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ECE EXPEDITION



Connecting Intelligence

BIRLA INSTITUTE OF TECHNOLOGY MESRA
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

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EDITORIAL

FROM EDITOR-IN-CHIEF'S DESK



On behalf of the editorial team, I express my extreme pleasure in presenting the sixth issue of the 'ECE Expedition', and extending the heartfelt thanks to each member of the department for their achievements and contributions toward the worthy expedition of the department.

During the last six months (Jan-Jun 2025), the department has made significant contributions in various domains such as teaching and research, product development, sponsored projects, outreach activities, and students' achievements. I am sure this issue will give a glimpse of the above. The theme of this issue is "Connecting Intelligence", which is the theme of the International Conference our department is organizing during 25th -26th Jul 2025. This theme may help us navigate through the changing landscape of technology.

Let's not only witness the technological developments but also contribute to the future they are creating. The future may arrive faster than we imagine. To embrace the future, we must align our efforts and find ways to create realities. The best way to predict the future is to create it. We must be aware of the ecosystem as well as the technological developments to be able to create.

We have an ocean of opportunities today, be it defense sector, space exploration, artificial intelligence, Internet of everything, Virtual Reality, Quantum Technologies, Intelligent Devices, Communication Systems, Unmanned Aerial Vehicles, Autonomous Vehicles, Advanced Instrumentations, VLSI Design, Embedded Systems, Signal Processing, and Sensor Design, where we can make worthwhile contributions.

We understand, a Nation's prosperity is not decided by the amount of money or gold or resources it may have, but by the magnitude of the contributions towards research and development, innovation and entrepreneurship, patents and products.

We are marching to become a developed nation. This resonates with our nation's pride. Let's put our best foot forward and contribute to it. We certainly need technical excellence as well as human excellence.

I take this opportunity to congratulate the entire department on their sincere involvement and spirit of teamwork. Our department has a longstanding reputation for academic excellence, research and innovation. Let us march forward with the same spirit.

Thank you and best wishes.

Prof. Sanjay Kumar
EDITOR-IN-CHIEF



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TECHNOLOGY VISION

BEAMFORMING: A SMART ANTENNA TECHNOLOGY FOR MODERN WIRELESS COMMUNICATION

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1. Introduction

Beamforming is a signal processing technique that allows an antenna array to transmit or receive signals more efficiently by concentrating the signal energy in specific directions. Unlike traditional antennas that radiate equally in all directions (omnidirectional), beamforming antennas can steer their beams dynamically toward intended users or sources, significantly enhancing the system's performance.

Beamforming is a foundational technology in:

- 5G and 6G networks
- Radar systems
- Wireless LANs (Wi-Fi 6/7)
- Medical imaging (like microwave breast tumour detection)
- Smart speakers and voice recognition systems

The primary goals of beamforming are to:

- Increase signal gain in the desired direction.
- Reduce interference and noise from unwanted directions.
- Improve spatial resolution and energy efficiency

2. Types of Beamforming

a. Analog Beamforming

- Implemented using analog phase shifters before the RF chain.
- All antenna elements share one RF chain.
- Cost-effective and power-efficient.
- Limitation: Only one beam can be formed at a time.

Use case: Satellite communication, phased-array radars.

b. Digital Beamforming

- Signal processing is done in the baseband after ADC conversion.
- Each antenna element requires its own RF chain.
- Allows multiple beams and high spatial resolution.
- Enables advanced algorithms like adaptive beamforming and null steering.

Use case: Massive MIMO in 5G, radio astronomy.

c. Hybrid Beamforming

- Combines the best of analog and digital methods.
- Uses fewer RF chains than digital beamforming while retaining flexibility.
- Suitable for mmWave 5G where large arrays are used.

Use case: 5G base stations with cost and power constraints.

TECHNOLOGY VISION

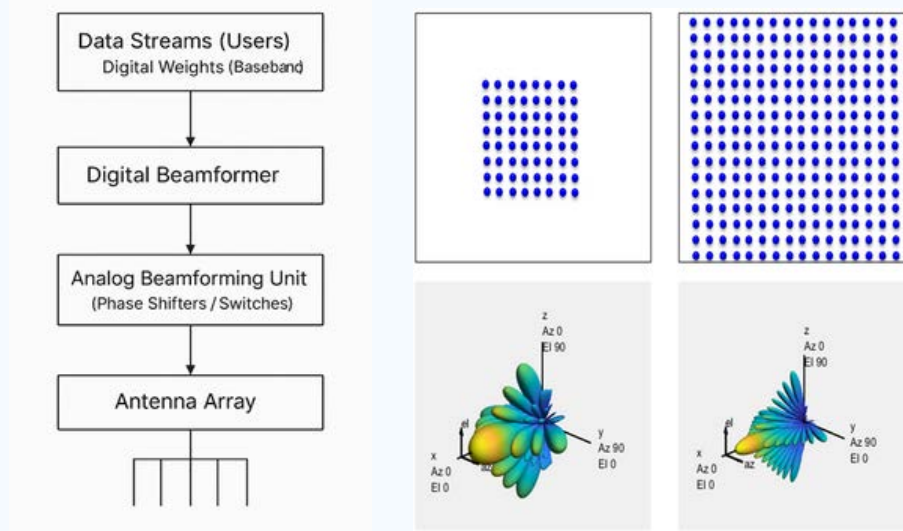


Figure 1 - Simplified block diagram of a hybrid beamforming system

3. Block Diagram of a Beamforming System

- Digital Beamformer: Assigns complex weights based on user/channel.
- Analog Beamformer: Applies phase shifts to steer the beam.
- Antenna Array: Emits the final composite signal.

5. Beamforming Techniques

a. Fixed Beamforming

- Uses pre-defined beam directions.
- Suitable for simple systems or fixed coverage areas.

b. Adaptive Beamforming

- Continuously adjusts the beam direction based on the user's location or interference pattern.
- Employs algorithms like MVDR (Minimum Variance Distortionless Response) and LMS (Least Mean Square), and MUSIC (Multiple Signal Classification)

c. Retrodirective Beamforming

- Automatically points the beam in the direction of the incoming signal.
- Useful in tracking systems like military radars.

6. Fabricated Antenna and VNA

The fabricated antenna is tested with help of a Vector Network Analyzer.

