



# B. P. PODDAR INSTITUTE OF MANAGEMENT AND TECHNOLOGY

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Bengal 700052 (Approved by AICTE, New Delhi & Affiliated to  
MAKAUT, W.B)



DEPARTMENT OF

# ELECTRONICS AND COMMUNICATION ENGINEERING



— Presents —

# TARANGA

Magazine 2022-23



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# EDITORIAL BOARD

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## *From the Principal's desk*

B.P. Poddar Institute of Management and Technology takes immense pride in fostering a culture of learning, innovation, and excellence. Our institution has always remained committed to nurturing young minds, encouraging them to grow not only academically but also as responsible and capable individuals. The Annual Magazine for the academic year 2022–2023 stands as a reflection of this spirit, showcasing the creativity, achievements, and vibrant intellectual life of our students.



The field of Electronics and Communication Engineering continues to evolve rapidly, opening new avenues in technology and innovation. In this ever-changing landscape, it is truly inspiring to witness our students not only excel in academics but also actively participate in research, projects, and various co-curricular activities. This magazine beautifully captures those efforts, presenting a blend of technical knowledge, creative expressions, and memorable moments from the academic year.

I sincerely commend the editorial team for their dedication, hard work, and meticulous efforts in bringing out this publication. Their commitment has ensured that this magazine serves as a meaningful platform for sharing ideas, celebrating achievements, and strengthening collaboration within the department.

I also extend my heartfelt appreciation to the faculty members for their constant guidance and encouragement, which continue to play a vital role in shaping the future of our students.

**Prof. (Dr.) Sutapa Mukherjee**  
**Principal**

**B.P. Poddar Institute of Management and Technology, VIP Campus**

# *Message from HOD*

It is a matter of great pride and satisfaction to present this edition of the departmental magazine of the Department of Electronics and Communication Engineering. This publication is not merely a collection of articles and achievements, but a reflection of the academic excellence, innovative thinking, creativity, and enthusiasm for learning that define our students.



The field of Electronics and Communication Engineering is constantly evolving, shaping diverse domains such as communication systems, embedded technologies, signal processing, and emerging intelligent solutions. In such a dynamic landscape, it is essential for our students to remain adaptable, develop strong analytical skills, and nurture a spirit of curiosity and innovation.

This magazine stands as a testament to the dedication and talent of our students, who have contributed through technical articles, creative expressions, and highlights of various departmental activities. It beautifully showcases a harmonious blend of knowledge, imagination, and accomplishment—qualities that are essential for holistic growth.

I would like to sincerely appreciate the editorial team for their commitment and hard work in compiling and presenting this magazine with such care and excellence. I also extend my gratitude to our faculty members, whose constant guidance, encouragement, and support continue to inspire students to strive for their highest potential.

I hope this publication serves as a source of motivation for our students to explore new ideas, think critically, and contribute meaningfully to the ever-evolving world of engineering. May it also remain a cherished reflection of the achievements and aspirations of our department.

**Dr. Ivy Majumdar**  
**Head of the Department**  
**Department of Electronics and Communication Engineering**



## *Editor's Note*

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It is with immense enthusiasm and a profound sense of responsibility that I present the Annual Magazine of the Department of Electronics and Communication Engineering, B.P. Poddar Institute of Management and Technology, for the academic year 2022–2023.

This magazine is more than just a compilation of articles and photographs; it is a reflection of the vibrant spirit, creativity, and intellectual curiosity that define our department. From technical insights and innovative ideas to artistic expressions and cherished memories, each page captures the dedication, talent, and passion of our students.

The journey of bringing this magazine together has been both challenging and fulfilling. This publication would not have been possible without the valuable contributions of our talented students, whose enthusiasm and creativity form the essence of this magazine. I extend my heartfelt gratitude to every contributor for sharing their work and helping make this edition truly special.

I would also like to express my sincere appreciation to our respected faculty members for their constant support, encouragement, and guidance throughout this journey. Their mentorship has been instrumental in shaping this publication. Special thanks to the editorial team for their unwavering commitment, teamwork, and hard work in turning this vision into reality.

