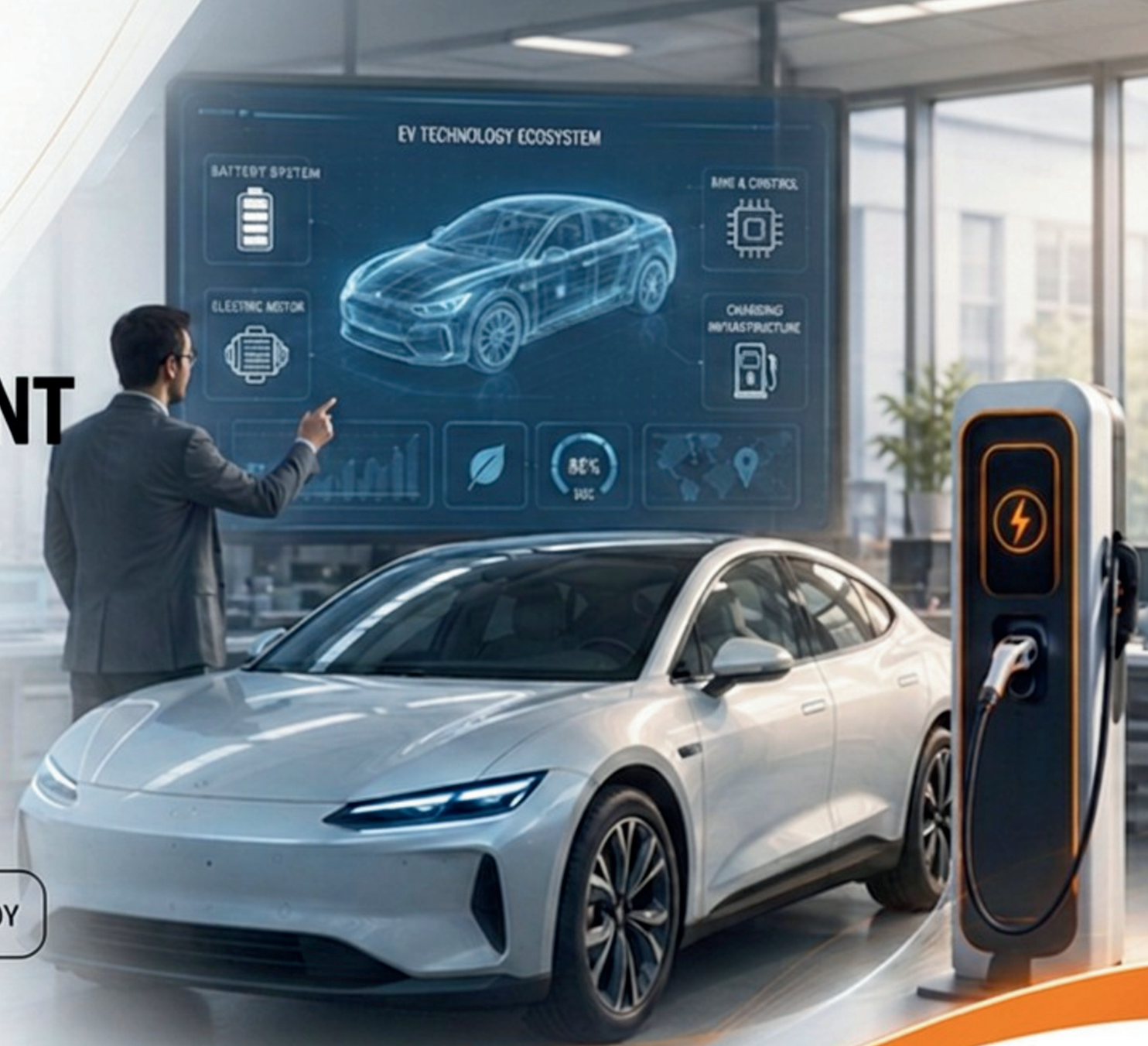
BISD
Bharat Institute for
Skill Development

EXCLUSIVE FACULTY DEVELOPMENT PROGRAM

ON

ELECTRIC VEHICLES (EV)