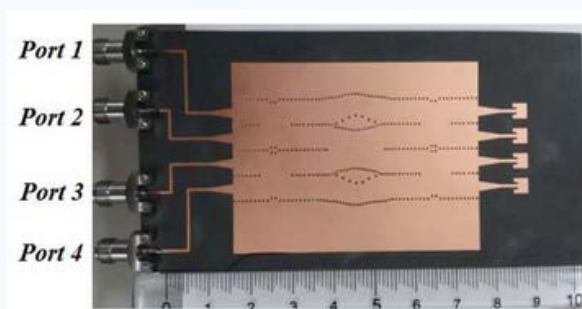


Figure 2 - Fabricated Antenna and VNA

TECHNOLOGY VISION

JOURNEY OF ARTIFICIAL INTELLIGENCE: FROM NEURONS TO NETWORKS

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“A student of physics might reasonably feel that all good ideas have already been taken by Galileo, Newton, Einstein, and the rest. AI, on the other hand, still has openings for several full time Einsteins and Edisons”

The evolution of Artificial Intelligence (AI) is nothing short of extraordinary—a journey from the humble biological neuron to today's transformative intelligent systems. This article walks through the intertwined growth of neuroscience and artificial intelligence, revealing how our understanding of the brain has inspired machines that mimic human thought.

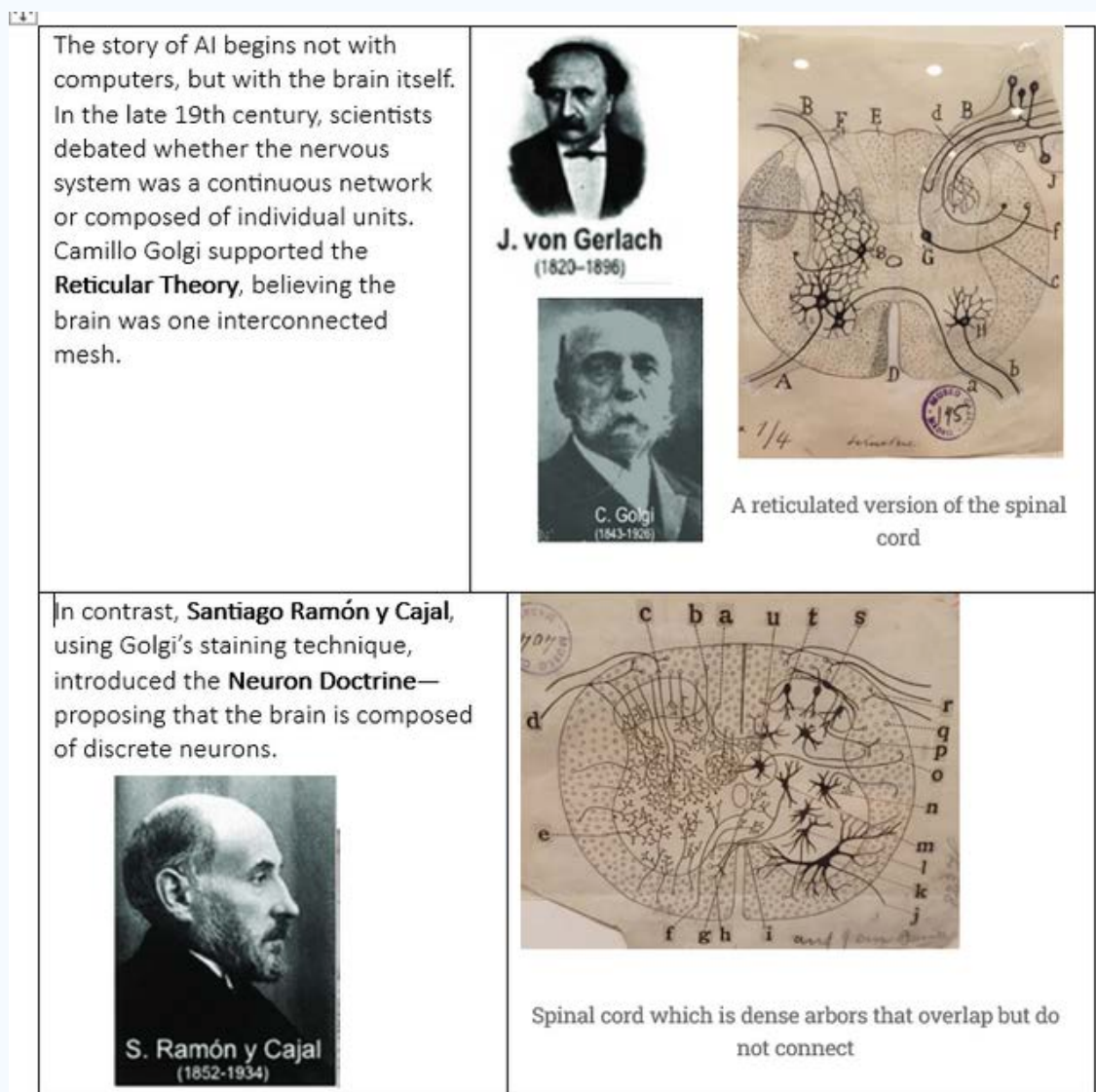


Figure 1 - The Roots in Biology: From Reticular Theory to the Neuron Doctrine

TECHNOLOGY VISION



- This revolutionary idea, later confirmed by electron microscopy in the 1950s, laid the groundwork for neural modeling. The Final Word In 1950s electron microscopy finally confirmed the neuron doctrine by unambiguously demonstrating that nerve cells were individual cells interconnected through synapses (a network of many individual neurons)

Each human brain contains approximately 86 billion neurons, each connecting to thousands of others, forming a vast communication network. To reach this huge target, a developing fetus must create around 250,000 neurons per minute. Neurons, sometimes called nerve cells, make up around 10 percent of the brain; the rest consists of glial cells and astrocytes that support and nourish neurons. It was this structure that inspired the first artificial neuron models, serving as the blueprint for today's deep learning algorithms.

From Biological Models to Artificial Minds

The birth of AI as a formal field came in 1956 at the Dartmouth Conference, where the term “Artificial Intelligence” was coined. Alan Turing's earlier question—Can machines think?—laid the philosophical foundation. Early AI systems mimicked logic and rules, enabling machines to play games and solve puzzles. But limitations in computing power led to the AI Winter of the 1970s.

The 1980s saw a resurgence with expert systems, and the 2000s ushered in the age of machine learning. Today, deep learning architectures, inspired by the brain's layered structure, have revolutionized how machines learn and adapt. From convolutional neural networks (CNNs) for vision to transformers for language, AI has become an inseparable part of healthcare, education, industry, and daily life.

AI in Action: From Labs to Lives

Modern AI applications are everywhere—from autonomous vehicles and voice assistants to robotic surgery and real-time translation. These intelligent systems learn from vast amounts of data, often surpassing human performance in specific tasks. Notably, the models that drive these innovations, like GPT, are powered by neural networks originally inspired by the very biological neurons that Golgi and Cajal debated over a century ago.

The Road Ahead: Promise and Responsibility

As AI continues to evolve, it raises profound questions: How should AI be governed? Can machines be ethical? What role will humans play in an AI-augmented world? The journey is ongoing—and unlike other fields that may feel “complete”, AI still offers open doors for innovation.

