

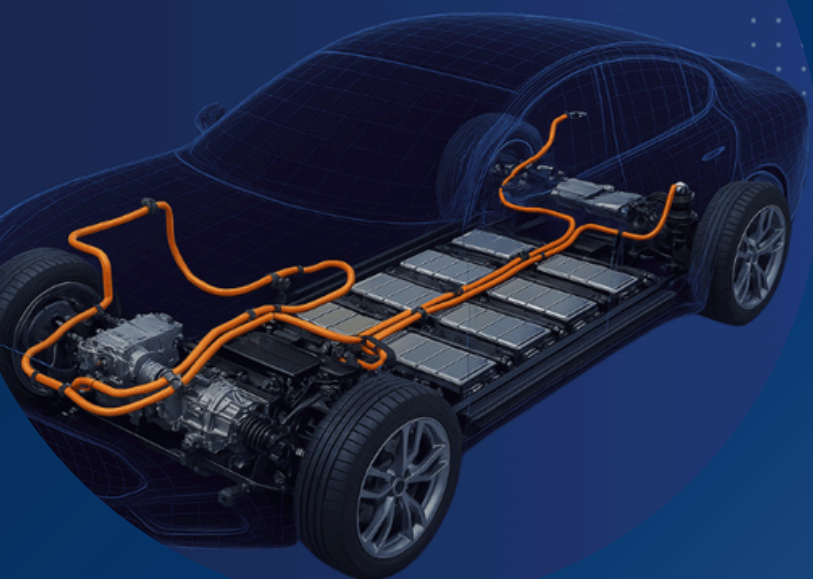


THIAGARAJAR POLYTECHNIC COLLEGE ALAGAPPANAGAR

DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING

Faculty Development Program (FDP)
on

EV TECHNOLOGY, BMS AND CHARGING PROTOCOLS



IMPORTANT DATES

25th & 26th August 2025
Offline sessions

At Thiagarajar
Polytechnic College,
Alagappanagar

27, 29 & 30 August
2025 - Online sessions

CONTACT US:



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JOINTLY ORGANIZED BY

- **SITTTR** Kalamassery
- **NIELIT** Calicut
- Department of **EEE**
Thiagarajar Polytechnic
College, Alagappanagar

Who can Apply

Faculty members and supporting
staff of all Polytechnic Colleges.

HOW TO APPLY

[https://sitttrkerala.ac.in/index.php?
r=site%2Fmember-login](https://sitttrkerala.ac.in/index.php?r=site%2Fmember-login)

ABOUT THE FDP

This Faculty Development Programme (FDP) is designed to equip faculty members with comprehensive knowledge and hands-on experience in the field of Electric Vehicle (EV) technologies. With the global shift toward sustainable transportation, this FDP aims to empower educators with the latest advancements in EV systems, enabling them to integrate emerging technologies into their teaching, research, and student projects.

The programme covers core topics such as EV fundamentals, power and torque calculations for 2W, 3W, and 4W vehicles, battery types and Battery Management Systems (BMS), electric motors (BLDC and PMSM), and charging technologies. A special focus is given to EV charger communication protocols, particularly the Open Charge Point Protocol (OCPP)—an open-source standard used for communication between EV chargers and Central Management Systems (CMS). Faculty will learn how OCPP enables smart charging, session tracking, remote diagnostics, and grid-friendly energy management.

Hands-on lab sessions using MATLAB and Simulink form a critical part of this FDP, allowing participants to simulate real-time scenarios like battery charging/discharging, motor controller behavior, and regenerative braking. The programme also introduces Raspberry Pi (RPI) as a prototyping platform for EV applications. Participants will gain insights into how RPI can be used to build and test basic OCPP-based charger simulations, integrate sensors, and explore system-level integration of EV components.

The FDP also explores emerging trends such as solar-powered charging solutions, smart motor controllers, and data-driven EV diagnostics, helping faculty stay updated with current industrial practices. By the end of the programme, participants will be capable of applying this knowledge to design lab experiments, mentor student projects, and contribute to research and development in the electric mobility domain.

TENTATIVE SCHEDULE

DAY	Session 1	Session 2	Session 3	Session 4
DAY1	Inauguration & Registration	Fundamentals of EV	Power & Torque Calculation in 2W,3W&4W	Hand on Simulink_Matlab
DAY2	Battery Management System Overview	Battery Types- Protection	Lab (Simulation -Cell & Battery Pack)	Lab (BMS simulation - Passive& Active Cellbalancing)
DAY3	Charging Technologies in EV	Ev Charger Communication Protocols	Lab (Charging & Discharging simulation)	Lab (CV, CC, CCCV Chargers simulation)
DAY4	EV Motors	Regenerative Braking	BLDC /PMSM Motor controller simulation	Lab (Motor controller & converter)
DAY5	Solar Charger : An Introduction	Emerging Trends in EV Charging	Simulation Solar Charger	Exit test & Valedictory Function

VISION

To produce competent professionals by imparting high quality education and training in Engineering and Technology to meet the industrial requirements in global standard and according to societal demands.

MISSION

To provide quality education through state of the art infrastructure and competent teaching faculty, to produce technically competent professionals with moral and ethical values. To participate in the development in accordance with societal demands through entrepreneurship, industry interaction and excellent communication.

VISION

Empower students with excellent technical knowledge and practical skills to become competent diploma engineers and entrepreneur in-order to meet the challenges of the industry in our society in accordance with global standards.

MISSION

- To provide comprehensive theoretical fundamentals and practical skills in electrical and electronics engineering.
- To conduct training for the development of entrepreneurship for societal needs in order to build up our nation.
- To widen critical thinking and industrial interaction with emphasis on professional ethics and conduct.

