NEWSLETTER · ISSUE 02

DEPARTMENT OF ELECTRICAL ENGINEERING

ELECTRO IMPRESSION

Guru Nanak Institute of Technology

An Autonomous Institute, Affiliated to MAKAUT · Approved by AICTE · NAAC A+ · NBA Accredited (UG)

Academic Highlights

JULY – DECEMBER 2024

"Powering ideas, engineering the future — a chronicle of learning beyond the classroom."

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About ElectroImpression

Electro Impression is the biannual newsletter of the Department of Electrical Engineering, Guru Nanak Institute of Technology, chronicling departmental activities, faculty and student accomplishments, and academic milestones.

FACULTY DEVELOPMENT PROGRAMS · INDUSTRY VISITS · SEMINARS · ALUMNI MEET · ACHIEVEMENTS · PUBLICATIONS & PATENTS
NBA ACCREDITED PROGRAMME · NAAC A+ INSTITUTE

Editorial Faculty Members

1. Dr. Debasree Saha (Asso. Prof., Dept. of EE, GNIT)
2. Ms. Subhra Sen (Senior technical Assistant, EE, GNIT)

Editorial Student Members

1. Arpan Das (3rd year, EE)
2. Jayita Sarkar (2nd year, EE)
3. Karan Ray (2nd year, EE)
4. Payel Chakraborty (3rd year)

FROM THE LEADERSHIP

Messages



MESSAGE FROM THE PRINCIPAL

It gives me great pleasure to present the July–December 2024 edition of 'Electro Impression,' the biannual newsletter of the Department of Electrical Engineering, GNIT. This edition reflects the department's vibrant academic culture through seminars, workshops, technical activities, industrial visits, alumni engagement, industry collaboration, student achievements, research publications and patents.

The accomplishments documented in this issue demonstrate the collective commitment of our faculty members and students to quality education, innovation, professional development and meaningful industry–society engagement. I congratulate the entire department, contributors and editorial team for their dedicated efforts in recording these milestones.

I extend my best wishes to the Department of Electrical Engineering for continued excellence in teaching, research and innovation.

Prof. (Dr.) Swarup Kr. Mitra
Principal, GNIT



MESSAGE FROM THE HOD (EE)

t is a matter of immense pleasure to share the July–December 2024 edition of 'Electro Impression.' This newsletter presents the collective academic and professional journey of the Department of Electrical Engineering and highlights the enthusiasm with which our students and faculty have participated in learning, research, innovation and outreach.

During this period, the department organized technical seminars, workshops, SAMATVA-2K24, industrial visits, an alumni interaction and industry collaboration through an MoU. Our students and faculty also earned significant recognitions and contributed through journals, conferences, book chapters and patents.

I congratulate every contributor and the editorial team for preserving these achievements in a meaningful form and wish our students and faculty continued success

Dr. Barnali Kundu
HOD, EE Department

OUR DIRECTION

Vision, Mission, PEOs & PSOs

OUR VISION

To produce new generation technologists and entrepreneurs with innovation and advanced research by inculcating world class education to meet industry expectations and impart sustainable growth of the society in global perspective.

Mission

DM1 To impart quality education and innovative teaching learning methodologies.	**DM2** To develop professionals with the ability of critical thinking and innovativeness to face the real-life challenges in their respective domain.
DM3 To inculcate an urge of entrepreneurship, research and pursue higher studies.	**DM4** To imbibe the spirit of moral values and ethics for the sustainable growth of the society.

Program Educational Objectives (PEOs)

Three to five years after graduation, the Department of EE expects its four-year B. Tech in Electrical Engineering program graduates to have achieved the following:

PEO1 To implant strong foundation in Science, Mathematics and Electrical Engineering to become successful professionals.	**PEO2** To impart knowledge on emerging technologies and entrepreneurship skills to produce future leaders.
PEO3 To train students in developing ethical attitudes, strong communication skills and capacity to relate engineering issues in social and environmental context.	**PEO4** To facilitate opportunity to work in a team in interdisciplinary projects for building leadership qualities.

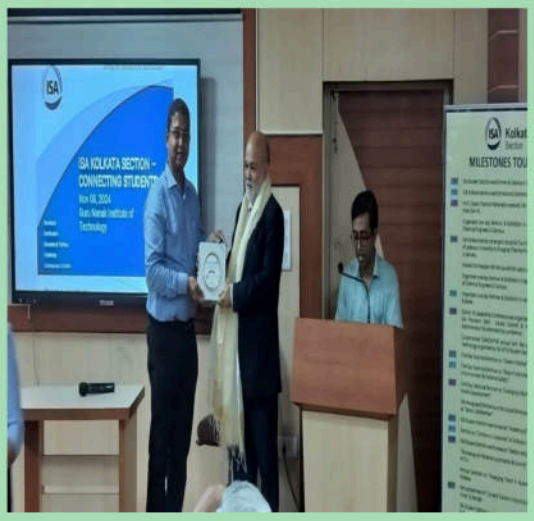
Program Specific Outcomes (PSOs)

PSO1 To explore the ideas, methodologies and cutting-edge technologies in Renewable Energy and Electric Vehicles for gaining competence to solve energy related problems.	**PSO2** To analyze, design and provide an engineering solution applying knowledge of Embedded System, Smart Grid, Power Electronics and Electric Drives.	**PSO3** To use modern software tools for simulation, analysis and designing electrical and electronic Systems.

