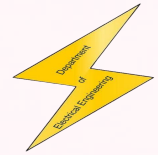


DEPARTMENT OF ELECTRICAL ENGINEERING

Indian Institute of Technology (Indian School of Mines) Dhanbad



VIBHAV



Vol.I No.1

SEPTEMBER, 2024

MONTHLY NEWSLETTER

MESSAGE FROM HOD'S DESK

By PROF. SUKANTA DAS



Dear All,

With great pleasure, let me introduce you to the first edition of the Monthly Newsletter of the Department of Electrical Engineering: "VIBHAV". In Electrical Engineering terminology, the word "VIBHAV" stands for Potential. Obviously, the intention of publishing this version of "VIBHAV" is to demonstrate the potential of the department that has been explored in the recent past in Academics, Research, and Outreach activities.

The world is growing fast with regard to the development of technology, especially in the field of Electrical Engineering. The faculty members and research scholars of the department are striving hard to adapt to the ever-changing technology with constant encouragement from the honorable Director Prof. Sukumar Mishra, who himself is an acclaimed researcher in the field of Electrical Engineering. Hence, collaborative research with industry and other research institutions would be the major thrust to work on live and relevant problems therein. I would like to take this opportunity to request you

to contact our faculty members for collaborative research endeavours. We promise to deliver our best. All the UG/PG students are also encouraged to identify such kinds of problems and work upon it to add value to them. The incremental addition of technological development will surely lead to a much-improved technology.

Finally, I invite you to go through this edition of our Monthly Newsletter. There may be a few shortcomings. I request you to be critical in putting forward your comments by emailing to ee@iitism.ac.in. With your constructive comments, our Editorial Team will surely be able to publish much improved versions in the forthcoming editions of "VIBHAV".

Thank you all.
Best regards.

ABOUT THE DEPARTMENT

The Electrical Engineering department was established in the year 2005. The four-year B.Tech. program in Electrical Engineering was started in the academic session 2006-07. Though, the Department of Electrical Engineering is one of the latest of the existing departments of the Institute, the Electrical Engineering Section existed as a part of earlier Mining Machinery Engineering department from 1975. Apart from different B.Tech. programs, the department at present also offers M.Tech programs in Power System Engineering and Power Electronics & Electrical Drives. Through the Ph.D. and Post-Doctoral Programs majority of the research activities are being carried out in the department.

SPOTLIGHT

Prof. Sonam Acharya joined as an Assistant Professor in the department of Electrical Engineering. She received her B.Tech. degree in Electrical and Electronics Engineering from the Biju Patnaik University of Technology, Bhubaneswar, India, in 2013, M.Tech., and Ph.D degrees in Power Electronics from Indian Institute of Technology, Kanpur, India in 2016, and 2022 respectively. Before joining the Department of Electrical Engg., IIT ISM Dhanbad as an Assistant Professor, she worked as a postdoctoral fellow in Centre for Automotives Research, and Tribology (CART), Indian Institute of Technology, Delhi (IIT Delhi).



Her research interests include design and control of power converters and high frequency power converters using wide band gap devices, and application in EV charging technology.

Prof. Bhawana Singh joined as an Assistant Professor in the department of Electrical Engineering. She received her Bachelor's degree in Electronics and Instrumentation Engineering from Uttar Pradesh Technical University, Lucknow, India in 2014. She received her Master's degree with specialization in Instrumentation and Control Engineering from Sant Longowal Institute of Engineering and Technology, Longowal, Punjab, India in 2017 and Ph.D. in Systems Engineering from Indian Institute of Technology (BHU), Varanasi, India in 2021. She had been a Post-doctoral Research Fellow at the School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, Belfast, United Kingdom. She also conducted a scientific visit at the Faculty of Electrical, Electronic, Computer and Control Engineering, Institute of Automatic Control, Lodz University of Technology, Lodz, Poland in March–April 2022.



Her research interests include Nonlinear Control, Contraction Analysis, Finite time Control Design, Sliding Mode Control, and Autonomous Systems.

INDIVIDUAL ACHIEVEMENT

Four faculty members hold World's Top 2% Scientist position based on Stanford and Elsevier Data Released in Sept. 2024.

Hearty Congratulations for their success !



Prof. Pradip K. Sadhu



Prof. B. Bhattacharyya



Prof. V. Mukherjee



Prof. K. C. Jana

S. Singh, and **P. K. Nayak**, “A protection scheme for the transmission line connecting large-scale centralized solar PV plant”, *Microsystem Technologies, Springer-Nature* (Accepted)..

Priya Kumari, and **S. Pan**, “Enhanced load frequency control using predictive reduced order generalized active disturbance rejection control under communication delay and cyber-attack”, *Electrical Engineering*, Published online: 16 September 2024.

V. Vaishnav, A. Jain, and **D. Sharma**, “Auxiliary network-enabled attack detection and resilient control of islanded AC microgrid”, *IEEE Transactions on Smart Grid* (Accepted).

S. Ganguly, **A. Baral**, and S. Chakravorti, “Power transformer insulation diagnosis using de-trapped charge affected short-duration dielectric response”, *IEEE Transactions on Instrumentation and Measurement*, 2024 (Accepted).

G. Goswami, and **S. Das**, “Inherently robust loss model controller for energy-efficient operation of indirect rotor field-oriented induction motor drives”, *IEEE Transactions on Power Electronics*, vol. 39, no. 11, pp. 14951-14960, 2024.