As you turn these pages, I hope you discover inspiration, knowledge, and a stronger sense of connection with our ECE community. May this magazine stand as a celebration of our shared experiences, achievements, and aspirations.

Happy Reading!

# *About College and Department*

In 1999, B.P Poddar Institute of Management and Technology (BPPIMT) was established as a tribute to late B. P. Poddar, a visionary philanthropist, educationist and founding father of the group.

Supported by the B. P. Poddar Foundation for Education, a trust dedicated to enrich the quality of technical education in the country, the institute is affiliated to the Maulana Abul Kalam Azad University of Technology, West Bengal (MAKAUT) and approved by the All India Council for Technical Education (AICTE).

The Department of Electronics and Communication Engineering at B.P. Poddar Institute of Management and Technology stands as a dynamic center of academic excellence, innovation, and technological advancement. Since its inception, the department has been committed to nurturing skilled engineers equipped with strong theoretical foundations and practical expertise.

The department offers a comprehensive curriculum that spans core areas such as analog and digital communication, signal processing, embedded systems, VLSI design, and emerging fields like IoT and artificial intelligence.

Well-equipped laboratories, experienced faculty members, and an industry-oriented approach create an environment that fosters critical thinking and problem-solving skills. The department actively promotes participation in technical events, workshops, seminars, and industrial visits, enabling students to bridge the gap between classroom knowledge and real-world applications.

In addition to academic excellence, the department focuses on the holistic development of students by encouraging teamwork, creativity, and leadership through various co-curricular and extracurricular activities. Students are also motivated to take part in national-level competitions, hackathons, and research initiatives.

The Department of Electronics and Communication Engineering continues to strive towards excellence by adapting to evolving technological trends and preparing students to contribute effectively to the ever-growing field of engineering and innovation.



**Faculty and Staff Members of the Department of Electronics & Communication Engineering**

# VISION, MISSION, PEO, PO, PSO

## ***Vision of the Institute***

To emerge as a progressive and premier institute for Engineering and Technology education with ethical values for creative engineering solutions with global changes.

## ***Mission of the Institute***

- Offer quality education through a modern accessible, comprehensive and research oriented teaching-learning process.
- Create opportunities for students and faculty members in acquiring knowledge through research and development.
- Providing effective interface with industry by strengthening Industry- Institute interaction and developing entrepreneurial skills.
- Meet ever-changing needs for the nation through rational evolution towards sustainable and environment friendly technologies.

## ***Vision of the Department***

To emerge as a premier department for studies in Electronics and Communication Engineering.

## ***Mission of the Department***

- Imparting innovative educational program through laboratory and project-based teaching-learning process for meeting the growing challenges of industry and research.
- Providing an inspiring and conducive learning environment to prepare skilled and competent engineers and entrepreneurs for sustainable development of the society.
- Creating a knowledge centre of advance technologies committed to societal growth using environment-friendly technologies

## ***Program Educational Objectives (PEO)***

- **PEO1:** Graduates of Electronics and Communication Engineering will be able to use latest tools and techniques to analyze, design and develop novel systems and products to solve real life problems.
- **PEO2:** Graduates of Electronics and Communication Engineering will have strong domain knowledge, skills and attitude toward employment in core and allied industries, higher studies and research or will become successful entrepreneurs.
- **PEO3:** Graduates of Electronics and Communication will exhibit ethical values, professionalism, leadership, communication and management skills, team work and multi-disciplinary approach to adapt current trends in technology through life-long learning.

## ***Program Outcomes (PO)***

1. Engineering knowledge	7. Environment and sustainability
2. Problem analysis:	8. Ethics
3. Design/development of solutions	9. Individual and team work
4. Conduct investigations of complex problems	10. Communication
5. Modern tool usage	11. Project management and finance
6. The engineer and society	12. Life-long learning

## ***Program Specific Outcomes (PSO)***

- **PSO1:** Students will acquire knowledge in Advance Communication Engineering, Signal and Image Processing, Embedded and VLSI System Design.
- **PSO2:** Students will qualify in various competitive examinations for successful employment, higher studies and research.



