

Electronics & ICT Academy IIT Roorkee



An Initiative of Ministry of Electronics & Information Technology (MeitY) Government of India A Faculty Development Program on AI-Powered IoT and Python Applications in EV Systems and Charging Networks

In association with
**Mother Theresa Institute of Engineering
& Technology (MTIET)**

May 19 – May 23, 2025

Timings: 09:30 AM – 6:00 PM

Register Before: May 18, 2025



Venue: Hybrid Mode at Mother Theresa Institute of
Engineering & Technology (MTIET)

Objectives of the Course

- To provide a comprehensive understanding of the EV ecosystem, including components, communication, and infrastructure
- To train participants on Python libraries (NumPy, Pandas, Matplotlib) for efficient data handling and visualization
- To demonstrate the role of AI in EV fault detection, predictive analytics, and system optimization
- To explore the use of IoT in vehicle monitoring, including sensor integration and telemetry
- To offer hands-on lab sessions simulating EV operations, battery data analysis, and security implementation using Python



Why this course ?

As the global transition toward sustainable mobility accelerates, Electric Vehicles (EVs) are becoming central to smart and clean transportation systems. With the convergence of Artificial Intelligence (AI), Internet of Things (IoT), and Python programming, new possibilities have emerged to enhance the monitoring, performance, and security of EV systems and charging networks. This course is designed to empower educators, researchers, and industry professionals with the technical know-how and practical skills needed to contribute meaningfully to this fast-evolving domain.

Prerequisites

No experience is required, but fundamental knowledge of any programming language would be helpful.

Experts from Academia/Industry

Who Should Register?

Any Interested Faculty/PhD-Scholars
UG/PG/ & Industry Persons can register

Registration Fee

Fees: ₹ 250/- Faculty/Research Scholar/ Students
₹ 500/- Industry/Others

Note: Refund will be done in case of course
cancellation only, with in 20 working days

FDP Kits & Refreshment will be provided

How to make Payment

Please make the payment first using the below link
upload the payment receipt when filling out the
Google registration form

<https://eict.iitr.ac.in/instruction-for-payment/>

EICT Course Code: EICTIITR-FDP-5H6-03

Registration Link

<https://forms.gle/v61AZci4nSftEicn8>



Scan QR for
registration

Register before:
May 18, 2025

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Course Outcomes

- Explain the working of various components in Electric Vehicles and charging stations
- Design and implement Python-based solutions for EV battery monitoring and sensor data analysis
- Use IoT and AI technologies to build intelligent, connected EV systems
- Demonstrate the ability to visualize and interpret real-time EV data using Python tools
- Understand the importance of data privacy and cybersecurity in IoT-enabled EV infrastructures
- Apply their learning in teaching, research, or product development roles related to EV technologies

Focus Areas

- Application of Python programming in EV simulations, dashboards, and data processing
- Use of AI algorithms for intelligent decision-making in EV systems
- Integration of IoT frameworks for real-time monitoring and remote diagnostics
- Cybersecurity best practices in protecting data communication in EV networks
- Exposure to Battery Management Systems (BMS) and charging protocols
- Real-world lab sessions and industry case studies for hands-on learning

Course Features

- 40 Hours of Lectures, hands-on, and Pedagogy/Industry sessions.
- Lectures from Expert Speakers, Hands-on from industry/Academia experts.
- Access to learning material and video lectures
- Certificate by E&ICT Academy IIT Roorkee

Who may benefit

- Academic Faculty and Students(UG/PG)
- Government Officials.
- Working Professionals in the Industry and Startups.
- Research Scientists and Technical Staff.



This certificate can be considered in alignment with other Quality Improvement Programs (QIP) as well as NBA and NAAC for recognition/credit.

Principal Investigator

Prof. Sanjeev Manhas
ECE Department, IIT Roorkee

Course Coordinators

- Prof. Sanjeev Manhas, IIT Roorkee
- Dr.S.Sooriya Prabha, MTIET
- Dr.R.Saravanan, Director (Academics)

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