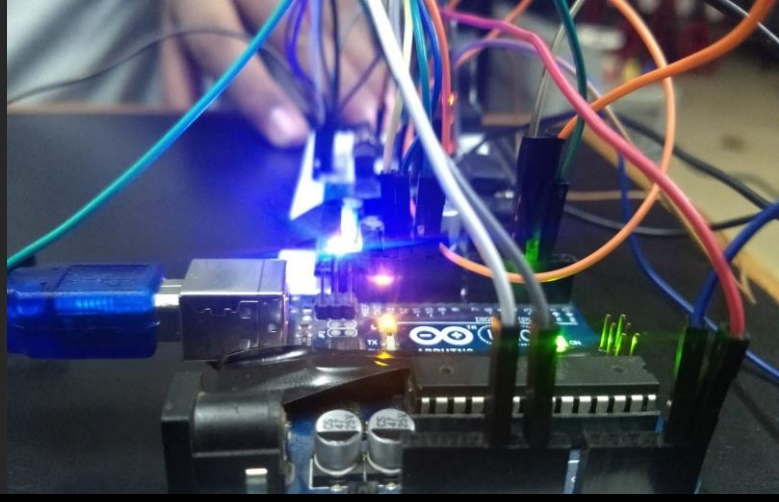
The Circuit

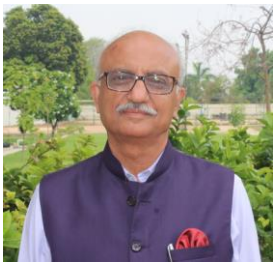


Electrical Engineering ○ Newsletter

Oct'19 – Dec'19

NAAC accreditation with "A" Grade & CGPA of 3.39 out of 4.00

PANDIT DEENDAYAL PETROLEUM UNIVERSITY



From the Director
School of Technology
Prof. Sunil Khanna

From the Head
Electrical Engineering
Dr. Praghnesh Bhatt

Cheerful greetings to all our alumni and friends from the electrical engineering department at Pandit Deendayal Petroleum University (PDPU) Gandhinagar - our wonderland of technology development and engineering education. I am pleased to bring you the second edition of the Electrical departmental newsletter, **The Circuit**, describing many of the departmental activities and accomplishments since October 2019 until today.

It has been very interesting semester at PDPU, as we have been engaged in searches of new faculty members in line with the students achieving higher numbers in gaining industrial placements and opting for higher studies. Meanwhile, the Electrical department continues to do what we do best: carrying out exciting research and preparing the next generation of electrical engineers to enter the workforce. Since its inception, the department has strived hard to comply with the University's vision of imparting world-class education in the field of Energy Engineering and Management. I extend my warms wishes to the department and welcome you to ***The Circuit***.

It gives me immense pleasure and joy to introduce you to another edition of our departmental newsletter: **The Circuit**. The contents of the letter have been bifurcated into two major sections: (1) *Faculty News*: faculty visits to other organizations, invited talks, lectures delivered, scientific breakthroughs in terms of publications have been highlighted; and (2) *Student Spotlight*: as the name suggests, brings forth all the achievements and accomplishments of the students, prizes won, participatory events, projects under execution, etc. The Department of Electrical Engineering (EED) was established in 2010 since the inception of School of Technology, PDPU. EED offers B. Tech., M. Tech. with specialization in power systems and Ph.D. programs. The department has state-of-art laboratories with modern equipment and software package so that the students have better opportunity to learn practical aspects of engineering problems.

If you see anything in ***The Circuit*** that strikes a chord, please feel free to call or drop me a line at <eehod@sot.pdpu.ac.in>.

PDPU's VISION:

To be an internationally renowned & respected institution imparting excellent education & training based upon the foundation of futuristic research & innovations.

PDPU'S MISSION:

1. Undertake unique obligation for education in energy engineering and management with special responsibilities in domain specific aspects of energy & infrastructure.
2. Seek to nurture students of extraordinary motivation and ability and prepare them for lifelong learning and leadership in an increasingly knowledge driven world.
3. Envisage to establish institutes of excellence in education, competitive edge in research and real time relevance with futuristic thrusts in offering of programmes and undertaking of activities and projects.

SoT's VISION:

To be an internationally renowned and recognized institute imparting technical education, research & training for societal impact and sustainable development.

SoT's MISSION:

1. Undertake unique obligation for education in energy and engineering with special responsibilities in domain specific aspects of energy & infrastructure.
2. Seek to nurture students of extraordinary motivation and ability and prepare them for lifelong learning and leadership in an increasingly knowledge driven world.
3. Envisage to establish departments for excellent education, cutting edge research and training by offering programmes, to address futuristic needs.

