



IPS Academy, Institute of Engineering & Science
(A UGC Autonomous Institute, Affiliated to RGPV, Bhopal)
Scheme Based on AICTE Flexible Curriculum
Department of Electronics & Communication Engineering

Certification Course on E-Vehicle Charging Station

Eligibility: ITI/Diploma/B.Tech

(ME/EC/EX/Electronics)

Course Objective: To up skill the youth with the latest technology of E-Vehicle charging station.

MODULE I (08 Hrs.)

Introduction of Electric Vehicle, Components of Electric Vehicle, Basic working of EV Vs BS6, Comparison with Internal Combustion Engine, EV Technology, classification and their electrification levels.

MODULE II (08 Hrs.)

Block diagram and working of charger, Types of EV Charging stations, Implementation Mechanism, Slow charger design rating, Fast charger design rating, AC charging and DC charging, and In-board and off-board charger specification.

MODULE III (08 Hrs.)

Selection and sizing of the fast and slow charger (AC & DC), AC Pile Charger, DC Pile Charger, EVSE Power Module selection, and technical specification, Selection of EVSE Communication Protocol (PLC/Ethernet/Modbus/CANModule), Communication gateway, Communication Interface between the charger and CMS (central management system), Components of EV charging station.

MODULE IV (08 Hrs.)

Selection and sizing of Common types of connectors and applications, Communication between AC Charger and EV, Selection of DC charger connector GB/T, CCS1 and CSS2, Communication methodology of DC fast chargers IS/IEC/ARAI/standard of Charging topology, Communication and connectors, Selection of EVA sheet, Bus bar, and frame, Assembling EV Charging station.

MODULE V (08 Hrs.)

Public Charging infrastructure / Electrical system design, Design module of EV Charging station, Assessment of site location for Public charging station, Selection and sizing of Distribution transformer, Selection and sizing of HT Equipment (VCB, CT, PT, Metering, Selection and sizing of HT Cables and LT Cables, Selection and sizing of Distribution Board/Feeders, Selection of Compact Substation/Power Substation, Preparation of EV Charger Electric.



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Course Outcome:

Students earning credits will develop ability to:

1. Learn overview of EV Technology.
2. Understand the different types of charging stations and design ratings.
3. Study different chargers and technical specification.
4. Understand types of connectors.
5. Design module of EV Charging station.

Text/Reference Books:

1. Iqbal Hussein, Electric and Hybrid Vehicles: Design Fundamentals, CRC Press, 2003.
2. C.C Chan, K.T Chau: Modern Electric Vehicle Technology, Oxford University Press Inc., New York 2001.
3. James Larminie Oxford Brookes University, Oxford, UK John Lowry Acenti Designs Ltd., UK, Electric Vehicle Technology Explained
4. James Larminie, John Lowry, Electric Vehicle Technology Explained Wiley, 2003.