40 HOURS | HANDS-ON | INDUSTRY READY

FUTURE MOBILITY | SMART SYSTEMS | EV INNOVATION

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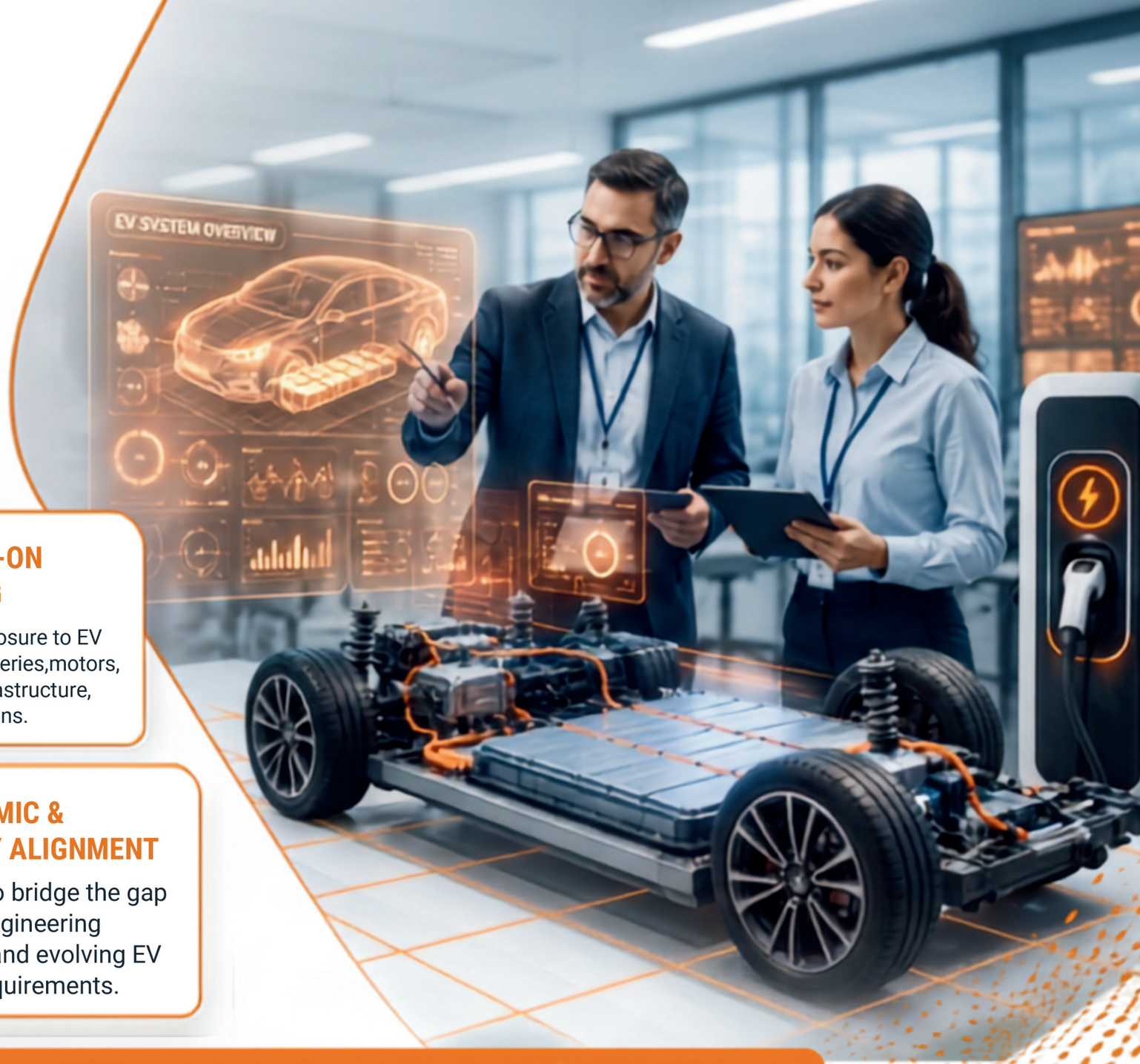
WHY THIS FDP?

The electric mobility revolution is reshaping industries, research, and engineering education. Faculty members need industry-aligned EV expertise to prepare future-ready talent.



1. INDUSTRY TRANSFORMATION

Evs are driving the future of transportation, sustainability, and smart mobility ecosystems.

2. HANDS-ON LEARNING

Practical exposure to EV systems, batteries,motors, charging infrastructure, and simulations.

3. FUTURE TECHNOLOGIES

Explore AI, IoT, smart charging, V2G, and next-generation EV innovations.

4. ACADEMIC & INDUSTRY ALIGNMENT

Designed to bridge the gap between engineering education and evolving EV industry requirements.

