

MESSAGE FROM CHAIRMAN



I am delighted to know the release of our B.Tech - Electronics & Communication Engineering Departmental Newsletter, **ELECTRONEWS**. This newsletter highlights the departmental news and the achievements of our staff and students, who continue to bring credits to our institution. I am confident that our institute, BBIT, serves as a role model for others. The students, who have an opportunity to be associated with us, have every reason to expect the best. With the support of our qualified, dedicated and hardworking faculty members, our institute has achieved NAAC and NBA accreditations. I believe that these accomplishments will enable our institute to surpass other eminent institutes at the national level.

It is truly inspiring to witness the journey of BBIT, which over the past fifteen years, has not merely enabled students to earn degrees of excellence but transformed their personalities, empowering them to lead successful lives. I would also like to take this opportunity to address the parents of our students, urging them to actively encourage their children to pursue education with a passion to achieve academic excellence and foster technological creativity. On this gracious occasion, I extend my best wishes to everyone involved in publishing this newsletter. I am confident that **ELECTRONEWS** will serve as a source of inspiration and motivation, encouraging students and staff alike to strive for greater achievements and enrich the forthcoming issues of the newsletter with their contributions.

Congratulations to all the contributors!

Warm regards,
Shri Jagannath Gupta
Chairman, BBIT

FROM PRINCIPAL'S DESK



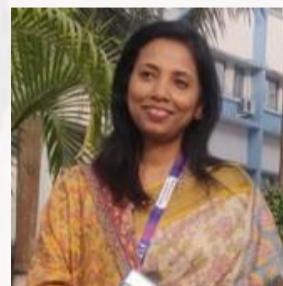
It is a matter of great pride and satisfaction for Budge Budge Institute of Technology (BBIT) to publish the newsletter, **ELECTRONEWS**, released by the Department of Electronics & Communication Engineering (ECE). The college has made tremendous progress

across multiple domains - academic, non-academic, and capacity-building relevant to all staff and students. I am confident that this release of the *Department Newsletter* will send a positive message to the staff, students and all those who are interested in technical education and technology-based activities. A newsletter is like a mirror that reflects a clear picture of diverse activities undertaken by a department while fostering technical skill development among the students, in particular, and the teaching faculty members, in general.

It is my pleasure to congratulate the editorial board on this pleasant occasion of releasing the newsletter. I am sure that publishing a newsletter of this sort, highlighting the achievements of our wards, will be a recognition of their hardwork. I wish them all the very best in future endeavors.

Best wishes,
Prof. (Dr.) Sandeep Malik
Principal, BBIT

ELEVATING ASPIRATIONS: A NOTE FROM HOD-ECE



It brings me an immense joy to unveil the first issue of our *Departmental Newsletter*, **ELECTRONEWS**, a vibrant tapestry of aspirations and accomplishments of the Department of Electronics & Communication Engineering (ECE) at Budge Budge

Institute of Technology (BBIT). This newsletter encapsulates the synergy of talent, innovation, and determination that defines our department. It also chronicles the achievements of our students and faculty members who continuously enhance the boundaries of knowledge through pioneering research, participation in national-level project competitions and organizing workshops & seminars in collaboration with professional societies of repute.

I extend my heartfelt gratitude to all the accompanying editorial board members whose diligence have culminated in this exquisite publication. I believe that this newsletter will serve as a clarion call to continue scaling greater heights of knowledge as well as reinforce our shared vision of empowering minds and transforming futures.

Kind Regards,
Kakali Sengupta Das
HOD - ECE, BBIT

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VISION & MISSION

Vision:

To develop a competent pool of technocrats in the field of electronics and communication engineering through a synergy of quality education, research and innovation

Mission:

1. To provide exposure to the students to the state-of-art academic and technical programmes for making them successful professionals
2. To develop skill sets among the students of the department to enable them meet the emerging national and international challenges
3. To promote research and innovation in the field of electronics and communication engineering through collaboration with partners from industry and academia

AT A GLANCE

1. **2** active student chapters & **1** student affinity group:
 - ISF (IETE Student Forum) : Total Members - **70**
 - IEEE Microwave Theory and Technology Society (IEEE MTT-S) : Total Members - **39**
 - IEEE Women in Engineering (IEEE WIE) Affinity Group : Total Members - **10**
2. **Publications:** **4** journals in areas of *5G & Electromagnetics* and **2** conferences on *Deep Learning & Optical Communication*
3. **3** Indian patents on innovation in areas like *Wireless Energy Harvesting* and *Advanced Optical Communication* have been published
4. Organised **4** hands-on workshops on *Arduino Interfacing, Microstrip Antenna Prototype Design & Design with AutoCAD & DIALux*
5. ECE students showcased a project demonstration of an *Ant-Inspired Hexapod* prototype in *RoboFest 4.0* held at Ahmedabad Science City, winning a grant of **₹50,000/-** in the Proof-of-Concept round and securing a cash prize of **₹2,00,000/-** in the next round.
6. **76%** students have been placed in reputed organisations:
 - **Highest Salary:** **₹6.5** LPA (Corizo Edutech Pvt Ltd)
 - **Government Jobs:** Chennai Custom House and Air Force Central

