

Preamble

Global climate change, fossil fuel depletion, increasing prices, and energy security have carried the significant changes in power and mobility sector. The mobility sector consumes around one-fifth of global energy consumption. The road transportation in European Union (EU) is recognized as one of the major sources of CO₂ emissions and it degrades the air quality level below EU standards. Several steps are being commenced to accelerate the shift to decarbonize the transportation sector. In this direction, the EU has made legislation to achieve 30% reduction in CO₂ emissions up to 2030 by increasing the penetration of Electric Vehicles (EVs) in the transportation network. However, in the coming days, EVs or Plug-In EVs (PEVs) are powered by rechargeable batteries and classified in the green technology vehicles, which will replace the Internal Combustion Engine (ICE). The transferring technologies from petroleum-based transportation to green transportation has a number of benefits in several areas like economic, environment, and technical support.



EV's represent a paradigm shift for both the transport and power sectors, with the potential to advance the decarbonisation of both sectors by coupling them. Although the transport sector currently has a very low share of renewable energy, it is undergoing a fundamental change, particularly in the passenger road vehicle segment where EVs are emerging. This brief provides an overview of the services that electric vehicles (EVs) can provide to the power system through smart charging, and of the importance of such charging schemes for the smooth integration of EVs in the grid. This brief looks into unidirectional (V1G) and bidirectional vehicle-to-grid (V2G) technologies and on their role in integrating higher renewable energy shares, while providing services to the grid.

Topics to be covered

- Design aspects of EV technology in smart grid platform
- Design aspects of Renewable mini-grids and Super grids platform for EV charging technology
- Optimization Techniques for EV Charging Scheduling
- Electric Vehicle Charging in Dynamic Electricity Pricing Environment
- Analysis for EV charging service network implementation constraints.
- ICT control and communication Protocols
- Big data and artificial intelligence for smart charging
- Design regulation for vehicle-grid integration
- Environmental constraints and ensuring the economic benefits of electrified transportation

Eligibility

Faculty Members of the AICTE approved institutions, research scholars, PG students, participants from Government, Industry (Bureaucrats/Technicians), and School Teachers. The number of seats is limited to 200 (140 - External and 60- Internal).

Course Fee – Nil

E-Certificates will be issued by the ATAL Academy to the participants who attend the FDP with minimum 80% of the sessions and secure 60% and above marks in quizzes conducted post every day after conducting the three sessions.

Registration

Apply online as participant through ATAL-FDP portal (<https://atalacademy.aicte-india.org/>)

Guidelines for application are available at <https://atalacademy.aicte-india.org/assets/data/portalFlowParticipant.pdf>
1000+ ATAL-FDPs are scheduled for AY 2021-22. With single registration, a participant can apply for multiple workshops.

Mode of Delivery

The FDP will be conducted through **Google Meet** (link will be shared with the participants who are selected to attend). There will be three sessions per day. There will be an **online quiz** at the end of every day with review questions on the topics covered and the performance will be graded. In order to be eligible for receiving **e-certificate**, the participant must have secured a minimum of **60%** of marks.

Session Timings

Session 1: 09.15 a.m. to 11:00 a.m.

Session 2: 11.15 a.m. to 01:00 p.m.

Session 3: 02.15 p.m. to 04:00 p.m.

Conditions for Applying

The participants are requested to register for this FDP, if and only if the applicant could get relieved from the regular duties from their respective organizations so as to attend all the 15 sessions fully.

Resource Persons

The course will be delivered by distinguished faculty members from IIT's and NIT's.



Pondicherry Engineering College

Pondicherry Engineering College (PEC), an autonomous institution started in the academic year 1985-86 is promoted and fully funded by the Government of Puducherry. It is upgraded to **Technological University** status w.e.f **September 5th, 2020**. It now offers 9 undergraduate, 13 post graduate courses, and PhD programmes in all branches of Engineering and basic Sciences. The college has been granted funds by NPIU under TEQIP Phases II & III. PEC is ranked 122 in Engineering Category by NIRF India Rankings 2020. PEC is one of the QIP minor research centres in India. The college is situated at Pillaichavady, about 12 Km from Puducherry town and about 150 Km from Chennai along the scenic beauty East Coast Road (ECR) on the shores of the Bay of Bengal.

Department of EEE

The Department of Electrical and Electronics Engineering has a team of highly qualified, dedicated and motivated faculty and technical staff. The department is equipped with state-of-art laboratories housing advanced and sophisticated facilities to promote study and research in the upcoming areas. The department offers B.Tech.(EEE), M.Tech.(Electrical Drives and

Control) and Ph.D. programmes in almost all areas of Electrical and Electronics Engineering. The Department has excellent infrastructure, computing facilities, library with several volumes of books, well equipped laboratories and equipment's that enable students to develop their practical skills.

Puducherry

Heritage is one of the most precious gifts, Puducherry offers to its tourists and visitors. The coastal town of Puducherry with the French ambience is known for the serene atmosphere. The great poet Subramaniya Bharathi, Bharathidasan, Sri Aurobindo are some of the legends associated with Puducherry. Sri Aurobindo Ashram, Auroville, Bharathi Park, Ousteri lake, Chunambar boat house, Botanical Garden, Manakula Vinayagar Temple, and Arikamedu (archaeological importance) are some of the major tourist attractions of Puducherry.

Address for Correspondence

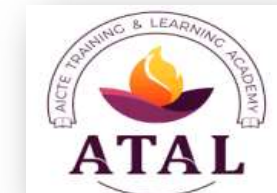
Dr. C. Christober Asir Rajan

Professor, Coordinator, DOETSGP-2021,
Department of EEE,
Puducherry Technological University,
Puducherry - 605 014.
E-mail: asir_70@pec.edu
Ph. No: 0413-2655281 Ext. 511
Mobile No.: 9443713846

Dr. B. Maheshkumar

Associate Professor, Coordinator, DOETSGP-2021,
Department of EEE,
Puducherry Technological University,
Puducherry - 605 014.
E-mail: bmk@pec.edu
Ph. No: 0413-2655281 Ext. 515
Mobile No.: 94420688858

AICTE Training and Learning (ATAL) Academy Sponsored



Online FDP on

Design and Optimization of EV Charging Technology in Smart Grid Platform (DOETSGP-2021)

September 13 – 17, 2021

Coordinators

**Dr. C. Christober Asir Rajan
Dr. B. Maheshkumar**



Organized by

**Department of Electrical and Electronics Engineering
Puducherry Technological University
Puducherry – 605 014
Web Site: www.pec.edu**