SMART MOBILITY | **SUSTAINABLE FUTURE** | **EV INNOVATION** | **INDUSTRY 4.0**

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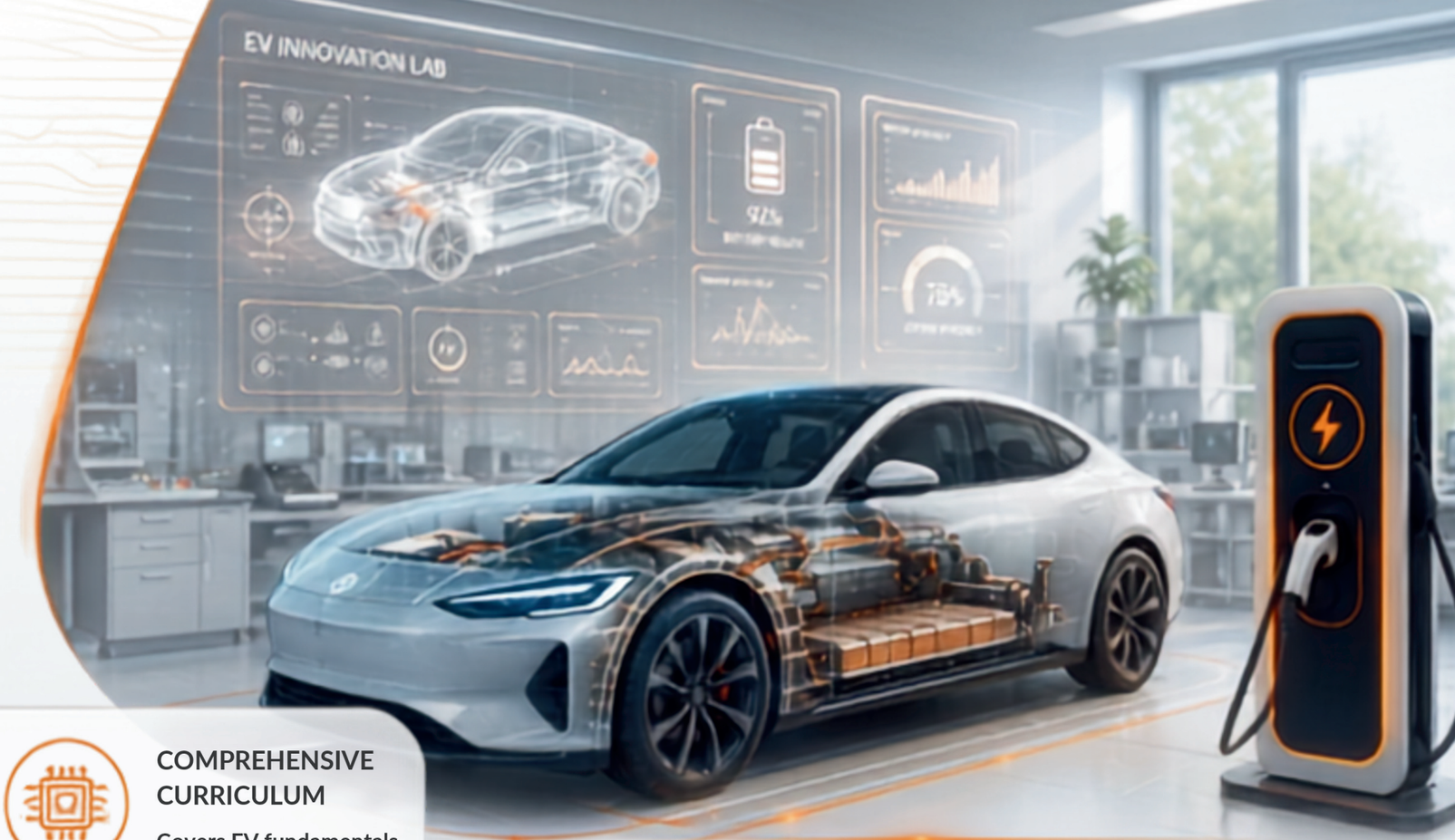
PROGRAM HIGHLIGHTS

A 40-hour intensive faculty development program designed to build practical, research-oriented, and industry-relevant expertise in Electric Vehicles (EV).



EXPERT-FACULTY LED SESSIONS

Learn from industry professionals and domain experts.

HANDS-ON EXPERIENCE

Real-world labs, tools, simulations, and case study applications.

COMPREHENSIVE CURRICULUM

Covers EV fundamentals to advanced emerging technologies.

INDUSTRY RELEVANCE

Aligned with current industry trends and workforce needs.

CERTIFICATE OF COMPLETION

Earn a recognized certificate to enhance your professional profile.

NETWORKING OPPORTUNITIES

Connect with experts, peers, and EV enthusiasts.

HANDS-ON. PRACTICAL. IMPACTFUL.

Empowering faculty to drive innovation, improve classroom learning, and contribute to the future of sustainable mobility.