DEPARTMENT'S VISION:

To be recognized globally for excellence in education, research and training in the field of Electrical Engineering by preparing graduates for tomorrow creating high societal impact.

DEPARTMENT'S MISSION:

1. To offer good quality under-graduate, post-graduate and doctoral programmes for preparing globally competitive graduates in electrical engineering.
2. To provide state-of-the-art resources that contribute to achieve excellence in teaching learning, research and skill development activities.
3. To impart knowledge driven, technologically delivered and research augmented excellent education.
4. To motivate the students for life-long learning and to inculcate leadership qualities in an increasingly knowledge driven world.

Mission Element	Mission Element
M1	Globally Competitive (Energy and Engineering)
M2	Skill Development
M3	Excellent Education
M4	Life-Long Learning
M5	Leadership

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

1. To prepare highly competent graduates with strong foundation in engineering and technology for successful career in industries, academics and research organizations.
2. To prepare the graduates with ability to identify, analyze, design and solve complex electrical engineering problems, based on application of basic sciences, mathematics and fundamentals of electrical engineering.
3. To prepare fundamentally strong graduates having broad knowledge in electrical engineering that can become innovators or entrepreneur to solve industrial and societal challenges.
4. To prepare graduates with holistic education approach that they should contribute ethically in multicultural and multidisciplinary groups to develop sustainable solutions for global, environmental and social issues.

PROGRAM OUTCOMES (PO):

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOS)

PSO1: To identify, formulate, design and investigate various problems related to electrical circuits, power electronics, electrical machines and power systems by applying fundamental knowledge of engineering and science

PSO2: To demonstrate proficiency in usage of modern hardware & software tools to model, design, simulate and analyze electrical systems for solving real world multi-disciplinary problems

PSO3: To contribute in development of smart systems, modern grid and clean energy system for societal and environmental benefits.

Faculty News

Invited Talks / Guest Lectures from Industry Personnel

Dr. Jitendra Jamnani organized an expert talk on "*Design Considerations for power and distribution Transformers*" which was delivered by Mr. Dhruvesh Mehta for B.Tech – VI at PDPU Campus on 03rd December, 2019.

Mr. Alok Jain and **Dr. Avirup Maulik** organized an expert talk on "*Electric drives, DC/AC Traction power and SCADA system*" which was delivered by Mr. Brajesh Sharma for B.Tech – VI at PDPU Campus on 20th November, 2019.

Dr. V S K V Harish organized an expert talk on "*Functioning of Gujarat Grid - The Challenges, System Operation & control, Remedial Measures & Way Forward*" which was delivered by Sh. BB Mehta for B.Tech – VIII at PDPU Campus on 20th November, 2019.

Dr. Siddharth Joshi organized an expert talk on *"Hardware implementation of DC-DC converter and other power electronic application in the field of renewable energy system"* which was delivered by Mr. Darshan Patel for M.Tech I–II students at PDPU Campus on 18th October, 2019.

Dr. Anil Markana organised an expert talk on "*Computer-Aided Applied Optimization*" which was delivered by Dr. Prakash Kotecha for B.Tech – VI at PDPU Campus on 10th, October,2019.

Ms. Vima Mali and **Mr. Brijesh Tripathi** organised an event on Electric Vehicle Technology which was held on 22nd-23rd November, 2019 at PDPU with Mr. Ashwin Tiwari as chief guest of the event from "Autobot India", with beneficiary of 12 persons in presence of Director General of PDPU.

Workshops/STTPs attended

Dr. Jitendra Jamnani and **Mr. T.V. pavan Kumar** attended a Five-day STTP on "*Power Electronic Converters in Grid integration of Renewable Energy Sources*" on 27th-31st December, 2019.

Dr. Anil Markana, Dr. Siddharth Joshi and **Ms. Vima Mali** organized and attended a one-day workshop on *Solar Ambassador Workshop* on 02nd October,2019**.**

Ms. Vima Mali attended a one-day workshop on *Electrochemical Characterization of Optoelectronic Devices* on 21st October,2019.

Faculty News

Invited Talks / Guest Lectures Delivered

Dr. Jitendra Jamnani delivered a lecture on "*Voltage Control and Reactive Power Management in Power System*" for UG &PG Students in the "Expert lecture delivered during STTP on "Recent Trends in Power System Operation and Control", November 25–30, 2019, Vishwakarma Govt. Engg. College (VGEC), Ahmedabad on November 25, 2019.