RESEARCH & PUBLICATIONS

Journals:

1. Srinivasan, L., Humaira Nishat, S. Shargunam, **Deepak Kumar Nayak**, and K. Janani. "Optimizing live video streaming: Integrating 5G, IoT, and cloud computing with machine learning." *Internet Technology Letters* e556 (May 2024):1-6
2. Selvan, Thirumalai, S. Siva Shankar, S. Sri Nandhini Kowsalya, Praseeda Ravuri, **Deepak Kumar Nayak**, Koppuravuri Gurnadha Gupta, and M. N. Sharath. "Modernizing cloud computing systems with integrating machine learning for multi-objective optimization in terms of planning and security." In *MATEC Web of Conferences EDP Sciences*, 392 (2024):01155
3. **Mukherjee, Nibedita** and Monojit Mitra. "Electromagnetic Irradiation Induced Residual Physiological Effects in Gram Plant." *Journal of Chemical Health Risks* 14, no.1 (2024):61-74
4. Verma, Deepika, **Rahul Bosu**, and Shanthi Prince. "Power-efficient UAV-assisted FSO communication: novel 4-PAM optical pulse generation and performance analysis in foggy environment." *Optical and Quantum Electronics* 56, no. 8 (2024): 1309

Conferences:

1. Selvakumaran, S., C. Poonguzhali, Elango Baskaran, Ayushi Arya, **Deepak Kumar Nayak**, and Sandeep Gupta. "Integrated Hybrid Deep Learning Approach for Precise Blood Cancer Detection." In *2024 10th International Conference on Communication and Signal Processing (ICCSP)*, pp. 496-501. IEEE, 2024
2. Gupta, Sanskar, Rahul Shaw, Joydeep Roy Chowdhury, Anmol Aryan, Kumar Ashish, **Kakali Sengupta Das**, Prashant Kumar, Sanjay Kumar, and **Rahul Bosu**. "Performance Analysis of Relay Assisted Single Node to Multi-Node Depth Centric Underwater Wireless Optical Communication System." In *2024 10th International Conference on Communication and Signal Processing (ICCSP)*, pp. 1465-1470. IEEE, 2024

Patents:

1. **Nayak, Deepak**, John Davuluri, A., Kathiresan, A., Joseph, N., Krishna, M., Battula, B., Divya, D., Supriya, M., Shanmugaraja, T., Pavithra Devi, K. & Pallathadka, H. (2024) *Design and implementation of an adaptive wireless energy harvesting system for sustainable power management*. Patent Application No. 202431027600. Published on 19 April 2024
2. **Bhattacharyya, Sumanta**, Banerjee, S., Sarkar, S., Bera, V. & Majumdar, S. (2024) *Assessment of Fruit Ripening Condition Via Electrophilic Addition Organic Reaction Methodology*. Patent Application No. 202431002961. Published on 2 February 2024
3. Prince, Shanthi, **Rahul Bosu**, and J. Arvind. (2024) *A System and A Method for Detecting Underwater Objects*. Patent Application No. 202441030027. Published on 19 April 2024

EVENT UPDATES

টার্মিনেটর টু-র মতো যান্ত্রিক হাত বিআইটিএমের মেলায়!

কুমিল্লায় বন্দোপাধ্যায়

কুমিল্লা টাউন হাউসে সের্বিসেস ইন্সটিটিউটের টার্মিনেটর টু-র মতো যান্ত্রিক হাত বিআইটিএমের মেলায়।

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একটি-এর কামাল — এই সময়

Project Expo: Bionic Arm

A project on *Empowering Amputees: Myoelectric Signal-Based Affordable Prosthetic Limbs (Bionic Arm)*, developed by the students of the Department of ECE - BBIT in collaboration with JIMS Hospital, Kolkata, was presented at **Science & Engineering Fair 2024** organised by BITM-Kolkata. This initiative, highlighted in a report by a newspaper: **Ei Samay** on January 11, 2024, displayed a significant advancement in prosthetics and promoting a better quality of life for specially-abled individuals. The project team was awarded a cash prize of **₹2,000/-** for their remarkable achievement.