SEMINARS, WORKSHOPS & TECHNICAL FEST

Seminar on "Digital Transformation: Confluence of IoT, Cloud Computing, Big Data, AI and Analytics" | *8 November, 2024*





Seminar on "Internship in the Field of Solar Energy" | *23 August, 2024*





Organized by the Department of Electrical Engineering in collaboration with the Entrepreneurship Development Cell (EDC), GNIT.

SAMATVA – 2K24 | NATIONAL LEVEL ANNUAL TECHNICAL FEST





The Department of Electrical Engineering, GNIT organized SAMATVA-2K24, the National Level Annual Technical Fest, on 19–20 September, 2024.

INDUSTRY VISITS

One-Day Industrial Visit — Bandel Thermal Power Station | *6 September, 2024*





Organized for B.Tech 3rd semester students by the Department of Electrical Engineering, GNIT.

One-Day Industrial Visit — Carriage & Wagon Workshop, Eastern Railway, Liluah | *21 August, 2024*





Organized for B.Tech 3rd semester students, Howrah.

ALUMNI MEET & INDUSTRY COLLABORATION

Alumni Meet — "The Role of Engineers in the Finance Sector" | *23 August, 2024*





MOU Signed with JM Power Tech Pvt. Ltd. | *10 September, 2024*





A prominent firm specializing in renewable energy solutions.

STUDENT & FACULTY ACHIEVEMENTS

Smart India Hackathon (SIH) 2024 — Hardware Edition





Outstanding performance securing the Runner-Up position at Galgotias University, Uttar Pradesh. (Team Name: Bio Hydro Pioneers)

MADE IN JIS CELEB 2024 & NPTEL Recognition



Arpan Das, Aritra Chowdhury, Saurav Das & Payel Chakraborty (3rd Year, EE) achieved 1st Runner-up in MADE IN JIS CELEB 2024 on 05.08.2024 and received a reward of ₹2 lakhs.



Mainak Chanda secured the Silver Certificate Topper Award in the NPTEL 'Fundamentals of Artificial Intelligence' course.

Conference Recognition & Engineers' Day Felicitation



Awarded Best Paper at the IEEE International Conference 2024, JIS Kalyani, on 23 November 2024.



Felicitated by the Institution of Engineers (India) as an Eminent Engineer on the 57th Engineers' Day Celebration at Sir R.N. Mukherjee Hall, 15 September 2024.

PUBLICATIONS — JOURNALS & CONFERENCES

International Journal

- **Barnali Kundu, Dwaipayan Mazumdar, Debmalya Das, Sujoy Ghati, Arnab Dutta,** "Design of Two stage Isolated Bidirectional Converter for Plug-in Electric Vehicles"**,** YMER, July, 2023 (ISSN NO: 0044-0477).

- Soumya Kanti Bandyopadhyay, Sumangal Bhaumik, **Aveek Chattopadhyaya,** Sananda Pal, Shyamal Kumar Roy, **&** Diptan Sinha — "Sequence Component Based RMS Computation for the Detection of Single Phasing of SVPWM Fed Induction Motor", *Journal of Computational Analysis and Applications (JoCAAA), Vol. 33, No. 07, pp. 8–15, 05.09.2024. (SCOPUS, Q4 Journal) eudoxuspress.com/index.php/pub/article/view/997*

International Conference

- **Barnali Kundu, Dwaipayan Mazumdar, Arpan Das, Manit Mukhopadhyay, Ankur Vaivav, Saurav Das,** "Integrated MPTA Control Framework for Hybrid Electric Vehicle Performance using Space Vector Pulse Width Modulation," 2nd IEEE International Conference on Advancements and Key Challenges in Green Energy and Computing (AKGEC2024), AKGEC, Ghaziabad, Uttar Pradesh, 21–23 November 2024 (Paper ID: 461), Accepted.

- **Susovan Dutta**, Bishaljit Paul, **Barnali Kundu**, Chandan Kumar Chanda, "Market Clearing with Renewable Integration, Storage and Network Limits," 3rd Odisha IEEE Conference, ODICON-2024, Institute of Technical Education and Research (ITER), Siksha 'O' Anusandhan, Bhubaneswar, Odisha, 8–9 November 2024. Accepted & Paper presented.