WHAT YOU WILL GAIN

- Strengthen Technical Knowledge
- Enhance Teaching Capabilities
- Apply Practical Industry Skills
- Stay Ahead with Emerging Trends
- Inspire Future-Ready Students
- Contribute to a Sustainable Future

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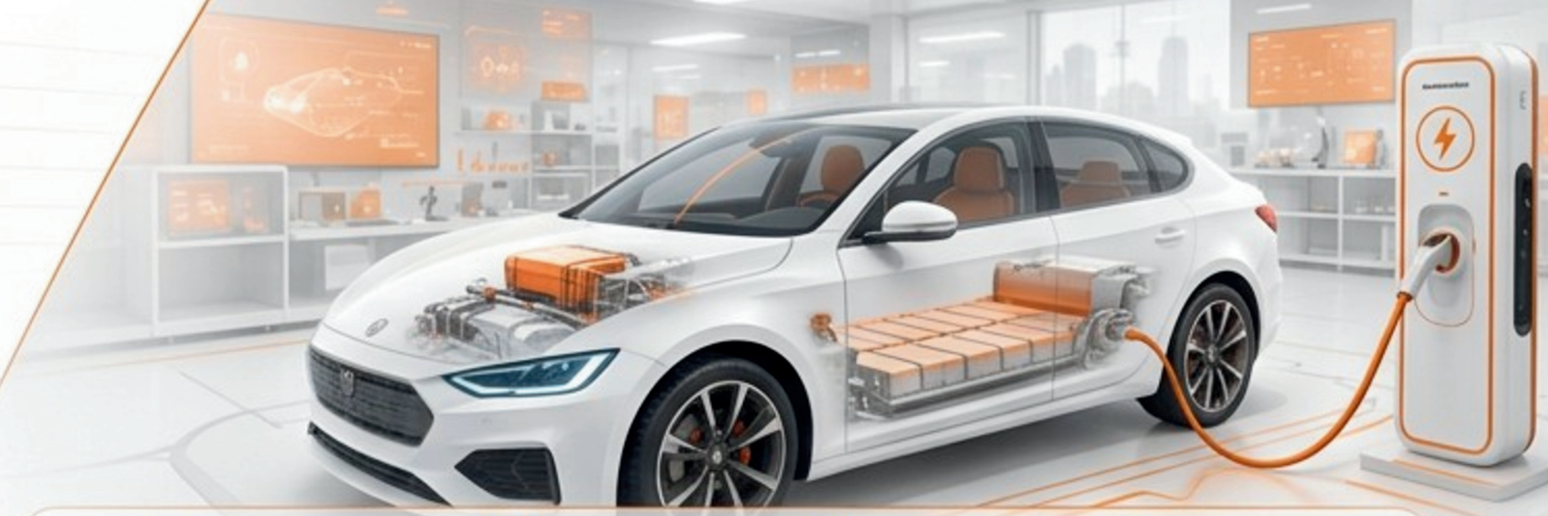
PROGRAM CURRICULUM

A comprehensive 40-hour journey through Electric Vehicle fundamentals to future-ready technologies.



INDUSTRY FOCUSED | PRACTICAL LEARNING | FUTURE READY | ACADEMIC IMPACT

01

MODULE 1

Introduction to Electric Vehicles

- Overview of EV evolution and market trends
- Types of Electric Vehicles (BEV, PHEV, HEV, FCEV)
- Key components and working principles
- EV ecosystem: Stakeholders and value chain
- Global & Indian EV policies and initiatives

Outcome: Understand EV landscape, terminologies, and real-world relevance.

02

MODULE 2

Energy Storage Systems

- Battery fundamentale & electrochomistry
- Battery types: Li-ion, LFP, NMC, Solid-state (overview)
- Battery Management Systems (BMS)
- Charging-discharging characteristics
- Battery testing, safety, and thermal management
- Second-life and recycling technologies

Outcome: Gain deep knowledge of batteries, BMS, safety, and performance.

03

MODULE 3

Electric Motors & Drive Systems

- Types of EV motors: BLDC, PMSM, Induction, SRM
- Motor construction and working principles
- Motor control techniques and drive electronics
- Inverters, converters and control strategies
- Performance analysis and efficiency optimization

Outcome: Understand motor technologies and drive system integration.

LEARNING APPROACH

Expert-Led Sessions | Hands-On Labs & Tools | Simulations & Case Studies | Industry Applications