Distinguished Lecture: AI in Computer Vision

A distinguished lecture on *AI in Computer Vision* was organised by the Department of ECE - BBIT in online mode on January 29, 2024. The event was conducted in collaboration with the **IEEE MTT-S** and **ISF-BBIT** student chapters. The primary aim of the lecture was to delve into the intersection of AI & computer vision and explore its applications. The keynote speaker of the event was **Dr. Soumen Biswas**, Senior Researcher, Hitachi Research and Development, India. The lecture was intended to aid students and faculty members in subjects like neural networks and fuzzy logic control.



Project Competition: IEEE YESIST12

A national level project competition **IEEE YESIST12 2024** was organised by the Department of ECE - BBIT, in association with **IEEE MTT-S & ISF-BBIT** student chapters, in virtual mode on April 5, 2024. It was a revolutionary initiative that unified social responsibility in young minds and unleashed the power of fresh ideas to reshape communities through captivating activities. It provided a platform for students and young professionals to showcase their innovative ideas to find the key to humanitarian and social issues directly affecting the community around them. 15 teams from various parts of India participated in the event.

Seminar: Future Trends and Challenges in Antenna Technologies

A seminar on *Future Trends and Challenges in Antenna Technologies* was organized by the Department of ECE - BBIT, in collaboration with the **IEEE MTT-S** student chapter, on May 13, 2024. Prof. Soumen Banerjee, Principal of Narula Institute of Technology & Prof. Bhaskar Gupta, Vice Chancellor of Jadavpur University, delivered a keynote address. The seminar focused on the latest advancements in antenna technology. The program was intended to aid students and faculty members in antennas and propagation, electromagnetic waves & corresponding labs.



EVENT UPDATES



Workshop: Arduino & its Sensor Interfacing (ASI-2024)

A 1-Day workshop on *Arduino & its Sensor Interfacing* (ASI-2024) was organised by the Department of ECE - BBIT, in collaboration with **IETE Student Forum (ISF)-BBIT**, on May 17, 2024. The hands-on workshop aimed at making the students learn the fundamentals of interfacing between embedded systems and sensors followed by its applications in various fields. The workshop was intended to aid students in embedded systems, analog electronic circuits and microprocessors & microcontrollers.

Workshop: Technical Design & Illumination Planning with AutoCAD & DIALux

A 5-day workshop on *Technical Design & Illumination Planning with AutoCAD and DIALux* was organized by the Department of ECE - BBIT, in association with **IEEE MTT-S** and **ISF-BBIT** student chapters, from August 8-14, 2024. The program offered a balanced blend of theoretical insights and hands-on practices. It empowered students to master the fundamentals of AutoCAD for technical drawing and DIALux for advanced lighting design. The workshop covered key topics such as CAD standards, 3D modelling, energy-efficient lighting solutions, and smart city applications aligning with sustainable design principles. It also included interactive sessions and live demonstrations, encouraging active participation and problem-solving. The certificates of participation were awarded to all the attendees, enhancing their professional credentials. Overall, the workshop enhanced the participants' technical proficiency successfully; thus, preparing them to enhance knowledge in CAD-based design and lighting solutions. The event reinforced BBIT's commitment to delivering skill-based education and fostering industry-academia collaboration.



Mentoring Session: Lean Start-up & Minimum Viable Product (MVP)

The R&D cell-BBIT, in collaboration with the Department of ECE - BBIT and its associated student chapters: **IEEE MTT-S** & **ISF-BBIT** along with the **IEEE WIE** student affinity group, organized a mentoring session on *Lean Start-up & Minimum Viable Product* on August 23, 2024. The event aimed to provide the students with an in-depth understanding of how to approach entrepreneurship through the lean start-up methodology for developing a minimum viable product as a part of the start-up journey. The mentoring session included interactive case studies from successful start-ups, giving students practical insights into the challenges and opportunities of entrepreneurial ventures. The session was intended to aid students in economics for engineers and universal human values.

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Workshop: Arduino & its Actuator Interfacing (AAI-2024)

A 1-Day workshop on *Arduino & its Actuator Interfacing (AAI-2024)* was organised by the Department of ECE - BBIT, in collaboration with **ISF-BBIT** and **IEEE MTT-S** student chapters & **IEEE WIE** student affinity group, on September 04, 2024. The hands-on workshop enlightened students on the fundamentals of the embedded system and its applications. The workshop provided an opportunity for them to become aware of ARDUINO for developing embedded systems. The event also provided a prerequisite tool for reinforcing technical skills in analog electronic circuits and microprocessors.

