Learners are expected to conduct themselves in a professional manner, maintaining attention to safety at all times. Learners are expected to be courteous and respectful to one another and the instructor.

Course Modules

| Module Topic | Objective | Instructional Materials & Assessment |
|--|--|--|
| Module 1 Introduction to Electric Cars | Provide an overview of electric vehicle (EV) components, their functionality, and safety protocols. | YouTube video, online articles Assessment: Quiz |
| Module 2 Routine Maintenance and Repairs | Understand the importance of regular vehicle inspections and apply the workforce skills to conduct a 20 point inspection of electric fleet vehicles. | YouTube video, online articles, Routine Vehicle Inspection Checklist. Assessment: Observation of checklist activity |
| Module 3 Interior and Exterior Maintenance | Cleaning and ensuring fleet readiness. | YouTube video, online articles Assessment: Descriptive Writing |
| Module 4 OSHA & Safety Precautions | Understanding and preparation for OSHA 10 certification | YouTube video, online articles, OSHA.gov website Assessment: Quiz |
| Module 5 Foundational Electrical Concepts | Learn basic electrical vocabulary, concepts and safety standards. | YouTube video, online articles Assessment: Descriptive Writing |
| Module 6 Inverters and Reading a Multimeter | Part 2 of Electrical Mathematical Principles and an introduction to inverters, multimeters | YouTube video, online articles Assessment: Descriptive Writing |
| Module 7 Power & EV Systems | Understanding EV's and calculating EV power usage | YouTube video, online articles Assessment: Descriptive Presentation |
| Module 8 Types of EV Chargers and Troubleshooting Charging Issues | Recognize the differences in EV chargers and practice simple troubleshooting steps | YouTube video, online articles Assessment: Evaluation of Lab Work |
| Module 9 Troubleshooting EV Systems | Understanding key principles to troubleshoot EV charging systems and internal systems in the field. | YouTube video, online articles Assessment: Evaluation of Trouble shooting Map |