From dissecting the biological brain to building thinking machines, the story of AI is still being written. With science and ethics walking hand in hand, the next Einstein—or Edison—of AI may well be reading this today.

DEPARTMENTAL ACTIVITIES

ECE Department GET TOGETHER 10.01.2025



DEPARTMENTAL ACTIVITIES

On 07th Jan 2025 a departmental get together followed by departmental meeting was held in the department in which certificates were also given away to the staff members of the department who underwent short Term Training Programme conducted Dr. Kartik Mahto, Dr. S. S. Sahu and Dr. Rupesh Kumar Sinha during the 2024 summer vacation. The training programmes were related to the uses of general English, MS word, internet applications and various software used in laboratories of the department.



DEPARTMENTAL ACTIVITIES

On 23rd January, 2025 an invited talk of Dr. Saurav Prakash was organized in the department.



An Interaction Session with Professor Subhasis Chaudhuri, former director at the Indian Institute of Technology, Bombay was held on 24th January 2025.

Dr. Vimal Kumar Singh Yadav, Asst. Prof, MNNIT Allahabad, delivered invited talk on "Additive Fabrication of Single Nanowire based FET Sensors on March 6th, 2025. Dr. Richa Mishra and Dr. S.S. Sahu coordinated the event.



DEPARTMENTAL ACTIVITIES

Prof. Srikanta Pal delivered a lecture in “A La Carte Webinar on Science-narratives of Twisted Radio Waves (2025)” on 10th March 2025 organized by Department of Electronics and Communication Engineering BIT Mesra, Ranchi. Dr. Vijay Nath coordinated the event.



Dr. Vijay Nath organised a Workshop of Digital System Design with VHDL & Verilog -2025 (Remedial Class) from 22nd January 2025 to 31st January 2025



DEPARTMENTAL ACTIVITIES

Dr. Sanjay Kumar, Chairperson, Value Education Cell organized One-Day Faculty Development Workshop on the theme of Know Yourself as a Teacher on 23rd April 2025.



Dr. Sanjay Kumar organized a one-day workshop on Awareness on Trends in Technology as the coordinator of the Capacity Development and Skill Enhancement Initiative (CDSEI), 30th Jun 2025.

Dr. Sanjay Kumar conducted 3 days Practice Session toward Celebration of International Day of Yoga (IDY) 2025, BIT Mesra, Ranchi, 19th-21st Jun 2025.

Dr. Sanjay Kumar organized National Youth Day, BIT Mesra, Ranchi, 12th Jan 2025.



DEPARTMENTAL ACTIVITIES

Dr. Sanjay Kumar organized Holi Meet in the Institute, 13th March, 2025



DEPARTMENTAL ACTIVITIES

BIT SIPAR 2025

Department of Electronics and Communications Engineering organized the BIT SIPAR-2025 from 1st June 2025 to 15th July 2025. Across the country from top technical institutions students from B. Tech and M. Tech. category participated in the program. Some participating institutes are IIT Patna, SRM Institute of Technology Kattankulathur, CIT Ranchi, ITER Bhubaneswar, BIT Patna, BIT Mesra, BIT Deoghar, IEST Shibpur, Babasaheb Bhimrao Ambedkar University Lucknow, CV Raman Global University Odisha, Ramgarh Engineering College Ramgarh, MNNIT Allahabad, Central University of Karnataka, Maharaja Agrasen College of Engineering New Delhi, Rajiv Gandhi University of Knowledge Technology Ongole, etc.

A total of 170 applications were received and 85 were selected for summer internships.

- 40 Students of B. Tech completed the internship in Digital System Design with Verilog and 4 students of M. Tech. completed internship on Cyber Security under Dr. Vijay Nath.
- 3 students completed internships under Dr. Richa Mishra and Dr. N. Chattoraj in MEMS.
- 4 students completed internships under Dr. Aminul Islam in MJFET.
- 2 students completed internships under Dr. P.P. Dash in Signal Processing.
- 11 students completed internships under Dr. Priyank Saxena in Drone Technologies.
- 7 students completed internships under Dr. S.S. Tripathy in Embedded Technologies.
- 2 students completed internships under Dr. Rupesh Kumar in Block chain technologies.
- 6 students completed internships under Dr. S.S. Sahu in Image Processing.
- 6 students completed internships under Dr. Santashraya Prasad in VLSI Design.
- 1 student completed internships under Prof. S.S. Solanki & Dr. Kartik Mahto in Embedded System Design.

Interns got good knowledge in respective domains and communicated research articles at IEEE conferences, and some are also processing for patents. The program was inaugurated and guided by Head of the Department, Prof. Sanjay Kumar. This program was executed by Dr. Vijay Nath as Departmental Coordinator and Dr. Richa Mishra as Departmental Co-coordinator.

DEPARTMENTAL ACTIVITIES



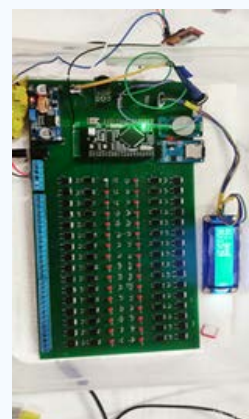


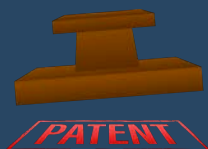
PROJECTS/ CONSULTANCY

S.No.	Faculty Name	Date of getting confirmation for Project	Details of Project
1	Dr. Priyank Saxena & Dr. S. S. Tripathy	30 Jan 2025	Development of a prototype for Obstacle Detection near the railway tracks. Company: Specialty Products and Services (India) LLP Amount-4 Lakhs
2	Dr. Priyank Saxena	12 Apr 2025	Development of an HDMI-Based GUI for Real-Time Fire Alarm Monitoring. Company: MIMEC Electronics Pvt. Ltd., Ranchi Amount-3 Lakhs
3	Dr Vijay Nath	1 Jan 2025	Combating the Cyber Mirage : Advanced Research in Misinformation, Deepfakes and AI-Generated Fakes CyberPeace Foundation, New Delhi Amount:Rs. 35.40 lakhs

Recently Completed Project

Dr. Priyank Saxena successfully completed the assigned consultancy work on the “Development of an automatic fire detection and announcement system for Mining Applications”. Company: MIMEC Electronics Pvt. Ltd., Ranchi
Amount-2 Lakhs





PATENTS



The Patent Grant



WE ARE PROUD TO ANNOUNCE THAT THE PATENT ENTITLED

“A PHOTO BIOMODULATION DEVICE FOR ATTENUATING OBESITY, AND METHOD THEREOF”
HAS BEEN GRANTED (INDIAN PATENT NO: 564886) ON APRIL 03, 2025



DR. ASHOK PATTNAIK



DR. SITANSHU SEKHAR SAHU



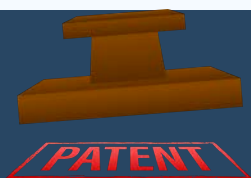
MR. TUHIN MUKHERJEE



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Technology, Birla Institute Of Technology, Mesra,
Ranchi, Jharkhand