Workshop: Microstrip Antenna Prototype Design for RF Energy Harvesting

A 1-Day workshop on *Microstrip Antenna Prototype Design for RF Energy Harvesting* was organised by the Department of ECE - BBIT, in collaboration with **ISF-BBIT** and **IEEE MTT-S** student chapters & **IEEE WIE** student affinity group, on September 19, 2024. The hands-on workshop offered students practical exposure to design, fabrication, and analysis of microstrip antennas, with a special focus on energy harvesting applications, coinciding with the celebration of Engineers' Day. The workshop was intended to aid students in antennas & propagation, electromagnetic waves and corresponding labs.



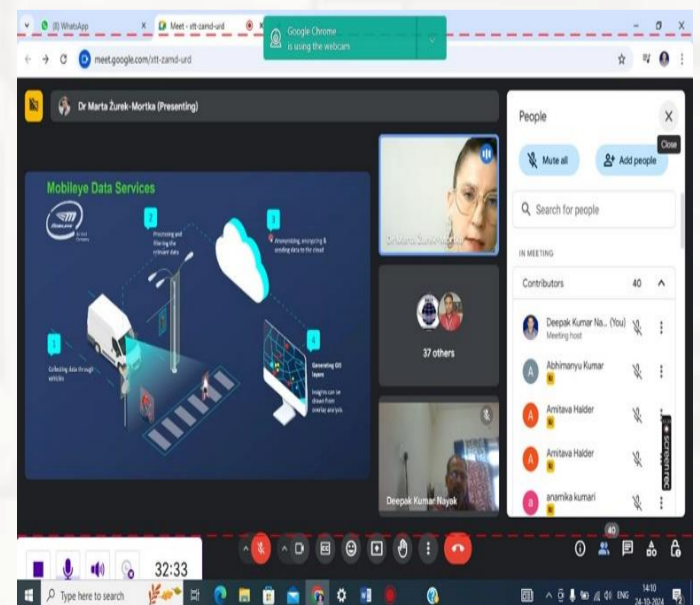
Wall Magazine: 5G-BEYOND SPEED

The latest wall magazine *5G-BEYOND SPEED* was proudly unveiled by the Department of ECE - BBIT on September 27, 2024. This innovative initiative aimed to inspire the students to explore the cutting-edge advancements in 5G technology and beyond, emphasizing its transformative impact on modern communication systems. The event was spearheaded by a dynamic student committee formed with enthusiastic second-year ECE students.



FDP: Communication, Signal Processing and Recent Technologies for Different Applications

A 1-week faculty development program (FDP) on *Communication, Signal Processing and Recent Technologies for Different Applications* was held by the Department of ECE - BBIT, in association with **IEEE MTT-S** and **ISF-BBIT** student chapters, from October 22-28, 2024. The FDP addressed various aspects of medical image processing, different antenna and MMIC systems. The program also provided opportunities for the faculty members to enrich their research skills in the field of wireless communication & signal processing.



EVENT UPDATES



Project Expo: ROBOFEST-GUJARAT 4.0

A student team of ECE-BBIT was selected from Level-I (Ideation) to Level-II (Proof-of-Concept) in a national-level project competition: **ROBOFEST-GUJARAT 4.0** for ideation of an ant-inspired **Hexapod** on August 08, 2024. The team was shortlisted by the technical advisory committee of GUJCOST among the 682 participants. The team was recommended a cash prize of **₹50,000** as a token of recognition for their creative idea. The team was selected from Level-II to Level-III (Prototype) on October 26, 2024 where the team presented and demonstrated a model performing tasks such as climbing stairs measuring 6×4 inches by autonomous laptop control at Ahmedabad Science City, Gujarat. The team was awarded a cash prize of **₹2,00,000/-**. The project competition paved the way for practical exposure of working with modern instruments in robotics and automation and embrace students with project-based learning.

Lab Visit: Antenna-Microwave and IC Design Lab, Jadavpur University

A 1-Day lab visit to the **Antenna-Microwave and IC Design Lab** at Jadavpur University was organized by the Department of ECE - BBIT, in collaboration with **IEEE MTT-S & ISF-BBIT** student chapters and **IEEE WIE** student affinity group, on November 19, 2024. The visit was aimed at exposing the students to antenna design along with IC design & fabrication. The students witnessed the real-time manufacturing of the final IC product. The lab visit was intended to aid students in CMOS VLSI design and digital system design.



