

NEXTMOVE

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collaboration is the driver

Electric Vehicle Courses - Mode 1 - Base Technical Training

Mode 1 - Base Technical Training

Description du programme :

Duration : 6 hours (2 days)

member price = 720 € / pers

non-member price = 750 € / pers

- Basic technical knowledge of electric, hybrid and fuel cell vehicles.
- General safety knowledge.

EV - Véhicule Types

EV - main components

EV - Battery systems - module 1

EV - charging systems

EV - Emotor types

EV - safety Hazards

EV - Véhicule safety features

Durée:

6.00 heures, (2.00 jour.s)

Profils des apprenants

- Personnel with NO direct contact on the EVs HV system (i.e. Management, Administration)

Prérequis

- none

Accessibilité et délais d'accès

Délai d'accès : 2 semaines

Effectif minimum - maximum : 3 à 12 personnes

Objectifs pédagogiques

- To understand how the electrification of combustion vehicles has gradually increased functionality as well as benefits in terms of fuel economy and pollution reduction.
- To know the main components that can be found in hybrid, electric and fuel cell vehicles, as well as their main characteristics.
- To understand the principle of operation of a battery, market developments and the internal structure of the battery pack.
- To discover all types of charging modes and connectors for electric and hybrid vehicles available on the market and the main differences between them.
- Having an overview of the evolution in demand and development of electric motors. Developments in the automotive sector, topologies and future trends
- Having information and awareness-raising on the dangers of electric and hybrid vehicles. Safety measures, equipments and protocol for action in the event of an accident
- Having a review of all active safety systems against electrical hazards in vehicles

Contenu de la formation

- EV Vehicle Types
 - An overview of how the electrification of combustion vehicles has gradually increased functionality as well as benefits in terms of fuel economy and pollution reduction.
 - • Different vehicles types • Interchangeable battery electric vehicle • Electric vehicles • Hybrid vehicles (Serie, parallel, Serie parallel) • Mild hybrid vehicles • Pure hybrid vehicles • Plug in hybrid vehicles • Hydrogen fuel cell electric vehicles
- EV - Main Components
 - An overview of the main components that can be found in hybrid, electric and fuel cell vehicles, as well as their main characteristics.
 - • 12V battery • HV battery • Fuel Cell • HV wiring • Service disconnect switch • Inverter • Electric motor • Mechanical coupler • Super capacitors • DC/DC Converters • PTC heater • A/C eCompressor • On board charger
- EV - HV Battery Systems (module 1)
 - • An overview of the principle of operation of a battery, market developments and the internal structure of the battery pack.
 - • Operation Principle of an Electrochemical Cell • Cell Formats • Fundamental Definitions and Concepts • Li Ion Fundamentals • Thermal Runaway • Ageing Mechanisms • Handling Precaution • Battery Pack Structure • Other HV Components in a Battery Pack
- EV - Charging systems
 - Review of all types of charging modes and connectors for electric and hybrid vehicles available on the market and the main differences between them.
 - • Types of recharging • Recharging modes • Functionalities associated with recharging • Types of connectors (different markets) • High power connection methods (Heavy duty)
- EV - Electric motor types
 - An overview of the evolution in demand and development of electric motors. Developments in the automotive sector, topologies and future trends.
 - • E Motor trend • Technology development priorities • E Motor principle of operation • E Motor Types • Major OEMs choices • A step forward / Future trends
- EV - Safety hazards
 - Information and awareness raising on the dangers of electric and hybrid vehicles. Safety measures, equipment and protocol for action in the event of an accident.
 - • Electrical hazard • Electric shock • Electric arcing • Chemical hazard • Poisoning hazard • Electrolyte spill • High temperature • Deflagration hazard • Fire risk
- EV - Vehicle Safety Features
 - A review of all active safety systems against electrical hazards in vehicles .
 - • IPXXX Protection • Switch SD (Service Disconnect) • HV connector locking mechanism • Power wires characteristics • Isolation Monitoring Device (IMD) • Interlock system • High voltage pyrotechnic fuse • Battery and cells venting valves

Organisation de la formation

Equipe pédagogique

4 Electric Vehicle Experts from IDIADA's EV Training Team

Moyens pédagogiques et techniques

- Discussions between participants and with the trainer

Dispositif de suivi de l'exécution de l'évaluation des résultats de la formation

- Presentation and quiz at the beginning and at the end of the session
- Attendance sheet

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