- **Susovan Dutta**, Bishaljit Paul, **Barnali Kundu**, Chandan Kumar Chanda, "Co-optimization of Reserves in Energy Market to Mitigate Congestion," 6th IEEE International Conference on Energy, Power, and

Environment, National Institute of Technology Meghalaya, 20–22 June 2024. DOI: 10.1109/ICEPE63236.2024.10668942, Electronic ISSN: 2832-8973, Print ISSN: 2832-8965.

- Banshari Deb Majumder, Joy Halder, Dipu Mistry, Tanmoy Sinha Roy, **Barnali Kundu,** "Development of Low Cost Inventory Management System using UAV," International Conference on Big Data Analytics in Bioinformatics (DABCon-2024), Narula Institute of Technology, 21–23 November 2024, Accepted.
- Arkendu Mitra, Sujoy Bhowmik, Subhra Mukherjee, Pallav Dutta, **Barnali Kundu, Debasree Saha**, "A Universal Design of Flyback Converter for Isolated Gate Drive Power Supply," 2024 IEEE Flagship International BIT Conference (BITCON-2024) on Next Generation Applications in Green Energy Technology, 7–8 December 2024, BIT Sindri, Dhanbad.

BOOK CHAPTERS & PATENTS

Book Chapter

- **Aveek Chattopadhyaya,** Niladri Mukherjee, Surajit Chattopadhyay, "Assessment of Faults in Hybrid System Connected with Main Grid," Linear and Nonlinear System Modeling, Scrivener Publishing LLC / WILEY, pp. 1–14, September 2024 (Published Online), ISBN 978-1-119847-42-7.
- Aveek Chattopadhyaya, Surajit Chattopadhyay, "Modeling and Simulation of Current Transformer to Study Its Behaviours in Different Conditions," Linear and Nonlinear System Modeling, Scrivener Publishing LLC / WILEY, pp. 127–142, September 2024 (Published Online), ISBN 978-1-119847-42-7.
- Sagnik Datta, **Aveek Chattopadhyaya**, Surajit Chattopadhyay, Arabinda Das, "Comparative Study of Different Existing Standard Microgrid Networks," Linear and Nonlinear System Modeling, Scrivener Publishing LLC / WILEY, pp. 33–48, September 2024 (Published Online), ISBN 978-1-119847-42-7.

Patent

- **Mr. Shyamal Kumar Roy, Dr. Suman Ghosh, Dr. Aveek Chattopadhyaya, Mr. Amit Debnath**, "Automated Traffic Management System," Application No. 202431071422 A, Date of Filing: 20/09/2024, Publication Date: 04/10/2024.
- **Arpan Das, Dr. Rajdeep Samaddar, Dr. Barnali Kundu, Aritra Chowdhury, Dr. Debasree Saha**, "A Non-Invasive Glucose Monitoring System Integrative Toothbrush," Application No. 202431091136 A, Date of Filing: 22/11/2024, Publication Date: 29/11/2024, The Patent Office Journal No. 48/2024.

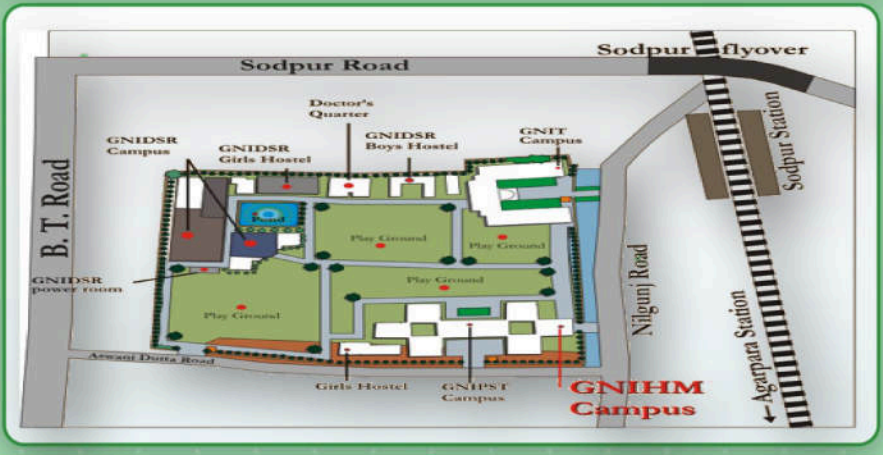
Student Publication

- **Arpan Das, Debasree Saha, Shrayasee Gain, Payel Chakraborty, Brishti De**, "Optimizing Wind Energy Forecasting: A Comparative Study of ANN and Decision Tree Algorithms," International Conference on Big Data Analytics in Bioinformatics (DABCon-2024), Narula Institute of Technology, 21–23 November 2024.

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GNIT / EE / ELECTRO IMPRESSION / JULY – DECEMBER 2024



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