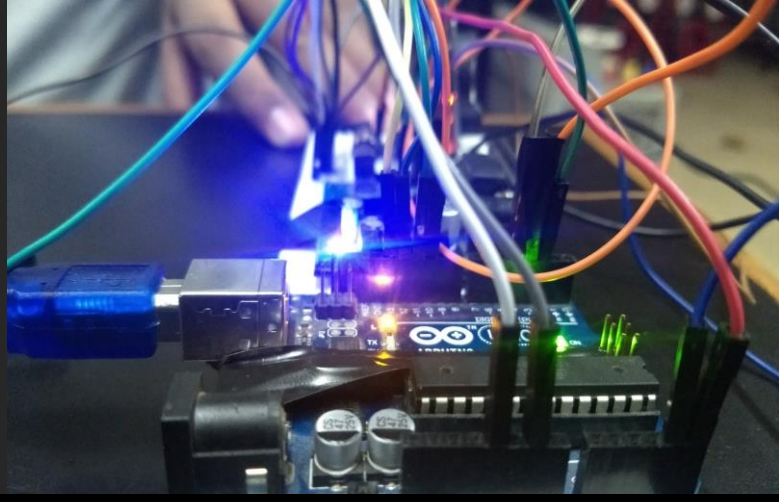
The Circuit

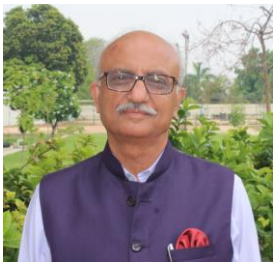


Electrical Engineering ○ Newsletter

Jan’20 – Mar’20

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

PANDIT DEENDAYAL PETROLEUM UNIVERSITY
A RESERVOIR OF KNOWLEDGE



From the Director

School of Technology

Prof. Sunil Khanna

Cheerful greetings to all, from the School of Technology 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 January 2020 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***.

From the Head

Electrical Engineering

Dr. Praghnesh Bhatt

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

Workshops/STTPs attended

- **Ms. Vima Mali** participated in workshop on "Electric Vehicles Technology", on 8th February, 2020 at Navrachna University, Vadodara.

Invited Talks / Guest Lectures Delivered

- **Dr. Vivek Pandya** conducted sessions on Radial feeder protection Panel & Protection of lines by over-current relays a in three days STTP Advanced Trends in Electrical Power Systemsu201d organized by EED-PDPU during 4-6 March 2020.
- **Dr. Bhinal Mehta** delivered a session on "Wind Turbine Generators & its Control" on 4th March, 2020 in a three-day short term training course on 'Advanced Trends in Electrical Power Systems', Department of Electrical Engineering, School of Technology, Pandit Deendayal Petroleum University, during 4th to 6th March, 2020.
- **Dr. Siddharth Joshi** delivered a session on "Current Trends and Advancements in Hybrid Renewable Energy Power Systems" on 5th March, 2020 in a three day short term training course on Advanced Trends in Electrical Power Systems, Department of Electrical Engineering, School of Technology, Pandit Deendayal Petroleum University, during 4th to 6th March, 2020.
- **Dr. Bhinal Mehta** delivered an expert talk on "Wind Turbine Generating Systems & Power System Stability", on 26th February 2020 at Gandhinagar Institute of Technology.(Green Energy Theme Event).
- **Dr. Siddharth Joshi** delivered an invited talk on "Solar Photovoltaic Technology & its Design Calculations", on 26th February, 2020, at Gandhinagar Institute of Technology, Ahmedabad, Gujarat, India.
- **Dr. Amit V. Sant, Dr. Anilkumar Markana** and **Dr. V S K V Harish** chaired various sessions for the 1st International Conference on Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy (MMCITRE2020) at PDPU, Gandhinagar, February 21-23, 2020.
- **Dr. Bhinal Mehta** delivered an expert talk on "Wind Turbine Generating Systems", on 12th February 2020 during one day workshop on green energy at Silver Oak University, Ahmedabad.
- **Dr. Siddharth Joshi** delivered a session on "Recent Advances in Renewable Energy Technology –focused on PV Technology" on 12th February 2020, at Silver Oak University, Ahmedabad, Gujarat, India.

Faculty News

Invited Talks / Guest Lectures Delivered

- **Dr. Amit Sant** was invited as a panellist for the one-day workshop on **"***The Future of Electric Vehicles in India***"** held at Gujarat Energy Research and Management Institute (GERMI), Gandhinagar on 31st January, 2020.

- **Dr. Amit Sant** was invited to moderate one-day event on **"***2nd PAN India Research Network meet***",** held at Malaviya National Institute of Technology (MNIT), Jaipur on 5th January, 2020.

