Training module on Electric Vehicles (EVs)

Programme Title	Electric Vehicles, Batteries and Charging Stations
Duration	5 days
Venue	NTPC School of Business, Noida

Day	Time	Topic
Day 1	Forenoon (FN)	Basics of Electric Vehicles History of EVs, Working of EVs and its main components, Types of EVs Basics of electric vehicles (EVs), plug-in electric vehicles (PEVs), plug-in hybrid electric vehicles (PHEVs), and hydrogen electric vehicles, their advantages and disadvantages, comparison of conventional versus electric vehicles in terms of maintenance and infrastructure, etc.
		Vehicle dynamics (part-I) Introduction to vehicle dynamics, aspects of vehicle dynamics; tools and techniques to assess the vehicle dynamics, etc.
	Afternoon (AN)	Vehicle dynamics (part-II) Challenges and problems associated with vehicle dynamics, suspension technologies, design and development processes, examples of vehicle dynamics, etc.
		Electric Vehicles trends EV adoption trends, outlook and policies of countries having major EV markets, EV industry and its Manufactures, cost and current market of electric vehicles, etc.
Day 2	FN	EV ecosystem (part-I) Concepts of AC and DC charging; Prospects and reality of EVs Global and climate impact, etc.
		Fleet electrification plans and EV acquisition (part-I) Public transport electrification measures, opportunities and challenges, Indian and global aspects, etc.
	AN	EV ecosystem (part-II) Charging infrastructure and types, Indian and global scenario, key players, etc.
		Applications of EVs and hybrid vehicles Application range of EVs and hybrid vehicles, Market scenario of EVs and hybrid vehicles in India and other countries, Future trend and challenges, etc.
Day 3	FN	Fleet electrification plans and EV acquisition (part-II) Cases and/or examples
		Electric vehicle batteries EV battery, requirement of an EV battery, battery history, types of EV batteries, charging process and requirement, swapping,

		examples of EVs using different batteries, future batteries, roadmap etc.
	AN	Battery management system BMS and its need, general function of BMS and its architecture, various battery packs like voltage sensing, current sensing, temperature sensing, etc., HV contractor control, State of Charge (SOC) and methods to find SOC, cell balancing, applications of BMS, etc.
		Smart applications & grid support by EVs Vehicle-to-grid (V2G) and Grid-to-vehicle (G2V) systems, V2G and G2V systems requirements and power flow, applications of V2G system like peak load levelling, peak power, spinning reserves, etc.; Applications of G2V system; Global V2G and G2V infrastructure; Social and environmental impact of V2G and G2V systems, challenges to V2G and G2V concepts and way forward; etc.
Day 4	FN	Economics and financing aspects of Electric Vehicles
		Interaction Session
	AN	Site Visit to EV charging station
Day 5	FN	Visit to Automated EV manufacturing and associated facilities
	AN	Valedictory session for the participants