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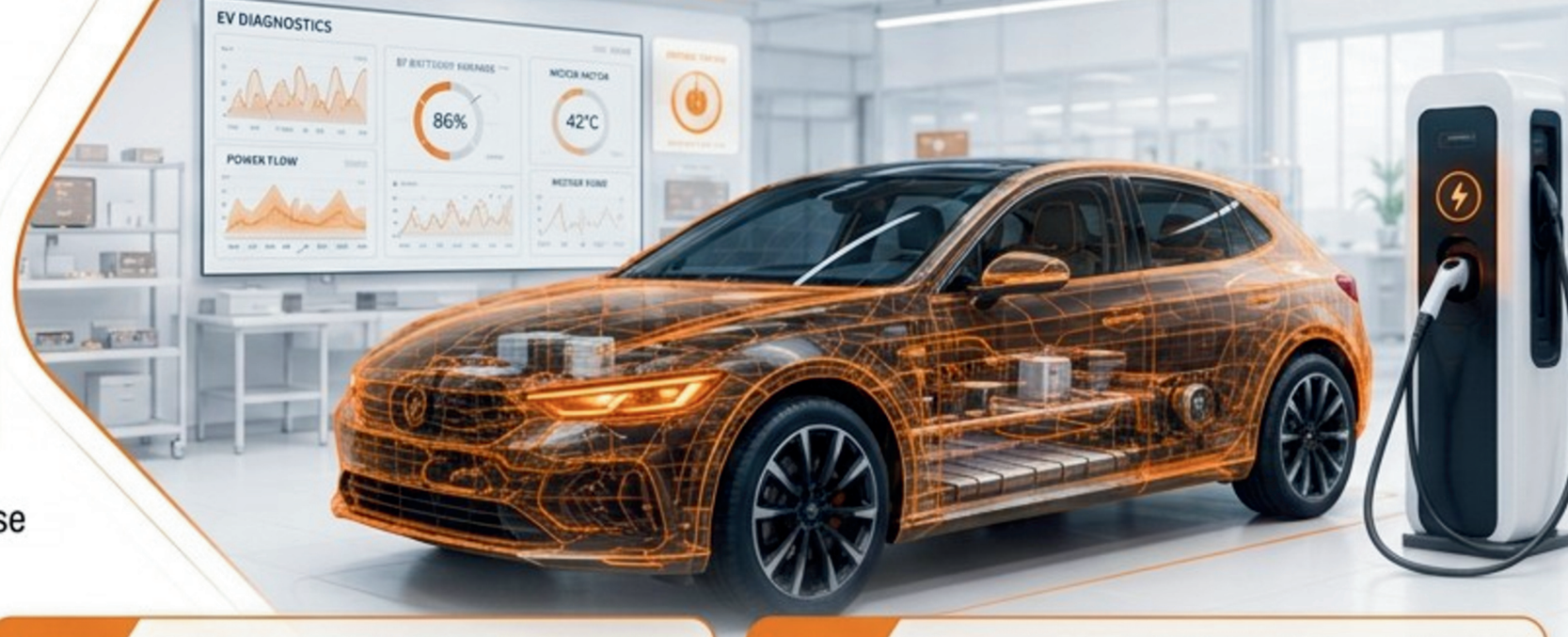
PROGRAM CURRICULUM

Advanced learning modules designed to build expertise in EV technologies and future mobility solutions.



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MODULE 4
Power Electronics for EVs

- Basics of power electronics in EV applications
- Converters: DC-DC, DC-AC, AC-DC
- PWM techniques and gate drives
- Inverters for motor control
- Efficiency, loss analysis, and thermal management

Outcome: Understand power electronic converters and their role in EV performance.

05

MODULE 5
EV Charging Systems & Infrastructure

- Types of EV charging: AC, DC, Fast charging
- Charging standards: CCS, CHAdeMO, GB/T, Type 2
- Charging station architecture and components
- Smart charging and load management
- Public charging infrastructure and business models

Outcome: Gain knowledge of charging technologies and infrastructure design.

06

MODULE 6
Battery Management Systems (BMS)

- BMS architecture and functional blocks
- State of Charge (SOC) and State of Health (SOH) estimation
- Cell balancing techniques
- Fault detection and protection strategies
- CAN communication and data management

Outcome: Develop skills in battery monitoring, protection, and data management.

WHY THESE MODULES MATTER?

Building core expertise to drive innovation, safety, and efficiency in Electric Mobility.

- Stronger Academic Foundation
- Industry-Relevant Expertise
- Research & Innovation Enablement
- Future-Ready Engineering Education