Dr. Anil Markana delivered an expert lecture on "*Basics of Latex*" in the Workshop of Basics of Latex which was organized by IEEE student Branch PDPU on 07th Nov 2019.

Mr. Alok Jain delivered a lecture on "*OPAL-RT Experimental Setup*" in Experimental setup at MIET, Meerut during 19th-23rd December 2019.

Publications – Journals

- Maulik Pandya, **J. G. Jamnani,** "Transient Stability Assessment by Coordinated control of SVC and TCSC with Particle Swarm Optimization", International journal of Engineering & Advanced Technology (Scopus), Vol-9, Issue 1, 2019, Oct-19, ISSN: 2231-1963.
- **Jain, A.,** & Verma, M. K. (2020). Monitoring, control, and protection of radial distribution networks by using a two-level control architecture. Wiley - International Transactions on Electrical Energy Systems, 30(3), e12213, **I.F.: 1.692**.

Publications – Conferences

- **Avirup Maulik** and **Alok Jain**, "Optimal Scheduling of an Islanded Microgrid with Complex Impedances Considering Load Demand and Renewable Power Uncertainties," 2019 21st International Middle East Power Systems Conference (MEPCON), Tanta University, Egypt, October 2019, DOI: 10.1109/MEPCON47431.2019.9008046.
- **Avirup Maulik** and **Alok Jain**, "Improvement of the Dynamic Performance of an Islanded DC Microgrid Using Optimized Virtual Inertia," Conference: 2019 21st International Middle East Power Systems Conference, Egypt, October 2019, DOI: 10.1109/MEPCON47431.2019.9008057.
- Kumar, P., **Karamta, M.,** & **Markana, A.** (2019, December). Dynamic state estimation for multi-machine power system using WLS and EKF: A comparative study. In 2019 IEEE 16th India Council International Conference (INDICON) (pp. 1-4). IEEE.

Faculty News

Publications – Conferences

- Kothari, N. H., Bhalja, B. R., **Pandya, V.,** Tripathi, P., & Jena, S. (2019, December). A Faulty Section Identification Scheme in Thyristor Controlled Series Compensated Transmission Lines using Superimposed Currents. In 2019 8th International Conference on Power Systems (ICPS) (pp. 1-6). IEEE.
- Vyas, D. G., Trivedi, N., **Pandya, V., Bhatt, P.,** & Pujara, A. (2019, December). Future Challenges and Issues in Evolution of the Smart Grid and Recommended Possible Solutions. In 2019 IEEE 16th India Council International Conference (INDICON) (pp. 1-4). IEEE.
- **Yalla, N.,** Praneeth, A. J., Agarwal, P., & Bussa, V. K. (2019, December). Multi Point Clamped Converter for Fast Charging Applications in Electric Transportation. In *2019 IEEE Transportation Electrification Conference (ITEC-India)* (pp. 1-5). IEEE.
- **Karelia, N., Sant, A. V.,** & **Pandya, V.** (2019, December). Comparison of UPQC Topologies for Power Quality Enhancement in Grid Integrated Renewable Energy Sources. In 2019 IEEE 16th India Council International Conference (INDICON) (pp. 1-4). IEEE.
- Sood, D.; **Harish, V S K V**, "An investigation on application of passive strategies to improve thermal performance of buildings," ASHRAE - 7th International Conference On Energy Research & Development (ICERD - 7), vol., no., pp., 19-21 Nov. 2019, Kuwait City, Kuwait.
- Praneeth, A. V. J. S., **Yalla, N.,** & Williamson, S. S. (2019, December). DC–DC Converter with Reduced Circulating Current in On-board Battery Chargers for Electric Transportation. In 2019 IEEE Transportation Electrification Conference (ITEC-India) (pp. 1-6). IEEE.
- Malik, S., & **Harish, V. S. K. V.** (2019, October). Integration of automated Demand Response and Energy Efficiency to enable a smart grid infrastructure. In 2019 2nd International Conference on Power Energy, Environment and Intelligent Control (PEEIC) (pp. 371-377). IEEE.
- **Harish, V. S. K. V.,** & Kumar, A. (2019, October). Stability analysis of reduced order building energy models for optimal energy control. In 2019 2nd International Conference on Power Energy, Environment and Intelligent Control (PEEIC) (pp. 327-331). IEEE.
- **Harish, V. S. K. V.,** Anwer, N., & Kumar, A. (2019, October). Development of a Peer to peer electricity exchange model in micro grids for rural electrification. In 2019 2nd International Conference on Power Energy, Environment and Intelligent Control (PEEIC) (pp. 259-263). IEEE.