Department of Electronics and Communication
Engineering , Birla Institute Of Technology, Mesra,
Ranchi, Jharkhand



PATENTS

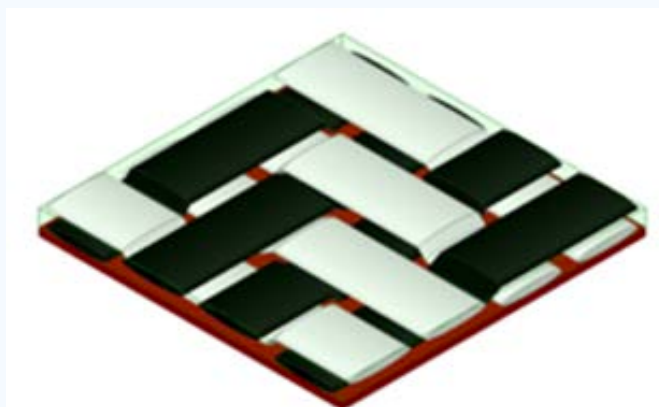
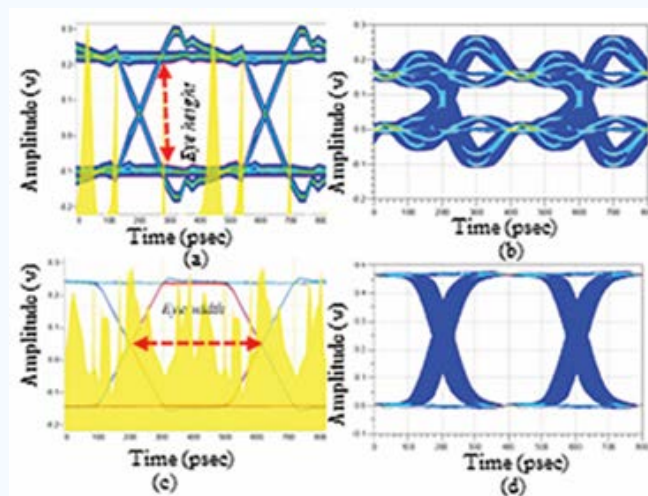
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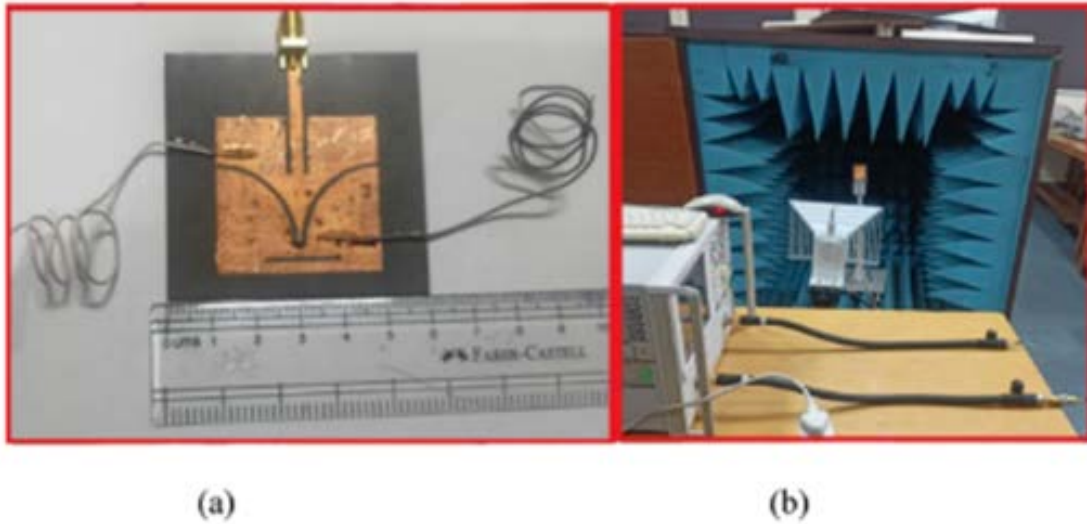
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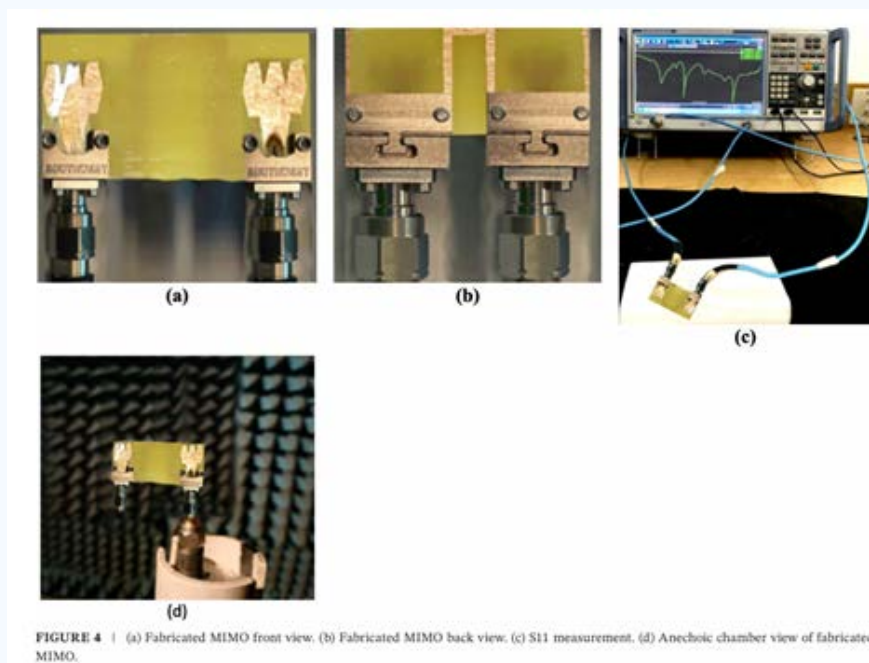
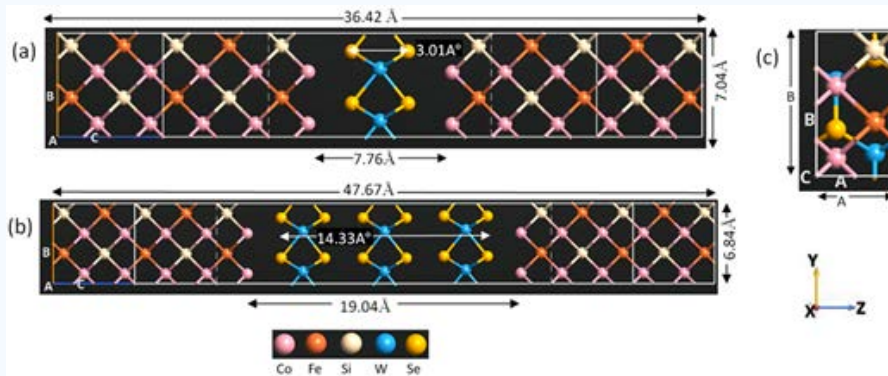


FIGURE 4 | (a) Fabricated MIMO front view. (b) Fabricated MIMO back view. (c) S11 measurement. (d) Anechoic chamber view of fabricated MIMO.

