



Pandit Deendayal Petroleum University

Accredited with Grade "A" with CGPA 3.39/4.00 by NAAC, Govt. of India

Only private university in Gujarat to get graded autonomy by University Grant Commission

Recognition as Scientific and Industrial Research Organization (SIRO by Ministry of Science & Technology, Govt. of India

One Day Workshop for Graduating Students and Fresh-Graduates Research & Development Opportunities for Futuristic Power Systems Department of Electrical Engineering 28th February, 2020

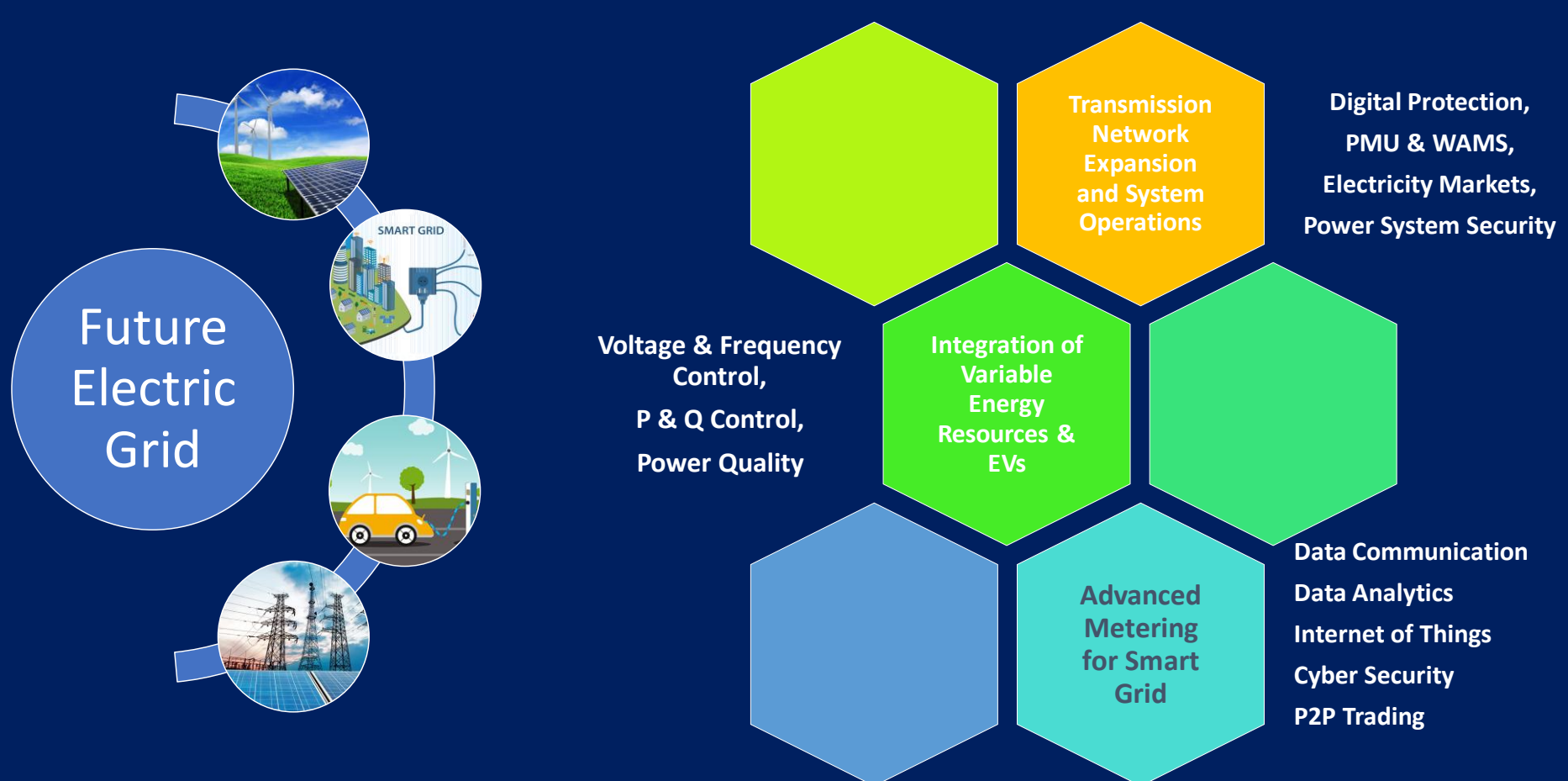
Challenges in Futuristic Power Systems

The electric grid is a vast physical and human network connecting thousands of electricity generators to millions of consumers. The grid will face a number of serious challenges over the next two decades, while new technologies also present valuable opportunities for meeting these challenges.