Faculty News

Publications – Conferences

- **Harish, V S K V;** Kumar, A, "Development of a building energy model based on state space analysis and determining the performance characteristics", Springer International Conference on Innovative Technologies in Mechanical Engineering (ITME -2019)", vol., no., pp. 75, pp., KIET Group of Institutions, Ghaziabad, Uttar Pradesh, India, 18 – 19 Oct 2019.
- **Nirav Karelia, Amit V Sant, Vivek J Pandya**, "Butterworth Filter Based Control Strategy for Improved Dynamic Performance of Multi converter UPQC", International Conference on the Impact of Change in Energy Mix in Power Sector 2019, Institute of Engineers - Kolkata, India Nov. 23-24, 2019
- Astik Dhandhia and **Vivek Pandya**, " Multi Classification of Static Security Assessment using Teaching Learning based Optimization enhanced Support Vector Machine", IEEE conference, ICPS- 2019, 20-22 December 2019, MNIT-Jaipur.
- Astik Dhandhia, **Vivek Pandya,** "Binary Classification of Static Security Assessment using Teaching Learning based Optimization enhanced Support Vector Machine", IEEE International Conference of INDICON2019 from 13 th to 15 th Dec. 2019 at Marwadi University, Rajkot.

Events at PDPU

Latex Workshop - A Document Preparation system

IEEE Student Chapter – PDPU organized a one-day workshop on *Latex* on 7th November, 2019. The speaker for the workshop was Dr. Anil Markana.

Events at PDPU

Workshop on Computer Vision

IEEE Student Chapter – PDPU in collaboration with Computer Society of India organized a two-day workshop on *Computer Vision* on 9th – 10th November 2019. 36 students participated in the event, out of which 13 registrations were of PDPU students.

Winners

1st prize winners:	**2nd prize winners:**
Kevin Patel – PDPU	Harshil Tagadia – NIRMA
Tirth Patel – PDPU	Brijesh Magatarapara – NIRMA
Vidit Sujata – RCIT	Lathiya Tejas Maheshbhai – NIRMA
Parth Rana – RCIT	Dishant Lodaliya - NIRMA
Jay Patel – PDPU	

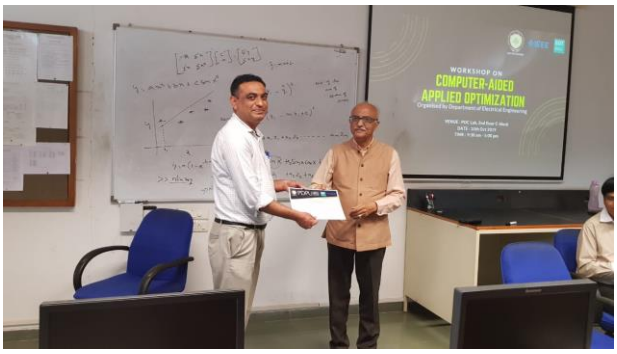
Computer-Aided Applied Optimization

IEEE Student Chapter – PDPU conducted a one-day workshop on *Computer-Aided Applied Optimization*, coordinated by **Dr. Anilkumar Markana** on 10th October 2019. Dr. Prakash Kotecha, Associate Professor, IIT Guwahati, conducted expert sessions along with Hands-on Laboratory sessions.

Events at PDPU

Workshop on Computer Vision


COMPUTER-AIDED
APPLIED OPTIMIZATION


WORKSHOP ON
COMPUTER-AIDED
APPLIED OPTIMIZATION

Student Spotlight

Team Kaizen-PDPU/SHELL ECO MARATHON ASIA 2019

Shell Eco-marathon Asia is an annual competition for the first time ever globally, the competition was held on a Shell site at the **Shell Technology Centre at Bangalore** during 19- 22 November 2019.

Team Kaizen- PDPU with their prototype car 'Nakshatra' stood at **2nd position** amongst teams from all over India in the **Battery-Electric Prototype** category.

Student Spotlight

Team Kaizen-PDPU/SHELL ECO MARATHON ASIA 2019

Mr. Ritik Sharma, Mr. Dhruvkumar Thakkar, Mr. Karan Doshi, and **Ms. Ojaswini Sharma** B.Tech – VI sem with **Dr. Amit V**. **Sant** were the participants of Team Kaizen – PDPU. Team Kaizen, with the Motto of continuous improvement is aiming towards developing Ultra Efficient Electric vehicle to meet with the Government of India's plan of complete electrification of all Road vehicles.

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