Inauguration Ceremony: IEEE-WIE Affinity Group

An inauguration ceremony of the **IEEE-WIE** affinity group was organized by the Department of ECE - BBIT, in collaboration with the **IEEE-WIE** student affinity group & student chapters: **IEEE MTT-S** and **ISF-BBIT**, on November 25, 2024. The ceremony was inaugurated by eminent guests from Jadavpur University: Prof. Dr. Sheli Sinha Chaudhuri (Chair, IEEE-WIE Kolkata section) and Prof. (Dr.) Sudipta Chattopadhyay (Past Chair, IEEE-WIE Kolkata section). It was followed by a distinguished lecture on **Brain-Computer Interfacing** by Dr. Pratyusha Rakshit (Secretary, IEEE-WIE Kolkata Section). The event served as a milestone for empowering women in engineering by encouraging their active participation in leadership and technical roles. It also included interactive discussions that inspired students to explore emerging technologies like brain-computer interfaces. The ceremony provided a platform for the students to exchange ideas by organizing technical programs and activities.



EVENT UPDATES



Workshop: STEM For Sustainability: Smart Solutions for Climate Resilience

A 1-Day workshop on *STEM for Sustainability: Smart Solutions for Climate Resilience* was organized by the Department of ECE -BBIT, in collaboration with **IEEE WIE** affinity group student chapters: **IEEE MTT-S** and **ISF-BBIT** along with other IEEE partners: **IEEE Humanitarian Technologies Board**, **IEEE MOVE Outreach India** program & **IEEE Kolkata Section SIGHT** group, on December 17, 2024. The event, sponsored by the **IEEE Kolkata** section, featured hands-on activities like building IoT-based air quality monitoring and flood warning systems. Total of 32 participants from BBIT public school explored real-world STEM applications to address climate challenges, including environmental conservation and disaster resilience.

Project Expo: ISRO Robotics Challenge 2024 (IRoC-U 2024)

The student team: ONESTEP, BBIT was selected to **Quals** round of *ISRO Robotics Challenge 2024 (IRoC-U 2024)* on January 30, 2024. As directed by IRoC-U 2024, the project design objective was to build robots to perform space exploration-inspired tasks. The rover, built in ECE Project Lab, featured a 4-wheeled rocker suspension system for enhanced stability and a 5-degree manipulator for task execution. The project demonstrated the capability to traverse 15-degree inclined rugged terrains. The team integrated a Raspberry Pi to enable object detection, path planning, live video streaming, and wireless communication with a base station.



STUDY HIGHLIGHTS: HIGHER STUDIES (2023-24)

Many of the students from the Department of ECE - BBIT have been admitted to prestigious universities, namely, IIM, Jadavpur University, St. Xavier's University, Birla Institute of Technology (BITS, Pilani), NITs and international universities of repute.

Student Name	Exam Qualified/ Higher Studies	Details	Student Name	Exam Qualified/ Higher Studies	Details
Guddu Shaw	GATE Qualified	AIR-1027 GATE Score:578	Shreya Maity	CAT Qualified (IIM Gaziabad)	CAT Score:57.49 Percentile:95.83
Priyanka Sur	GATE Qualified	AIR-3689 GATE Score:439	Debasish Biswas	CAT Qualified	CAT Score:35.15 Percentile:81.81
Kundan Kumar	GATE Qualified	AIR-7584 GATE Score:354	Arpan Roy	M.Tech (Jadavpur University)	University Admission Test
Abinash Seth	GATE Qualified	AIR-7824 GATE Score:360	Simontini Roy	M.Tech (Jadavpur University)	University Admission Test
Sneha Hazra	GATE Qualified	AIR-9254 GATE Score:332	Udita Roy	MBA (St. Xavier's University)	University Admission Test
Swadhin Das	GATE Qualified	AIR-32270 GATE Score:270	Bidisha Mondal	Full-Time Ph.D. Scholar (BITS Pilani)	Institute Interview
			Arunava Chatterjee	IELTS Qualified	Overall Band Score: 7.5 CEFR Level: C1

A LEGACY OF EXCELLENCE: ECE FACULTY & B.TECH - ECE BATCH OF 2020-24



From left (1st Row): Debarghya Roy, Debasis Maiti, Nibedita Mukherjee, Prof. (Dr.) Deepak Kumar Nayak, Kakali Sengupta Das (HOD)
 Prof. (Dr.) Narendra Nath Jana (Dean Audit - BBIT), Prof. Dr. (Col.) Probhas Bose (Director - BBIT)
 Prof. (Dr.) Siladitya Bandyopadhyay (Dean Students - BBIT) Champak Adhikari, Dr. Sumanta Bhattacharyya, Julekha Khatun
 Tania Paul Das, Arpita Das, Moumita Paul, Dr. Rahul Bosu

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