Incorporating more renewable generation in response to policy initiatives at both transmission and distribution levels are one of the most important emerging challenges the grid is facing. Much of this capacity will rely on either solar or wind power and will accordingly produce output that is variable over time and imperfectly predictable, making it harder for system operators to match generation and load at every instant. Utilizing the best resource locations will require many renewable generators to be located far from existing load centers and will thus necessitate **expansion of the transmission system**, often via unusually long transmission lines. **Increased penetration of electric vehicles and other ongoing changes in electricity demand** will, if measures are not taken, increase the ratio of peak to average demand and thus further reduce capacity utilization and raise rates.

Opportunities for improving the functioning and reliability of the grid arise from technological developments in sensing, communications, control, and power electronics. These technologies can enhance efficiency and reliability, increase capacity utilization, enable more rapid response to remediate contingencies, and increase flexibility in controlling power flows on transmission lines. All these new technologies involve increased data communication, and thus they raise **important issues of standardization, cybersecurity, and privacy**.

If properly deployed and accompanied by appropriate policies, they can deal effectively with some of the challenges described above. They can facilitate the integration of large volumes of renewable and distributed generation, provide greater visibility of the instantaneous state of the grid, and make possible the engagement of demand as a resource. A failure to realize these opportunities or meet these challenges could result in degraded reliability, significantly increased costs, and a failure to achieve several policy goals.



About the Workshop

Primary objective of the workshop is to enhance knowledge of the final year students and early graduates with emerging trends in electrical power systems in terms of design, operation, control and protection. New Indian Electricity Grid Code 2020 has outlined stringent frequency regulations with priority to reliable and affordable delivery of high quality power. Integrating intermittent renewable energy sources with demand-side measures like load management, electric vehicles and storage possess a significant challenge for the nation's power grid operation. The workshop will cover in-depth discussion and deliberations on such challenges and faculties will be discussing their on-going research projects.

Workshop shall have presentations and visits/discussions on **in-house research projects** based on:

- ✓ Grid integration of Renewable Energy Systems,
- ✓ Phasor Measurement Units and WAMS,
- ✓ DC and AC microgrids,
- ✓ Electrical Vehicles,
- ✓ Power flow solution using Gauss Seidel and Newton-Raphson method,
- ✓ Smart buildings

NO registration fee. Participation certificates will be provided to all the participants.

About the Department of Electrical Engineering

Department of Electrical Engineering (EED) has been established in 2010 since the inception of School of Technology. EED offers B. Tech., M. Tech. (specialized in power systems) and Ph.D. programmes. Faculty members of EED are working towards research projects in the specialized areas of Power electronics, Power and Energy Systems, Control Systems and other allied areas. EED is equipped with state-of-art laboratories with modern equipment and software package providing the students with a better opportunity to learn and practice industrial aspects of engineering problems. Eminent speakers from the industries such as Adani Power Ltd., GETCO Ltd., Torrent Power Ltd., Takalkar Ltd., ABB (India) Ltd. and research organizations like DRDO have visited the department and interacted with students and faculty members. Post-graduate (M. Tech) students of EED are provided with fellowship per month (GATE and Non-GATE) to encourage their stay and work towards research in the Power Systems area. M. Tech students can also avail travel grant/support to visit and present their research works in reputed conferences like IEE/Springer/Elsevier in India and abroad. EED has specialized electrical software such as PSCAD, ETAP, MATLAB/Simulink, PSIM, MiPower and DSPACE 1103 for real time digital simulation. **[CLICK HERE FOR MORE INFORMATION](#)**



Contact Details:

Dr. Praghmesh Bhatt, Head, eehod@pdu.ac.in, +91-79-2327-5664
Dr. V.S.K.V. Harish, Coordinator, powersystemresearch@gmail.com, +91-79-2327-5427

[CLICK HERE FOR REGISTRATION](#)