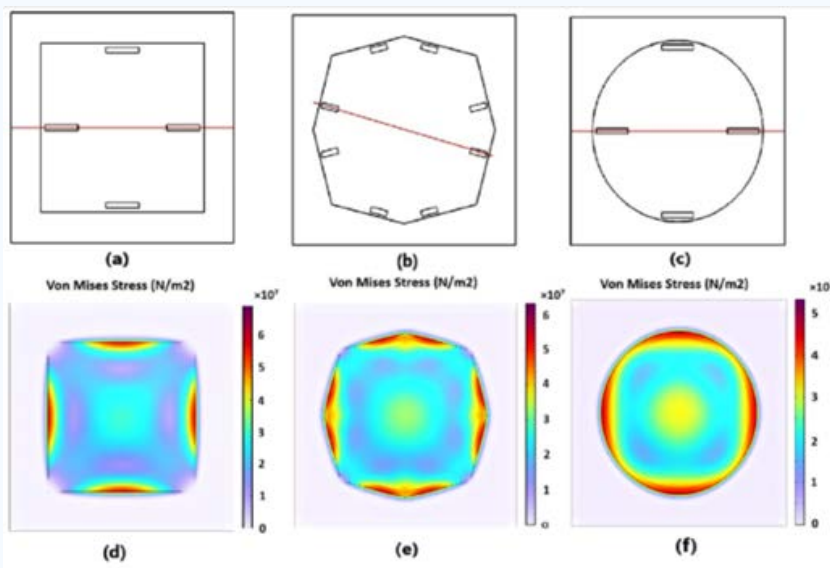
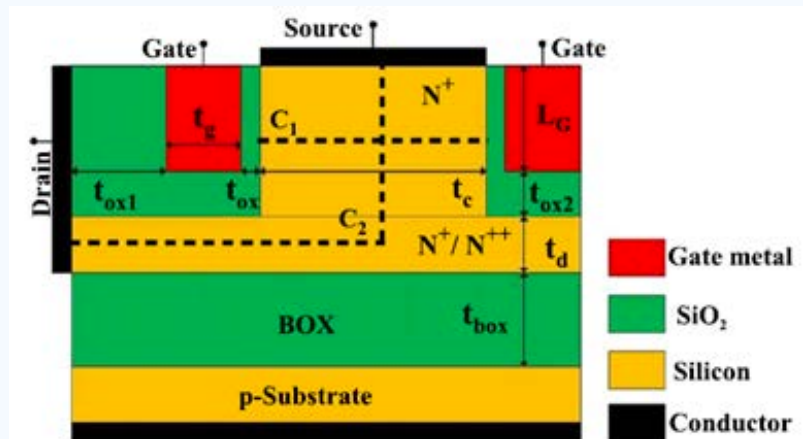


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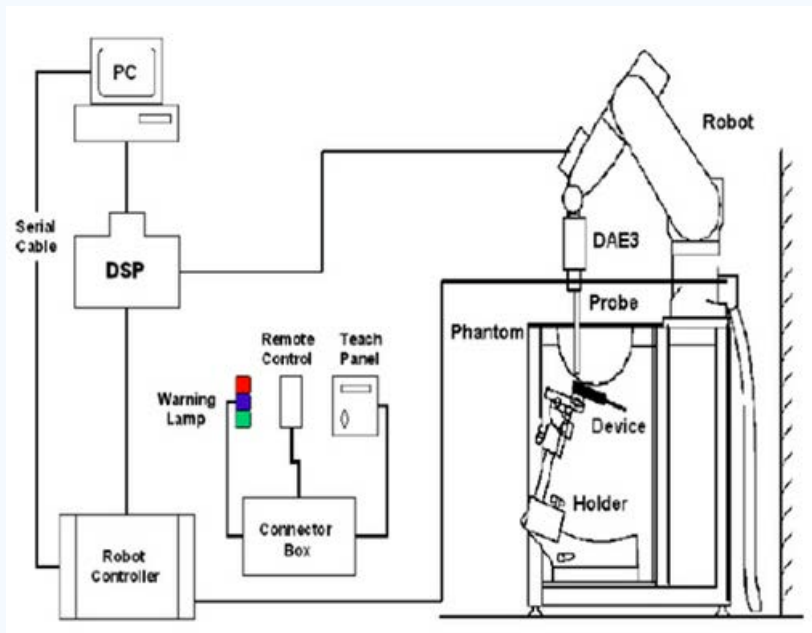
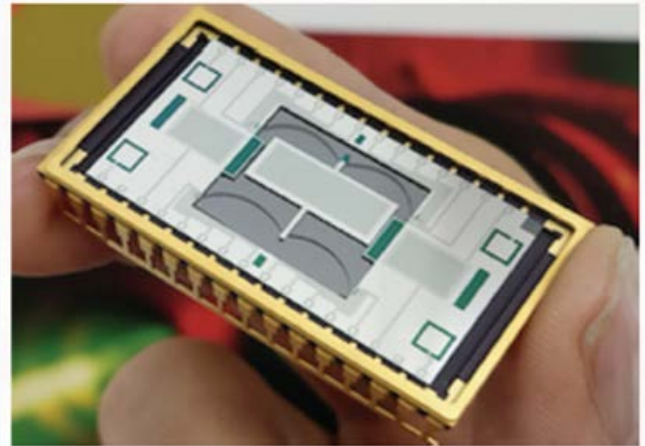


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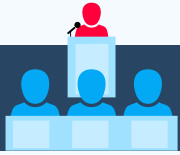


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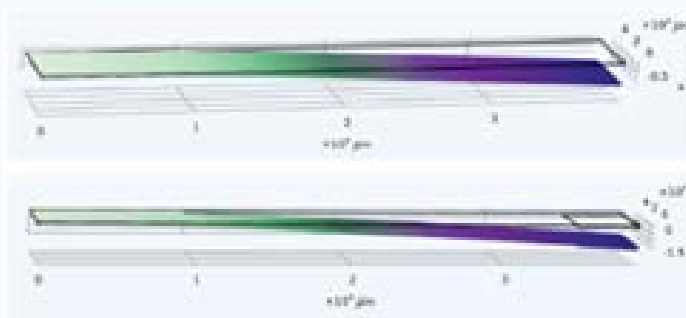
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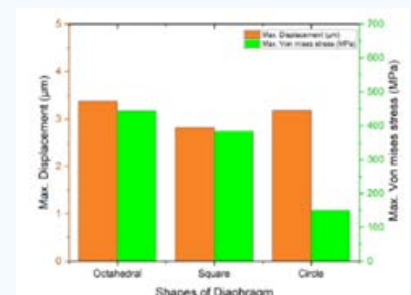
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5. S. Mandal, S. K. Dhara and A. Vupputuri, "Attention Driven Reparameterized Residual Learning for Illumination Enhancement in Wireless Capsule Endoscopy," 2024 IEEE 21st India Council International Conference (INDICON), IIT Kharagpur, India, 2024, pp. 1-6, doi: 10.1109/INDICON63790.2024.10958509.



