

## ABOUT COURSE

### Rationale

Ever-increasing energy demand and climate change have imposed worldwide a pragmatic shift from fossil fuels to the green energy. Such a shift brought many challenges and hence opportunities for researchers in the Energy sector. The present course is an attempt to introduce the participants to the challenges and possible mitigation strategies that are applied by Industry experts or in the research stage.

## COURSE OBJECTIVES

The objective of this course is to

- impart knowledge about electric vehicle (EV) technology, renewable energy sources (RE) and their integration with the grid.
- provide understanding of changing power system protection philosophies in presence of RE.
- provide understanding of challenges in the power system planning in presence of RE, forecasting of RE.
- encourage participants to investigate these challenges in simulation environment with hands on practice.

## COURSE OUTCOMES

After successful completion of course participant will be able to

- address various performance issues of the power grid in presence of high penetration of EV and RE.
- design power system protection scheme in presence of renewable energy sources.
- appreciate the need of state of art technologies and strategies to mitigate the challenges in Green Energy
- model & simulate distributed generation or micro-grid and provide solution to any of the challenges discussed in the course.

## SIGNIFICANCE OF COURSE

This course will provide more insight to the participants for using/developing/researching in their respective organizations for several innovative practical solutions.

## REGISTRATION PROCESS

- Participant shall register for the course as per the specified process of AICTE Training and Learning (ATAL) Academy.
- Visit <https://www.aicte-india.org/atal> for registration
- Refer ATAL scheme document for assessment criteria to receive certificate and distinction

## RESOURCE PERSONS

The program will be conducted by eminent speakers from industry and academia.

## COURSE SCHEDULE

Duration : 18<sup>th</sup> – 23<sup>rd</sup> December 2023  
Timing : 09:00 am to 5:30 pm  
Mode : Face to Face (Offline)

## WHO SHOULD ATTEND THE COURSE

This course is useful for Electrical Engineers aspiring career growth in the field of Green Energy. The course will be most beneficial for:

- Engineering post-graduates (M.E./M. Tech. in Electrical, Energy System)
- Professionals in Green Energy Consultancies, Utilities, Industries
- Faculty members from academic and research Institutions
- PhD scholars

## CONTACT FOR MORE INFORMATION

Dr. Swati Lavand [swati.lavand@spce.ac.in](mailto:swati.lavand@spce.ac.in) 9930505468  
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All India Council for Technical Education  
(AICTE) Training and Learning (ATAL)  
Academy

Sponsored One Week offline  
Faculty Development Program  
on

“Green Energy: Challenges & Mitigation  
Strategies”

18<sup>th</sup> – 23<sup>rd</sup> December 2023



**Coordinator**

**Dr. Swati A. Lavand**

**Assistant Professor**

**Electrical Engineering Department**

**Organized By**

**Electrical Engineering Department**

**Bharatiya Vidya Bhavan's**

**Sardar Patel College of Engineering**

(Government Aided Autonomous Institution Affiliated to University of  
Mumbai )

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## ABOUT THE INSTITUTE



Sardar Patel College of Engineering (SPCE) under the management of the Bhartaiya Vidya Bhavan, was founded by Kulapati Dr. K. M. Munshi. It was established to meet the growing demand for engineering talent.

The foundation stone of the college was laid on 17th September 1961 by Shri. Y. B. Chavan (the then Chief Minister of Maharashtra who later became the Defence Minister of India).

The college was inaugurated by the first Prime Minister of Independent India, Pandit Jawaharlal Nehru in 1962. The college is dedicated to Sardar Vallabhbhai Patel, an eminent nation builder of independent India.

SPCE has celebrated its diamond jubilee in the year 2022 by organizing AICTE, SERB and CSIR sponsored Sardar Patel International Conference on Industry 4.0 - Nascent Technologies and Sustainability for 'Make in India' Initiative 2022 (SPICON-2022).

The college is autonomous and affiliated to the University of Mumbai for the full-time degree, post graduate, and research programs. The institute has set high standards for aspiring engineering students and also meets the need of quality education in the challenging world of business.

Over the last 60 years the college has gained an excellent reputation in the field of Technical Education.

## ELECTRICAL ENGINEERING DEPARTMENT

Electrical Engineering Department of Sardar Patel College of Engineering commenced in 1962. The Department offers one undergraduate program (B. Tech in Electrical Engineering), one postgraduate programs (M. Tech. in Power Electronics & Power System) and a Ph.D. program.

The department has modern infrastructure with well-equipped laboratories and computational facilities with up-to-date hardware and software resources such as MATLAB, ETAP & WAMS. The well qualified and experienced faculty of the department imparts knowledge to the students in the fundamental and applied aspects of Electrical Engineering courses by adopting conventional as well as the latest teaching and assessment tools.

## OBJECTIVES OF AICTE ATAL ACADEMY

- To set up an Academy which will plan and help in imparting quality technical education in the country
- To support technical institutions in fostering research & innovation and entrepreneurship through training
- To stress upon empowering technical teachers & technicians using Information & Communication Technology
- To utilize SWAYAM platform and other resource for the delivery of trainings
- To provide a variety of opportunities for training and exchange of experiences such as workshops, Orientations, learning communities, peer mentoring and other faculty development programs.
- To support policy makers for incorporating training as per requirements

## PATRON



**Dr. Seshu Iyer**  
Chairman, BoG, Sardar Patel College of Engineering



**Dr. M. M. Murudi**  
Principal In-charge, Sardar Patel College of Engineering

## ORGANIZING COMMITTEE

Dr. M. M. Murudi	Principal In-Charge
Dr. Anupa Sabnis	Dean Academics
Dr. S. D. Daingade	Head of Electrical Engineering Department
Dr. Swati A. Lavand	Course Coordinator
Dr. B. B. Pimple	Course Co-Coordinator

## CONTENTS

- Challenges in Green Energy: the Status quo
- Role of Power Electronics in Green Energy Systems
- Advance Power Electronics for EV Train
- Interconnection of Grid, EV & PV
- Renewables Capacity planning & Integrated Resource Planning
- Protection issues in power system in presence of Renewables
- Renewable to Grid integration: Challenges & Mitigation
- Renewable Energy Forecasting
- Visit to Western Region Load Dispatch Center (WRLDC).
- Case study discussion by WRLDC & TCS