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 2025

"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.

SEMINARS · INDUSTRY COLLABORATION · SCHOOL OUTREACH · ALUMNI INTERACTION · INDUSTRIAL VISIT · PUBLICATIONS
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. Satyaki Roy Chowdhury (2nd year, EE)
2. Ekarna Chakraborty (2nd year, EE)
3. Nivedita Saha (3rd year, EE)
4. Sanjana Lama (3rd year, EE)

FROM THE LEADERSHIP

Messages



MESSAGE FROM THE PRINCIPAL

I am delighted to learn that the Department of Electrical Engineering, Guru Nanak Institute of Technology (GNIT), is bringing out its biannual newsletter, ***"ELECTRO IMPRESSION,"*** *for the academic session July–December 2025. This wonderful initiative provides an excellent platform to showcase the department's academic achievements, technical activities, research contributions, events, and other significant accomplishments.*

I extend my best wishes to all the faculty members, staff, and students of the Department of Electrical Engineering. I am confident that, with their continued dedication, enthusiasm, and collaborative efforts, the department will reach greater heights of excellence and achieve many more milestones in the years ahead.

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



MESSAGE FROM THE HOD (EE)

It gives me immense pleasure to introduce the newsletter ***"ELECTRO IMPRESSION"*** *of the Department of Electrical Engineering, Guru Nanak Institute of Technology (GNIT). This newsletter serves as a vibrant platform to showcase the department's academic accomplishments, technical activities, research initiatives, events, and the remarkable achievements of its faculty members and students.*

I firmly believe that this publication will reflect the department's spirit of innovation, knowledge sharing, creativity, and continuous pursuit of excellence. It will also provide an opportunity to celebrate our collective efforts and inspire new ideas and aspirations.

I extend my heartfelt congratulations to all the contributors and the Editorial Board for their sincere dedication, creativity, and commendable efforts in bringing out this wonderful publication.

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 & OUTREACH

Seminar on "Role of Power Conversion Technologies in Modern Electric Vehicles" | *10 September, 2025*





The Department of Electrical Engineering (GNIT) successfully organized a highly engaging seminar on modern electric-vehicle power conversion technologies.

Two-Day Seminar on "Opportunities and Innovations in Hydrogen Energy" | *3–4 November, 2025*





Organized by the Department of Electrical Engineering in association with the ASHU Department.

Electrical Model Competition for School Students | *16 December, 2025*





Organized by the Department of Electrical Engineering in association with the Admission Cell.

INDUSTRY COLLABORATION

MoU Signed with Trisita Engineering LLP





The Department of Electrical Engineering (GNIT) signed a Memorandum of Understanding (MoU) with Trisita Engineering LLP.

ALUMNI INTERACTION & INDUSTRIAL VISIT

Alumni Interaction Programme & Industrial Visit



Alumni Interaction Programme on "CBTC System in East West Metro" on 17th October, 2025 at GNIT Seminar Hall.



Industrial visit to Indian Railway Workshop, Liluah, Howrah on 5th September, 2025.

PUBLICATIONS

International Journal

1. • Rabel Guharoy, Nanda Dulal Jana, Suparna Biswas, **Aveek Chattopadhyaya,** "Integration of DWT, FFT, and Spatial domain for the identification of epileptic seizure utilizing electroencephalogram signal," International Journal on Smart Sensing And Intelligent Systems, Volume 18, Issue 1, Pages 1-12, Published by Sciendo, 08/08/2025. [ESCI/SCOPUS]

2. **Susovan Dutta,** Bishaljit Paul, **Barnali Kundu,** Chandan Kumar Chanda, "Deterministic Scheduling of Reserve and Energy Market", Journal of Technology, ISSN: 10123407, VOLUME 13 ISSUE 7, July 2025,pp:826-845, DOI:18.15001/JOT.2025/V13I7.25.1720

3. **Dutta, S.,** Paul, B., **Kundu, B**. Paul K, Sinha, P, Shuaibu, H. A & Ustun, T.S., "Hybrid manta ray foraging and sine cosine algorithm for managing power transmission congestion influenced by wind energy". Sci Rep 15, 32373, 05.09.2025. https://doi.org/10.1038/s41598-025-13988-z