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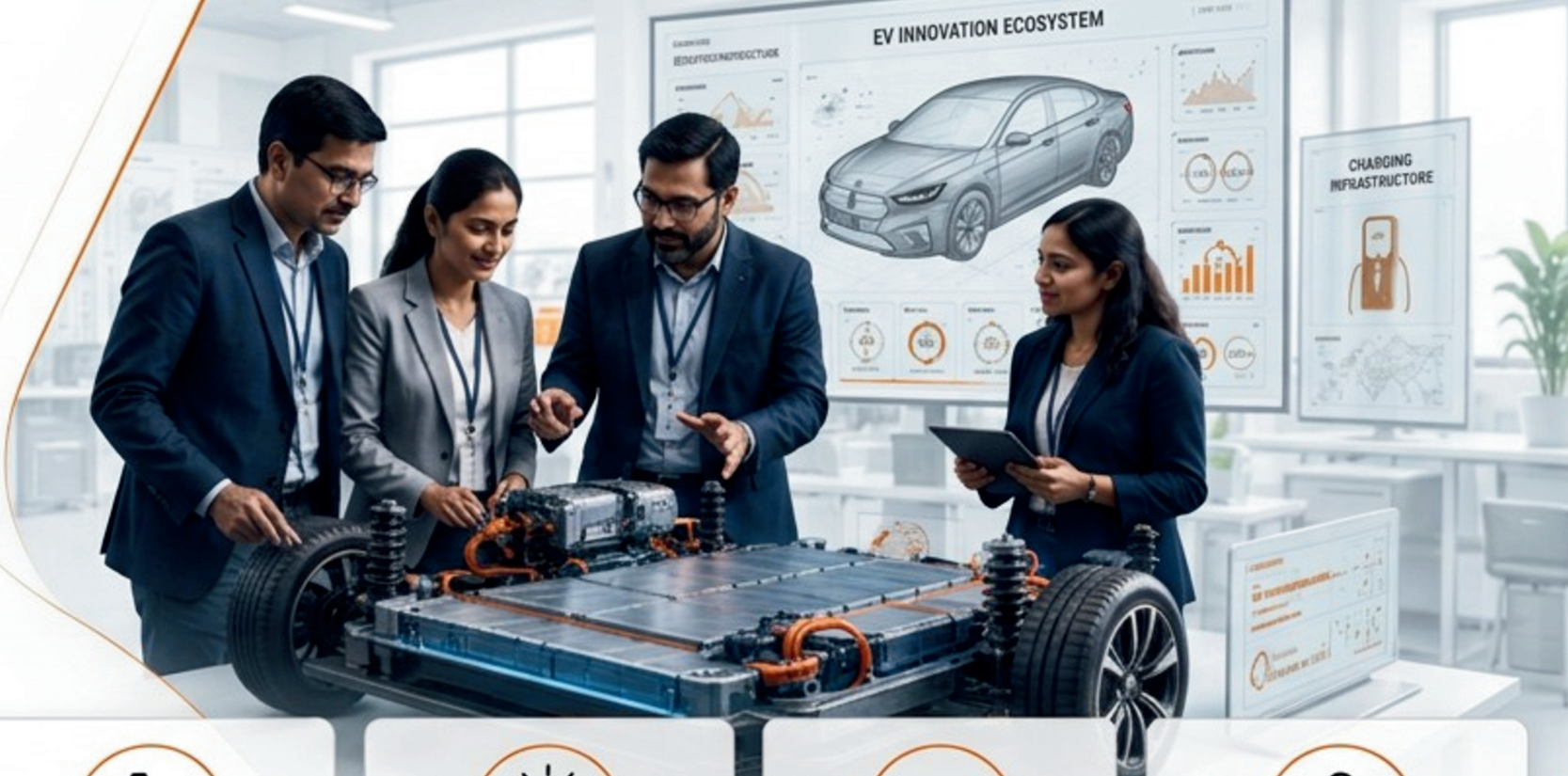
BENEFITS OF THE FDP

This program empowers faculty with the knowledge, skills and confidence to lead innovation and build future-ready engineering graduates.



ENHANCED EXPERTISE

Gain in-depth knowledge of EV technologies, systems, and emerging industry practices.

STRONGER TEACHING IMPACT

Bring real-world insights into the classroom and enrich academic learning.

INDUSTRY RELEVANCE

Stay aligned with industry trends and improve curriculum relevance.

RESEARCH & INNOVATION

Explore new ideas, collaborate, and contribute to EV innovation.

PROFESSIONAL GROWTH

Earn a recognized certificate and strengthen your professional profile.

NETWORKING OPPORTUNITIES

Connect with experts, peers, and industry leaders across the EV ecosystem.

REAL IMPACT. FUTURE READY.

Empower Faculty. Inspire Students.

Drive Innovation. Lead Change.

Build Sustainable Mobility Solutions.

Shape the Future of Engineering Education.