6. S.Dutta, N. Chatteraj, R. Mishra, Optimization Techniques for enhancing the efficiency of MEMS-based energy harvesters, IEEE International Conference on Electronics, AI and Computing, NIT Jalandhar, 5th -7th June 2025.

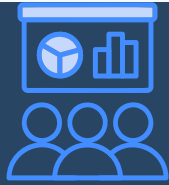
7. R.K.Singh, V. Belwanshi, N.Chatteraj and R. Mishra, "Finite element analysis of MEMS pressure sensors intended for Subsonic Wind Tunnel Applications", International Conference on Micro/Nanoelectronics Devices, Circuits, & Systems Conference, NIT Silchar, 29-31 January 2025.





BOOKS / BOOK CHAPTERS

1. Atharv Kapre, Vaibhav Gupta, Shashank Kumar Dubey, Monalisa Pandey and Aminul Islam, Chapter Title: “Design of a Triple Node Upset Tolerant Nonvolatile Latch”, BOOK TITLE: “Intelligent Assistive Devices: Paradigms and Applications”. Publisher: Apple Academic Press (AAP), co-publication with CRC Press Taylor and Francis Group.
2. Saianudeep Reddy Nayini, Krishna Sai Kushal Gella, Shashank Kumar Dubey, Manisha Guduri, Aminul Islam, Chapter Title: “A Technique to Mitigate PVT Variations in Double-Phase Nonoverlapping Clock Generating Circuit”, BOOK TITLE: “Intelligent Assistive Devices: Paradigms and Applications”. Publisher: Apple Academic Press (AAP), co-publication with CRC Press Taylor and Francis Group.
3. Rishu Jeet, Shashank Kumar Dubey, Aminul Islam, Chapter Title: “Development of CNN-Based Mask Detection Technique Using Python and TensorFlow”, BOOK TITLE: “Intelligent Assistive Devices: Paradigms and Applications”. Publisher: Apple Academic Press (AAP), co-publication with CRC Press Taylor and Francis Group.
4. Nishant Biyani (Birla Institute of Technology Mesra, Ranchi, India), Monalisa Pandey (Meerut Institute of Engineering and Technology, India), Shashank Kumar Dubey (Global Academy of Technology, Bengaluru, India), and Aminul Islam (Birla Institute of Technology Mesra, Ranchi, India), Chapter Title: “Overview of RadiationHardened SRAM Cell Design Techniques,” BOOK TITLE: Exploring the Intricacies of Digital and Analog VLSI (pp. 277-292), editors: Koushik Guha, Jyoti Kandpal, and Swagata Devi, ISBN13: 9798369380840 ISBN13: 9798369380840, ISBN13 Softcover: 9798369380857, EISBN13: 9798369380864, DOI: 10.4018/979-8-3693-8084-0.ch010



WORKSHOPS/SEMINARS ATTENDED BY FACULTY MEMBERS

Dr. Vijay Nath attended a 2-Day Workshop on Rocket Technologies (TDWRT2025) organized by Department of Space Engineering & Rocketry, BIT Mesra (May 1–2, 2025 at BIT Mesra).

Dr. Aminul Islam attended a National Level Awareness Program on Institutional Development Plan (IDP) for Higher Education Institutions (6th March 2025)

Dr. Richa Mishra attended the INAE-INFOSYS CEEE Mentoring Program held at Indian Institute of Technology, Kharagpur from 16th June 2025 - 27th June 2025.



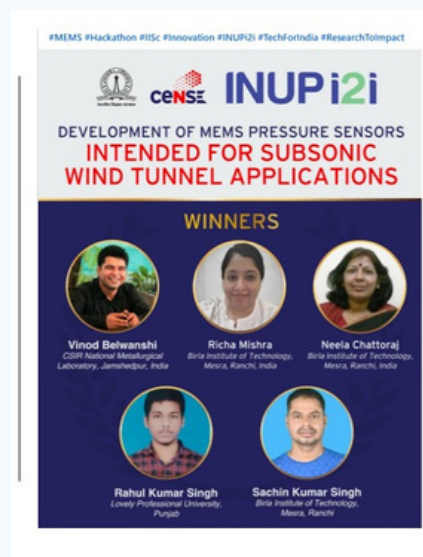
Dr. Sanjeet Kumar and Dr. Sitanshu Sekhar Sahu attended the CEEE program sponsored by INAE- Infosys foundation at IIT Bombay during 2nd June 2025 to 13th June 2025





AWARDS AND ACHIEVEMENTS

Winner Team (Vinod Belwanshi, Richa Mishra, Neela Chatteraj, Sachin Kr. Singh, Rahul Kr. Singh), Ministry of Electronics and Information Technology , India Semiconductor Mission and IISc Bangalore sponsored INUP Hackathon 2025, Topic: SOI-MEMS Hackathon: Pioneering Innovations in Microelectromechanical Systems, Project – Development of MEMS Pressure Sensors Intended for Subsonic Wind Tunnel Applications, 2025



1st Prize, Research Project Poster Exhibition & Presentation for SERB POWER project (2022-2025) titled “Scalable assembly of Painless Hollow Microneedle Array”, National Technology Day-25, 7th & 8th May 2025, Birla Institute of Technology, Mesra awarded to JRF-Sachin Kumar Singh, Principal Investigator - Dr. Richa Mishra





AWARDS AND ACHIEVEMENTS

Prof. Sanjay Kumar was invited as Chief Guest on the occasion of World Telecommunication and Information Society Day (WTISD) celebrated by the Institution of Engineers (India), Jharkhand State centre, Ranchi on the theme of "Gender Equality in Digital Transformation", 17th May 2025.



Prof. Sanjay Kumar was invited as Guest on the occasion of initiating a new talk series called "Super Saturday Faculty Empowerment Talk Series" by Sarala Birla University, Ranchi, 29th March 2025.

Prof. Sanjay Kumar has been appointed for three years as External Expert Members of the Board of Studies in the Department of Electronics and Communication Engineering, Guru Ghasidas Vishwavidyalaya, Bilaspur, 10th July 2025.