B. Bhattacharjee, **Pradip Kumar Sadhu**, A. Ganguly, A. K. Naskar, and S. P. Bihari, “Photovoltaic integrated optimized energy storage drives for electric vehicles”, *Journal of Energy Storage*, vol. 98, pp. 113098, 2024.

Conferences

K.A Dastergerdi, **B. Singh** et. al., “Uncertainty aware path planning and collision avoidance for marine vehicles”, *15th IFAC CAMS*, Blacksburg, USA, 3-5 September 2024.

A.K. Singh, **A. Ghoshal**, and **S. Das**, “Peak current mode controlled phase shifted multi-phase buck converter for 48V/72V EV battery charging”, *2024 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Surathkal, India, 2024 (Accepted).

Pranay Krishna Sahay, and **V. L. Srinivas**, “Enhancing ancillary grid services with integrated PV system under unbalanced load and weak grid scenario”, *2024 IEEE International Conference on*

PUBLICATIONS/BOOK CHAPTER/PATENT

Journals

Promit Kumar Saha, **Nitai Pal**, and Faizan A. Khan, Aftab Alam, “Modelling of small signals in MISO DC-DC converters for hybrid energy sources”, *Microsystem Technologies, Springer-Nature* (Accepted).

Power Electronics, Drives and Energy Systems (PEDES), Surathkal, India, 2024 (Accepted).

Suryakant Kumar, **Gauri Shankar, V. L. Srinivas**, and Prashant Kumar, “Enhanced power management in a DC microgrid through virtual inertia integration”, *2024 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Surathkal, India, 2024 (Accepted).

Suryakant Kumar, **Gauri Shankar, V. L. Srinivas**, and Prashant Kumar, “Enhanced grid stability using virtual inertia control strategy for DC microgrids”, *2024 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Surathkal, India, 2024 (Accepted).

Book Chapter

S. Suraj, S. Narayan Manjarekar, **S. Barik**, and R. C. Bansal, “RES & EV potential technology in Indian scenario”, in Handbook on new paradigms in smart charging for E-mobility: Global trends, policies and practices, ISBN: 9780323952019, Elsevier. (Accepted)

Patent filed no. 202431068014, Dated 9th Sept. 2024, “Portable enhanced gas hazard prediction system for underground coal mines using DSET filter and 1D CNN classifier”, **Prof. Tanmoy Maity**, Mayank Sharma, and S. Banerjee.

OUTREACH ACTIVITIES

Prof. Ashok Kumar delivered an expert lecture in online mode organized by IEEE-sponsored International Conference, SPARC 2024, on 13th Sept. 2024 held at Amity University Lucknow.

Prof. Sukanta Halder delivered an expert talk on “Intelligent EV: Contributions Toward Sustainable Development” in a one-week short-term training program in online mode on Smart and Sustainable Strategy for Renewable Energy and E-Mobility (SUSTAIN-E 2024) organized by DoEE, SVNIT Surat.



Invited Lecture on “Renewable Electricity Integration challenges - Indian and global context” by Mr. Abhishek (Lead Partner at EY Parthenon) held on 14th September 2024.

Five-day Executive Development Program entitled “Electrical Safety in Sustainable Mines: Challenges and Mitigation” Organized by the Department of Electrical Engineering, IIT (ISM), Dhanbad
Coordinators: **Prof. Nitai Pal** and **Prof. Pradip K. Sadhu**

Five-Day Online Workshop on “Intelligent Electric Vehicle: The future of E-mobility (IEV-2024)” Organized by the Department of Electrical Engineering, IIT (ISM) Dhanbad
Coordinators: **Prof. Sukanta Das** and **Prof. Sukanta Halder**

UPCOMING EVENTS

Five-day Executive Development Program entitled “Preventive Maintenance and Electrical Safety in Mines” to be organized by the Department of Electrical Engineering, IIT (ISM), Dhanbad from 20th Jan. to 24nd Jan. 2025.

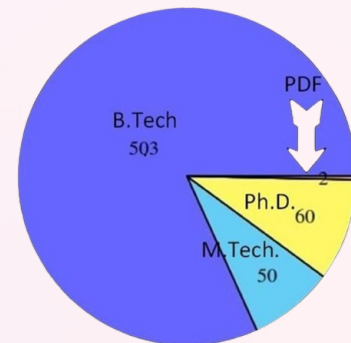
Coordinators: **Prof. Nitai Pal** and **Prof. Pradip K. Sadhu**

🔗Link to Access:
<https://www.iitism.ac.in/announcement>

First *IEEE International Conference on Smart and Sustainable Developments in Electrical Engineering (SSDEE)* from 28th Feb. to 2nd Mar. 2025.

🔗Link to Access:
<https://people.iitism.ac.in/ssdee-2025/>

STUDENTS' CORNER



Student Strength

Dr. Battula Amrutha Raju joined the Department of Electrical Engineering as an Institute Post-Doctoral Fellow (IPDF). Dr. Raju is working with **Prof. Dushyant Sharma** in distributed energy management in Microgrids and EVs.

Dr. Koduru Sriranga Suprabhath joined the Department of Electrical Engineering as a National Post-Doctoral Fellow (NPDF). Dr. Koduru is working with **Prof. Sukumar Mishra**.

Dr. Awaneendra Kumar Tiwari, Dr. Korra Balu & Dr. Rani Kumari are awarded with the Ph.D. degree in Electrical Engineering in the month of Sept. 2024.

Hearty Congratulations to All!

FREAKING OUT



Teachers' Day Celebration 5th Sept. 2024

EDITORIAL TEAM

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Associate Editors : Prof. Soumyabrata Barik & Prof. Shyam A. B.

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