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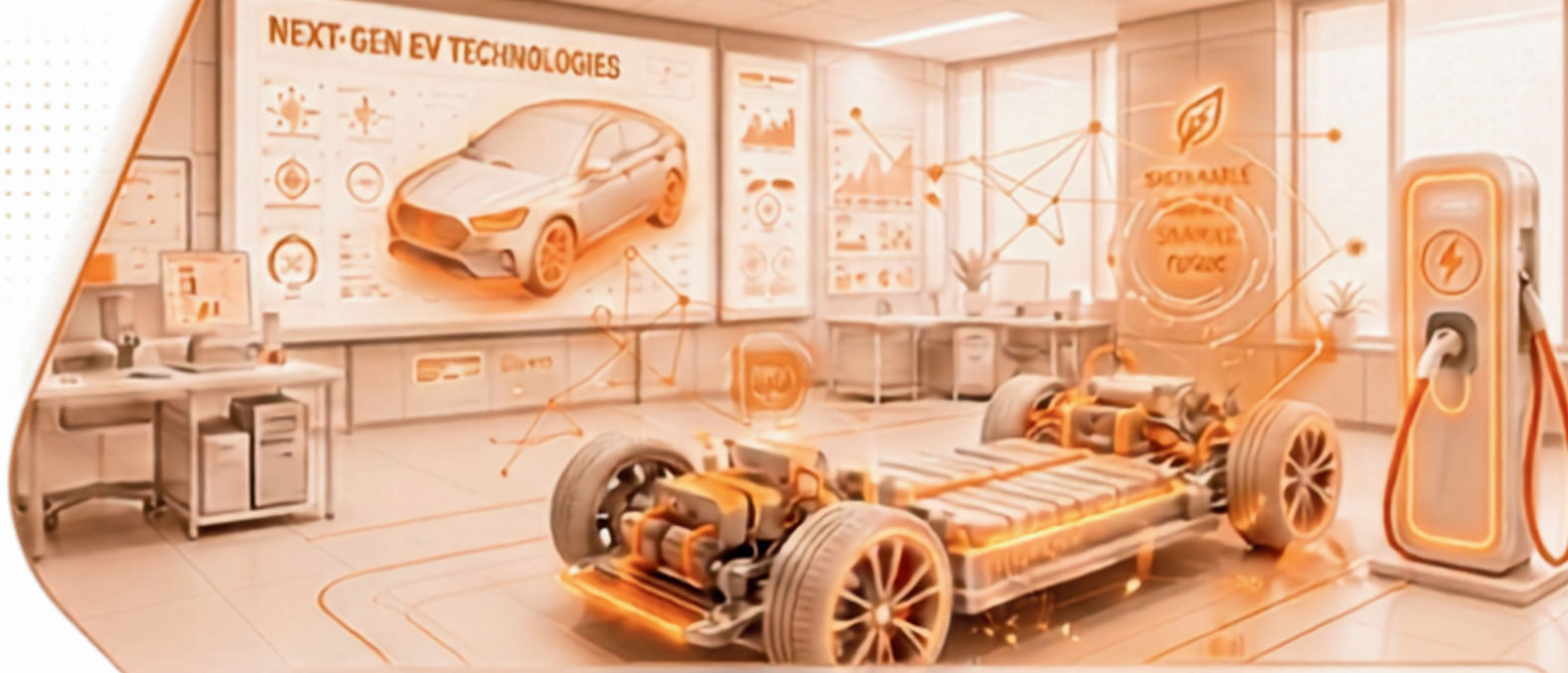
WHO SHOULD ATTEND & KEY TAKEAWAYS

This FDP is designed for engineering educators who want to upgrade their knowledge, stay industry-relevant, and contribute to the electric mobility revolution.



WHO SHOULD ATTEND?

- Faculty Members from Engineering Colleges & Universities
- Assistant Professors, Associate Professors & Professors
- Researchers & Scholars in EV and related domains
- Lab Instructors & Technical Educators

KEY TAKEAWAYS

- Gain comprehensive knowledge of EV systems, batteries, motors, and power electronics.
- Hands-on exposure to tools, simulations, and real-world EV technologies.
- Stay updated with industry trends, standards, and emerging innovations.
- Enhance teaching methodologies with practical and industry-aligned insights.
- Earn a recognized certificate to boost professional profile and academic impact.

PROGRAM DELIVERY

EXPERT-LED SESSIONS
Learn from industry experts and academicians

HANDS-ON LAB APPLICATIONS
Practical learning with tools and equipment

INTERACTIVE LEARNING
Case studies, discussions, and problem-solving

RESOURCE MATERIAL
Access to study materials, references & e-resources

DURATION
40 HOURS
5 Days | 8 Hours/Day (Hybrid Mode)

MODE
HYBRID
Offline + Online (Live Interactive Sessions)

CERTIFICATION E-CERTIFICATE
Jointly issued by BISD to all participants

Empowering educators today to build the Electric Mobility leaders of tomorrow.