Publications – Journals

- Dhandhia, A., **Pandya, V.**, & **Bhatt, P.** (2020). Multi-class support vector machines for static security assessment of power system. Ain Shams Engineering Journal, 11(1), 57-65.
- **Alok Jain** & M.K. Verma, "*Monitoring, control, and protection of radial distribution networks by using a two-level control architecture*," International Transactions on Electrical Energy Systems (SCI-E indexed), Vol. 30, No. 3, e12213, March 2020**.**

Faculty News

Publications – Journals

- Prakruti Shah, **Bhinal Mehta**, "Determination of Optimal Sizing Model for Battery Energy Storage System in Grid connected Microgrid" Journal of Engineering Science and Technology, Vol. 15, No. 2 (2020) 778 – 791.
- Ravirajsinh S. Vaghela, **Siddharth Joshi** (2020), "Regression Model Accuracy Measurement and Evolution for Sample Data for Hybrid Solar & Wind Power", Test Engineering and Management, ISSN: 0193 - 4120 pp. 6321 – 6326, The Mattingley Publishing Co., Inc.
- **Mali, V.,** & Tripathi, B. (2020). Thermal and economic analysis of hybrid energy storage system based on lithium-ion battery and supercapacitor for electric vehicle application. *Clean Technologies and Environmental Policy*, 1-16.

Publications – Conferences

- Dhaval R Vyas, **Anilkumar Markana** & Nitin Padhiyar, "*Robotic grasp synthesis using deep learning approaches: A survey*", 1st International Conference on Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy, PDPU Gandhinagar, February 2020.
- Prakruti Shah & **Bhinal Mehta** (2020), *Enhance the Performance of Grid Connected Microgrid with Solar Uncertainties by Optimal Sizing of Battery Energy Storage*, International Conference on Ecohealth and Environmental Sustainability (ICEES 2020), Navrachana University Centre for Environment, Research and Innovation, 24-26 February 2020.
- **Harish, V S K V**; Kumar, A, "A hybrid GA-PSO based intelligent energy control and comfort management in buildings", Springer-1st International Conference on Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy (MMCITRE-2020), vol. no., pp., Pandit Deendayal Petroleum University, Gandhinagar, Feb 2020.
- **Praghnesh Bhatt**, Chao Long, Mahammadsoaib Saiyad, "Review of the Impact of Vehicle-to-Grid Schemes on Electrical Power Systems", Advances in Electric Power and Energy Infrastructure pp 199-208, during January 2020.
- **L. Heistrene**, P. Mishra, M. Lokhande, Recourse-based Stochastic Market Clearing Algorithm Advances in Electric Power and Energy Infrastructure, PP. 65-73, January 2020.

Faculty News

Publications – Conferences

- Monal, P., **Heistrene, L.**, & **Pandya, V.** (2020). Chapter 8 Optimal Power Flow in Power Networks with TCSC using Particle Swarm Optimization Technique. In: Advances in Electric Power and Energy Infrastructure. Lecture Notes in Electrical Engineering, Singapore, pp. 91 – 101, ISBN 9 78-981-15-0205-7, doi: https://doi.org/10.1007/978-981-15-0206-4_8, during January 2020.

Events at PDPU

Short Term Training Programme on "Advanced Trends in Electrical Power Systems"

- Department of Electrical Engineering organized a three day short term training program on "Advanced Trends in Electrical Power Systems", Department of Electrical Engineering, School of Technology, Pandit Deendayal Petroleum University, during 4th to 6th March, 2020. The event was coordinated by **Dr. Praghnesh Bhatt, Dr. Bhinal Mehta** and **Dr. Siddharth Joshi.**

Student Spotlight

BAJA SAE-INDIA 2020 & ARAVALLI TERRAIN CHAMPIONSHIP 2020

- Following students participated in national level technical event BAJA SAEINDIA 2020 and event Aravalli terrain championship 2020.

Kartheek Ramesh	B. Tech (II Year)
RajKumar Parmar	B. Tech (II Year)
Padalia Nidhi Dipak Kumar	B. Tech (II Year)
Parth Narendra Kumar Rathod	B. Tech (III Year)

- **Trisha Parekh**, B. Tech (II year) stood first in Asia-Team Kaizen, among top 3 at Global level in an international technical event Shell Eco Marathon-Pitch the Future.

- **Parth Narendra Kumar Rathod**, B. Tech (III Year) participated in inter university level technical event Let's Hack COVID-19 Edition.

Team of *The Circuit*

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Faculty News
Mr. T V Pavan Kumar
Students' Spotlight
Mr. Vipin Shukla
Students' Spotlight
Sh. Sanjay Prajapati and Sh. Sachin
Sh. Meet Patel
Editing