4. **Aveek Chattopadhyaya, Suman Ghosh**, Sumangal Bhaumik, and Surajit Chattopadhyay. "Radial basis neural network and discrete wavelet transform based RMS estimation for fault assessment in three phase transmission line." Engineering Review, Vol. 45, no. 2, December, 2025, 129-141. https://doi.org/10.30765/er.2779 [WoS/SCOPUS]

International Conference

1. **Arpan Das, Barnali Kundu, Shrayasee Gain, Aritra Chowdhury, Ankur Vaibhav, Ekarna Chakraborty,** "Artificial Intelligence-Based Comparative Analysis of Wind Energy Forecasting Models", 2025 IEEE North-East India International Energy Conversion Conference and Exhibition (NE-IECCE), Published in IEEE Xplore Digital Library, 10.10.2025, ISBN:979-8-3315-1062-6, DOI: 10.1109/NEIECCE64154.2025.11183120

Patent:

1. **Dr. Suman Ghosh, Mr. Shyamal Roy, Dr. Aveek Chattopadhyay, Mr. Amit Debnath, Mr. Arnab Roy, Mr. Saurav Das,** Mr. Sumangal Bhaumik,"Intelligent Iot-Assisted Phase Selector For Three-Phase Electrical Networks", application no 202531059991, published on 4th July 2025.

2. Trishita Ghosh, Suparna Biswas, Suparna Karmakar, **Amit Debnath,** Ujan Ghosh, Annwesha Banerjee majumder, Chowdhury Md. Mizan,"CyberShield: A Real-Time Hardware Trojan Detection Device for Integrated Circuits", application no 202531060011, published on 4th July 2025.

3. **Dr. Barnali Kundu, Dr Debasree Saha, Susovan Dutta, Biswajit Chaki Choudhury, Arpan Das,**Smarta Das, Rohan De, "AI-POWERED DUAL-MODE REAL-TIME SIGN LANGUAGE-TO-SPEECH CONVERSION SYSTEM", Application No. 202531088246 A, Publication Date : 07/11/2025

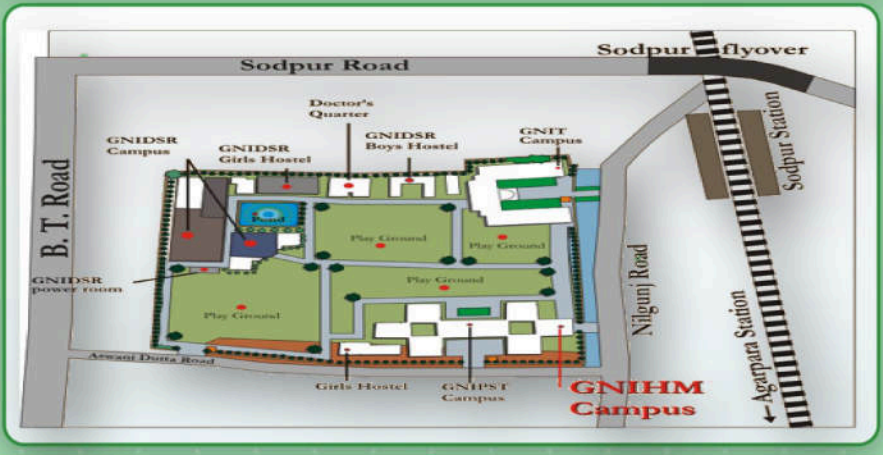
4. Dr. Soma Mukherjee, Dr. Anup Kumar Thander, **Dr. Debasree Saha**, "SMART, COLLAPSIBLE, SOLAR-POWERED MEDICAL-GRADE WATER FILTRATION DEVICE WITH MULTISTAGE NANO-ANTIMICROBIAL AND SENSOR-ASSISTED PURIFICATION", Application No.202531088186 A, Publication Date : 07/11/2025

5. Dr. Barnali Kundu, Dr. Debasree Saha, Susovan Dutta, Ekarna Chakraborty, Soumyadeep Mishra, Sougata Paul, Chahat Shaw, Suchandra Kundu, "AUTONOMOUS MOSS BASED ECOLOGICAL SELF DRIVEN BOT FOR CO2 REDUCTION AND MICROCLIMATE RESTORATION", Application No. 202531087814 A, Publication Date : 07/11/2025

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