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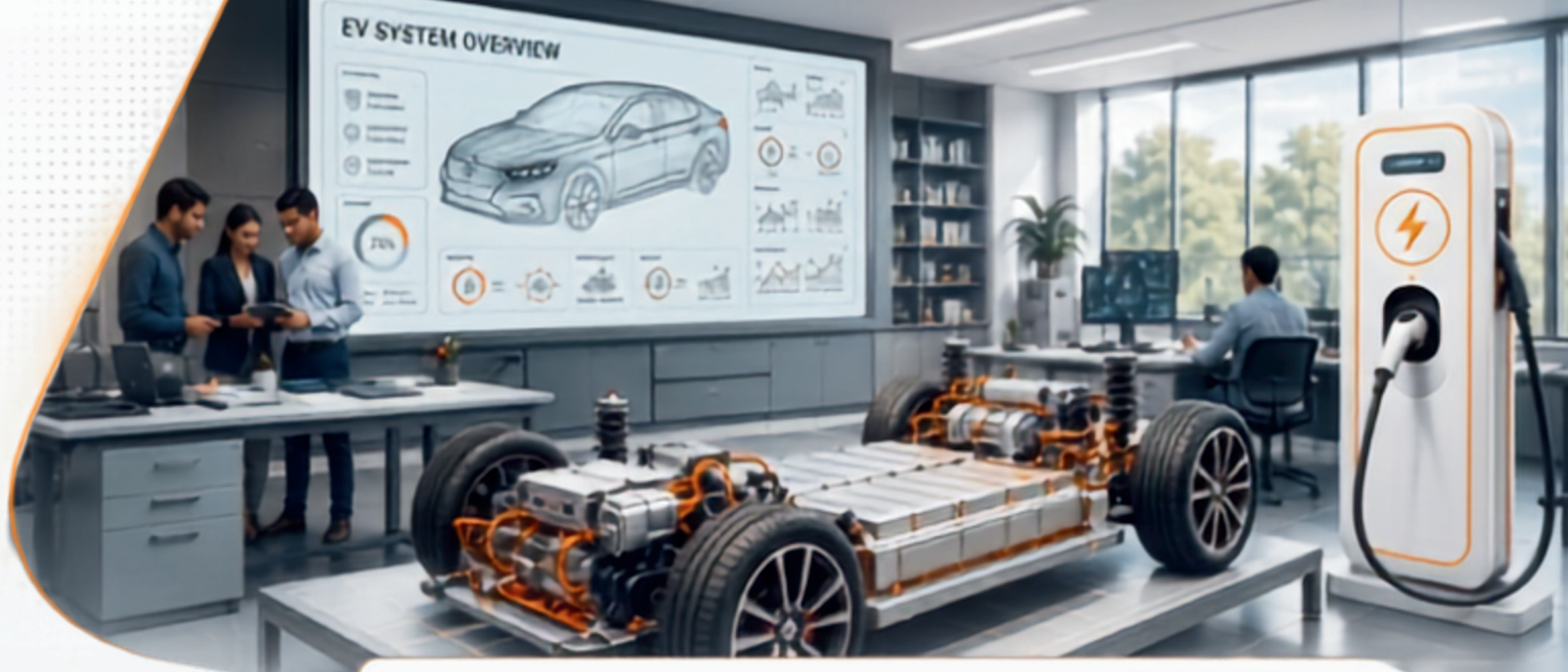
PROGRAM DETAILS

A well-structured, interactive, and hands-on program that blends theory, practical labs, case studies, and industry insights for complete learning.



PROGRAM FEATURES

EXPERT GUIDANCE

Learn from industry professionals, researchers, and EV developments.

HANDS-ON EXPERIENCE

Work with real EV components, tools, and simulation platforms.

PRACTICAL APPROACH

Case studies, lab applications, and real-world problem solving.

INTERACTIVE SESSIONS

Engaging discussions, Q&A, group activities, and peer learning.

CERTIFICATE OF COMPLETION

E-certificate jointly issued by BSD to all successful participants.

LEARNING METHODOLOGY

Conceptual Learning → Expert Explanation → Hands-on Practice → Application & Analysis → Assessment & Feedback → Industry Relevance

WHAT YOU WILL EXPLORE

EV FUNDAMENTALS	• Evolution of Electric Vehicles and Market Trends • EV Architecture, Components and Working Principles
ENERGY STORAGE	• Battery Types, Chemistry and Characteristics • BMS, Safety, Thermal Management and Recycling
MOTORS & DRIVE SYSTEMS	• Motor Types and Construction • Powertrain, Control Techniques and Efficiency
POWER ELECTRONICS	• Converters, Instructors and DC-DC Converters • Control Strategies and Power Management
CHARGING SYSTEMS & INFRASTRUCTURE	• AI, DC, V2G, Charging and Smart Charging • Charging Standards, Business Models and Challenges
EMERGING TECHNOLOGIES	• AI, IoT, V2G, Autonomous EVs and Connected Mobility • Future Trends and Innovation Opportunities

OUTCOMES YOU CAN EXPECT

- Stronger technical understanding of EV systems
- Practical skills for real-world applications
- Exposure to latest tools, technologies and standards
- Ability to integrate EV concepts into teaching & research
- Enhanced professional growth and industry connect

A comprehensive learning experience to help you
TEACH, INNOVATE & TRANSFORM THE FUTURE OF MOBILITY.

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