Dr. Kartik Mahto was awarded the Man of the Match in the Faculty Cricket League semifinals held on 26th February 2025.

OUTREACH ACTIVITIES OF THE FACULTY MEMBERS

01

Dr. Priyank Saxena was Privileged to interact with the Hon'ble President of India during the Platinum Jubilee celebrations of BIT MESRA held on February 15th, 2025 and had the incredible opportunity to display his project AgriDrone, showcasing its potential to revolutionize precision agriculture.



02

Dr. G. K. Mishra was honoured to interact with the esteemed President of India along with Governor of Jharkhand, Chancellor, BIT Mesra Sri C.K. Birla and Birla Family during the Platinum Jubilee celebrations of BIT MESRA on February 15th, 2025. This occasion provided a remarkable opportunity to showcase few of his innovations which included ((1) The AI based surveillance toy (2) Smart Spectacle for IoT application and (3) wearable Epulate GPS Antenna for school uniform) .



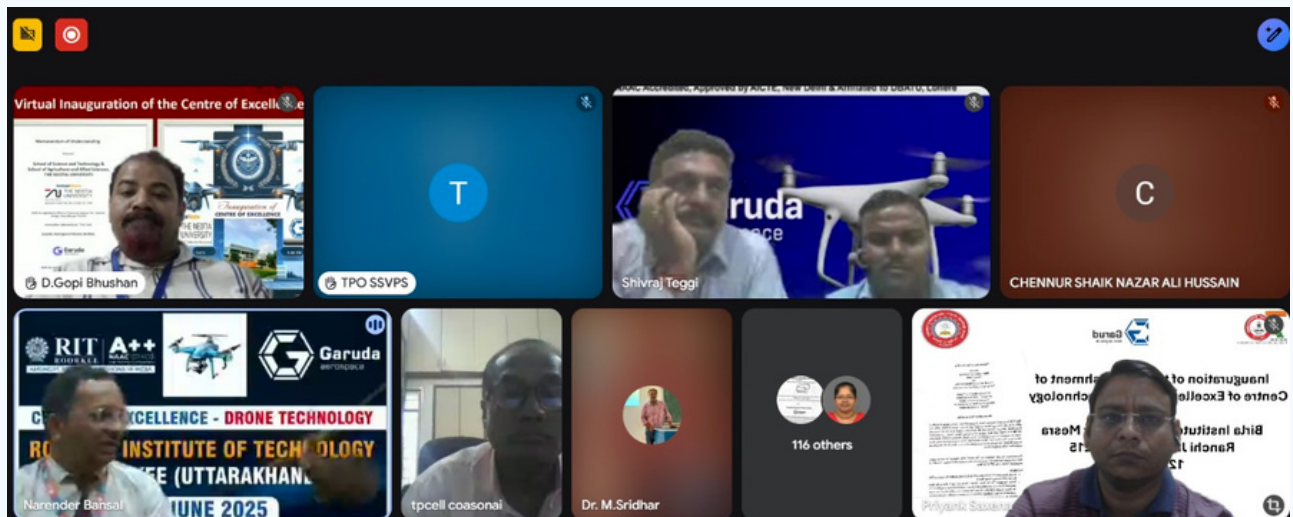
03

Dr. Richa Mishra presented a poster on the ongoing SERB-POWER project titled “Scalable Fabrication of Hollow Microneedle Array” during the Platinum Jubilee Celebrations of BIT Mesra on February 15th, 2025.



04

Dr. Priyank Saxena attended the virtual inauguration of the Center of Excellence (CoE)-Drone Technology to be established by Garuda Aerospace at Birla Institute of Technology Mesra which was held on 12th June 2025.



05

Dr. Richa Mishra was the co-convenor for the National Technology Day (11th May, 2025) celebrations organised by Institute Innovation Council, Birla Institute of Technology, Mesra



06

Students of Delhi Public School , Bokaro visited ECE Department UAV Lab and Advanced Instrumentation Lab on 23rd July, 2025





INVITED TALKS DELIVERED BY FACULTY MEMBERS

1

Dr. Vijay Nath delivered an expert lecture on Start ups in VLSI , Embedded and Computation techniques in an event organized by the Department of E&TC Engineering, Dr. D. Y. Patil Institute of Technology, Pimpri, Pune, Maharashtra on 20th Feb 2025

2

Dr. Vijay Nath was invited as an Expert Lecturer in an event based on Summer Internship on Digital System Design with Verilog organized by ISVE Ranchi & Matrusri College of Engineering Saidabad, Hyderabad from 15th May 2025 to 15th July 2025.

3

Dr. Vijay Nath was invited as a chief guest and expert lecturer in the 6 days Faculty Development Program on Startup in VLSI Design, Embedded System and Computational Intelligence organized by Pt. Ravishankar Shukla University Raipur, Indian Society for VLSI Education Ranchi & Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Chhattisgarh from 17th February 2025 to 22nd February 2025.





INVITED TALKS DELIVERED BY FACULTY MEMBERS

4

Dr. Vijay Nath was invited as an expert lecturer and Jury member in Anveshan Technical Fest-2025 organized by University Polytechnic BIT Mesra Ranchi on 6th March 2025



5

Dr. Priyank Saxena was invited at the five-day boot camp organized by the Department of Mechanical Engineering, National Institute of Technology, Rourkela, in collaboration with Radha Govind University, Ramgarh from 3rd-7th March 2025. He shared Insights on "Advances in Design - Optimization of Swarm Drone Technology" .

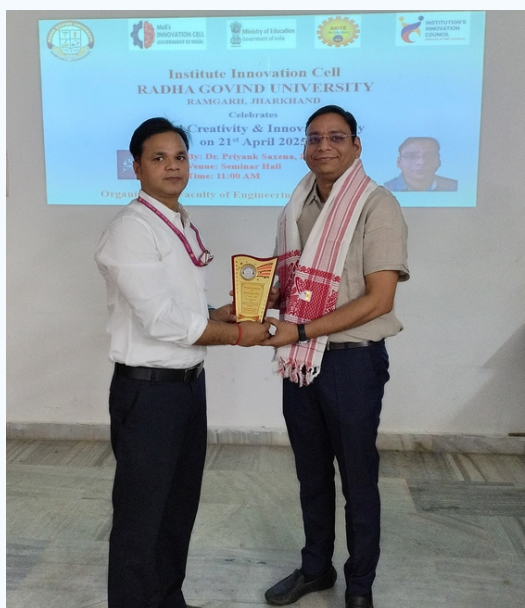




INVITED TALKS DELIVERED BY FACULTY MEMBERS

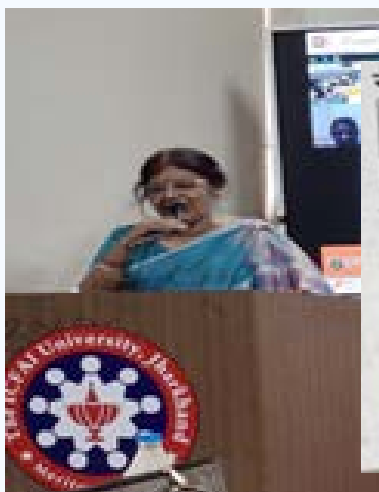
6

Dr. Priyank Saxena was invited at Radha Govind University, Ramgarh, on April 26, 2025, on the occasion of World Creativity and Innovation Day. He delivered an expert talk on “Innovate to Elevate: Engineering Solutions for Humanity”



7.

