

# AMT 173 : HEV III – Diagnostic and Repair

**Credits:** 3

**Class Hours:** 1 lecture and 6 lab

**Prerequisites:** "C" or higher in AMT 171 or automotive industry work experience with instructor's approval.

**Recommended:** Basic electrical knowledge of Ohm's Law and proper use of a DMM to determine voltage drop, shorts, opens, and resistance problems. Knowledge on basic theory of operation on automotive electrical and mechanical subsystems.

**Description:** This course is designed to familiarize the student with hybrid and electric vehicle safety, hybrid internal combustion engines (ICE), hybrid transmissions, parallel/series, power inverter system, AC induction electric machines, permanent magnet electric motors theory and construction, and battery pack construction. Hands-on application to safety disconnect, use of high voltage analysis tools to perform diagnostic tests on high voltage insulation failures, electric motor failures, battery failures, and differentiate between an ICE failure and an electric machine failure. Perform battery pack testing and reconditioning.

**Semester Offered:** Spring

**Course Student Learning Outcomes (CSLOs):**

1. Identify high voltage circuits and systems on Hybrid and Electric Vehicles.
2. Identify safety precautions, location of vehicle high voltage circuit disconnect, and procedures to safely disable system.
3. Use appropriate tools, testing and measuring equipment to perform advanced diagnostics and repair on Hybrid and Electric Vehicle system failures.
4. Demonstrate an understanding of personal and environmental safety practices, and perform all tasks while observing all industry-standard safety practices.