



## **HYBRID & ELECTRIC VEHICLE TECHNOLOGY TRAINING**



MTBM Group Sdn. Bhd. (1600656-M)

Level 8, MCT Tower, Sky Park, One City, Jalan USJ 25/1, 47650 Subang Jaya, Selangor

**Course Title:** Hybrid & Electric Vehicle Technology Training

**Course Validity:** 2 Days

**Validity:** Not Applicable

**HRD Corp Scheme:** Claimable

## **INTRODUCTION**

This training provides participants with comprehensive knowledge of hybrid and electric vehicle (EV) technologies, including architecture, components, energy storage systems, power electronics and charging infrastructure. It highlights operational characteristics, safety considerations, maintenance requirements and current industry developments. Participants will gain essential understanding of how hybrid and EV systems function, how they differ from internal combustion platforms and how to manage risks, performance and efficiency associated with electric mobility systems.

## **OBJECTIVE(S)**

- Understand the fundamentals of hybrid and electric vehicle technologies
- Learn key components and system architecture of HEV, PHEV and BEV models
- Strengthen knowledge of battery technologies, BMS and charging systems
- Improve capability in identifying EV safety risks and protective measures
- Understand EV power electronics, drive systems and energy flow
- Learn maintenance, inspection and troubleshooting fundamentals
- Enhance awareness of EV standards, regulations and industry trends
- Support safe and effective implementation of EV technologies in operations

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**TARGET GROUP(S):**

- Automotive, engineering & technical personnel
- EV maintenance, inspection & workshop teams
- Transportation, fleet management & logistics personnel
- Safety officers, operations & regulatory compliance staff
- Organisations transitioning into electric mobility

**ENTRY REQUIREMENT(S):**

- Able to read and interpret basic regulations
- Basic understanding of ISO 14001 is helpful

**TOPIC(S):**

1. Introduction to Hybrid & Electric Vehicle Technologies
2. Types of EVs: HEV, PHEV, BEV & FCEV Overview
3. Electric Drivetrain, Motors, Inverters & Power Electronics
4. Battery Technology, BMS & Energy Storage Fundamentals
5. EV Charging Systems, Connectors, Levels & Infrastructure
6. EV Safety Requirements, High-Voltage Protocols & Risk Controls
7. Operational, Maintenance & Troubleshooting Basics
8. Global Trends, Standards & Future Technology Developments

**LIST OF REFERENCE BOOK(S):**

- Electric Vehicle Technology Standards & Guidelines
- Battery Management System & High-Voltage Safety Manuals
- Hybrid & EV System Architecture References
- Global Electric Mobility Regulations & Best Practices

**LIST OF TEACHING AID(S):**

- LCD projector
- Computer
- Whiteboard with accessories

**METHODOLOGY(S):**

- Lecture
- Case studies
- Group discussions
- EV system-mapping exercises
- Practical safety & component identification workshops

## TRAINING SCHEDULE

### Day 1

| Time                | Activity / Topic                                     |
|---------------------|--|
| 8:30 am – 9:00 am   | Registration and Introduction                        |
| 9:00 am – 9:45 am   | Topic 1: Introduction to Hybrid & EV Technologies    |
| 9:45 am – 10:30 am  | Topic 2: Types of EVs – HEV, PHEV, BEV & FCEV        |
| 10:30 am – 10:45 am | <b>Morning Tea Break</b>                             |
| 10:45 am – 11:30 am | Topic 3: Electric Drivetrain, Motors & Inverters     |
| 11:30 am – 12:30 pm | Topic 4: Battery Technology & BMS Fundamentals       |
| 12:30 pm – 1:30 pm  | <b>Lunch Break</b>                                   |
| 1:30 pm – 2:30 pm   | Case Study: EV System Architecture & Performance     |
| 2:30 pm – 3:30 pm   | Workshop: EV Component Identification                |
| 3:30 pm – 3:45 pm   | <b>Afternoon Tea Break</b>                           |
| 3:45 pm – 5:00 pm   | Practical Exercise: Energy Flow & System Interaction |

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## TRAINING SCHEDULE

### Day 2

| Time                | Activity / Topic   |
|---------------------|--|
| 8:30 am – 9:00 am   | Recap of Day 1 & Q&A                                     |
| 9:00 am – 9:45 am   | Topic 5: EV Charging Levels, Connectors & Infrastructure |
| 9:45 am – 10:30 am  | Topic 6: High-Voltage Safety Requirements                |
| 10:30 am – 10:45 am | <b>Morning Tea Break</b>                                 |
| 10:45 am – 11:30 am | Topic 7: Maintenance & Basic Troubleshooting             |
| 11:30 am – 12:30 pm | Practical: EV Fault Indicators & Safety Controls         |
| 12:30 pm – 1:30 pm  | <b>Lunch Break</b>                                       |
| 1:30 pm – 2:30 pm   | Topic 8: EV Technology Trends & Standards                |
| 2:30 pm – 3:30 pm   | Group Exercise: EV Readiness & Implementation Planning   |
| 3:30 pm – 3:45 pm   | <b>Afternoon Tea Break</b>                               |
| 3:45 pm – 5:00 pm   | Final Review, Q&A & Closing                              |