Dr. Neela Chattoraj was invited as a keynote speaker in Two day National Seminar on “5G and Beyond: Revolutionizing Communication and Networking” by ICFAI University Jharkhand on 21st May, 2025.



8.



Dr. Priyank Saxena was invited at a One Week Faculty Development Program (FDP) on “Drone and IoT Technology for GIS and Smart Farming Applications,” organized by the Department of Computer Science and Engineering, BIT Mesra Patna Campus, in collaboration with E&ICT Academy, NIT Patna, held from 2nd to 6th June 2025. He served as a resource person and delivered a session on “Aerial Internet of Things: Design and Challenges”.



9.

Dr. Vijay Nath attended a session and delivered his insights on Chip Design and the Role of India Semiconductor Mission in Bikshit Bharat - 2047 organised by Greater Noida Institute of Technology (GNIOT) On 24th May 2025.





10.

Dr. Sanjay Kumar, delivered an invited talk on the theme of Implementation of NEP-2020 in Higher Education System, organized by NEP SAARTHI, BIT Mesra through an initiative of UGC in implementing the National Education Policy (NEP) 2020, 28th March 2025.

11.

Dr. Sanjay Kumar, delivered a keynote speech in Third IEEE International Conference on Device Intelligence, Computing and Communication Technologies, (DCCT-2025) at Graphic Era University, Dehradun on March 21st, 2025.



12.

Dr. Sanjay Kumar delivered an invited talk on Measures to Implement NEP-2020 in Higher Education System, during the Faculty Development Program on the theme of NEP2020: Potential and Opportunities in Engineering Education, organized by Haldia Institute of Technology, Haldia, West Bengal, 26th March 2025.

13.

Dr. Sanjay Kumar delivered an invited talk on in one-week short-term course, "Next-Gen Wireless Technologies: 5G and Its Impact on Smart Systems", organized by Guru Ghasidas Vishwavidyalaya, MP, 10th April, 2025 (online).



14.

Prof. Srikanta Pal delivered an invited talk on the occasion of National Science Day at the Institute of Radio Physics and Electronics (IRPE), Calcutta University, in an event co-organised by various IEEE chapters.



STUDENT SECTION



STUDENT ACHIEVEMENTS

1. **Akshat Raj**, Roll no: Btech/10201/22, a student from 2k22 batch, has:

- i) Qualified GATE(Graduate Aptitude Test in Engineering) Exam, 2025 in Electronics and communication(EC) paper, with an All India Rank(AIR) of 7823.
- ii) Done a Research in VLSI Domain, on the topic named: Comparative Analysis of MOSFET and TFET - Based SRAM Cells under Space Radiation Conditions.

2. **Anushka Shekhawat**, Roll no: BTECH/10161/23, a student from 2k23 batch has considerable achievements:

- i) BITOTSAV and KKK quiz winner.
- ii) Has been selected for forward learning program.
- iii) Has qualified the 1st round of IQC (International Quant Championship).
- iv) Has qualified for the 2nd round of Hackon Amazon.
- v) Currently doing a research in VLSI Domain on the topic of GMC Filters under Prof. Sudip Kundu in NIT Rourkela.

3. **Satyam Kumar**, Roll no: BTECH/10038/23, a student of 2k23 batch has obtained GP Birla Scholarship under ECWS for SP 2024.

4. **Shivam Kumar**, Roll no: Btech/10234/23, a student of 2k23 batch has got his Research paper published by IEEE whose topic was: "Study of Temperature Dependence on DC/RF Parameters of Extended Channel Gate Stacked Heterojunction TFET".

5. **Abhyuday Pandey**, Roll no: BTECH/10174/22, a student of 2k22 batch has:

- i) Qualified GATE(Graduate Aptitude Test in Engineering) Exam, 2025 in Instrumentation Engineering(IN) paper with an All India Rank(AIR) of 701.
- ii) Obtained 1st prize in XIGYASA QUIZ which was a part of Xiss Panache event 2025.
- iii) He has also secured a Summer Research Internship at Northeastern University, Boston for the duration of June 2025-July 2025 through ISRE (International Student Research Experience) 2025.

STUDENT SECTION



PLACEMENTS

81+ students have been placed so far. Highest Package: 3723000 to Honey Pradhan (BTECH/10168/21) GOOGLE INDIA PVT LTD. Average Package: 11.5 Lac.

GOOGLE INDIA PVT LTD	ICICI Bank
Amdocs India Pvt Ltd	Infoedge India Ltd
Atlassian (PPO)	Logic Fruit Technologies (PPO)
Axis Bank	Microland Limited
Bain Capability Network (PPO)	MSCI (PPO)
Bandhan Bank	NBC Bearings
Berry Avionics India Pvt Ltd.	NPCI
British Telecom	Oracle GBU
Broadridge Financial Solutions Pvt Ltd	PWC India
Capgemini	Salesforce (PPO)
CESC Ltd.	Sandvik Mining & Rock Technology India Pvt Ltd
Cisco (PPO)	Sigmoid
CloudPrism Solutions	Societe Generale
Deloitte	Sun King (formerly Greenlight Planet)
Fastenal	Swiggy Limited
Flipkart (Instakart Services Pvt.Ltd) (PPO)	Urban Company
GlobalLogic A Hitachi Group Company	Walmart Global Tech (PPO)
Grid Dynamics (PPO)	Wipro Limited
High Tech-next Engineering and Telecom Pvt. Ltd.	Yulu Bikes Pvt. Ltd
	ZS Associates India Pvt. Ltd.

PhDs Awarded

Name and Roll No. of Student	Guide's Name	Date of Defence	Thesis Title
Ravi Chandra, Roll No: PhD/EC/10054/2 017	Dr. Dileep Kumar Upadhyay	4th Feb. 2025	Design, Analysis, and Development of Dielectric Resonator MIMO Antennas for Wireless
Pammi Kumari, Roll No: PhD/EC/10003/2 019	Dr. Priyank Saxena	3rd March 2025	“Detection of Retinal Diseases from Fundus Images Using Deep Learning Techniques”
Prem Nath Suman Roll No: PhD/EC/10001/2 020	Dr. Gajendra Kant Mishra	4th April 2025	Design, Analysis, and Development of Reconfigurable Microstrip Patch Antennas for Wireless Communication



Congratulations