# TECHNICAL ARTICLES

## ***5G Technology: Redefining the Future of Communication*** -Safalya Pan, 2nd year, ECE

The world of communication is currently undergoing one of its biggest transformations with the rapid expansion of 5G technology. After years of research and development, countries across the globe are finally deploying 5G networks commercially, opening the door to an entirely new era of ultra-fast and intelligent communication systems. Unlike previous generations of wireless communication that mainly focused on increasing internet speed, 5G aims to create a fully connected ecosystem where devices, machines, vehicles, and humans can communicate seamlessly in real time. With theoretical speeds reaching up to 10 Gbps and latency as low as 1 millisecond, 5G is expected to revolutionize industries ranging from healthcare and transportation to entertainment and industrial automation.

The technology behind 5G is far more advanced than traditional cellular systems. It utilizes concepts such as Massive MIMO (Multiple Input Multiple Output), beamforming, millimeter wave communication, and network slicing to achieve higher efficiency and reliability. Massive MIMO uses multiple antennas simultaneously for transmitting and receiving signals, significantly improving data throughput and reducing interference. Beamforming, on the other hand, focuses wireless signals directly toward users instead of broadcasting them in all directions, resulting in stronger connectivity and reduced power wastage. These innovations allow 5G networks to support an enormous number of connected devices without compromising performance.

One of the most exciting applications of 5G lies in the field of the Internet of Things (IoT). Smart homes, autonomous vehicles, wearable health monitors, industrial robots, and smart cities all depend on fast and stable communication systems. Traditional 4G networks often struggle to handle large-scale machine-to-machine communication efficiently. 5G solves this problem by enabling massive connectivity with minimal delay. This has made technologies such as remote robotic surgery, self-driving cars, and intelligent traffic management systems increasingly realistic. Industries are now moving toward complete automation, where machines can communicate with each other in real time without human intervention.

However, despite its enormous potential, 5G also presents several technical challenges. High-frequency millimeter waves used in 5G have shorter transmission ranges and poor penetration through obstacles such as walls and buildings. As a result, telecom companies need to install a dense network of small cell towers, making infrastructure deployment expensive and complex. In addition, cybersecurity concerns are becoming more serious as billions of connected devices continuously exchange sensitive data over wireless networks. Engineers must therefore focus on building secure, energy-efficient, and scalable communication systems capable of supporting future technological demands.

The emergence of 5G represents a turning point for Electronics and Communication Engineering. Communication systems are evolving beyond smartphones and internet browsing into intelligent networks capable of supporting futuristic technologies such as smart factories, AI-driven systems, augmented reality, and autonomous transportation. For aspiring ECE engineers, understanding the principles and applications of 5G is becoming increasingly important because it is expected to serve as the foundation for the next generation of global communication infrastructure.

# *VLSI Technology and the Semiconductor Revolution*

*-Ipsita Raha, 3rd year, ECE*

Semiconductors have become the backbone of the modern digital world. Every smartphone, computer, automobile, medical device, and communication system depends on integrated circuits for processing and controlling information. With the increasing demand for smaller, faster, and more energy-efficient electronic devices, Very Large Scale Integration (VLSI) technology has emerged as one of the most critical domains in Electronics and Communication Engineering. VLSI involves integrating millions or even billions of transistors onto a single microchip, enabling the development of compact yet extremely powerful electronic systems.

The semiconductor industry is currently experiencing rapid innovation driven by advancements in chip fabrication technology. Modern processors are now being manufactured using extremely small fabrication nodes such as 5 nm and 3 nm technology. Reducing transistor size allows engineers to place more components on a chip, increasing computational speed while reducing power consumption. However, shrinking transistor dimensions also introduces significant design challenges related to heat dissipation, leakage current, and manufacturing precision. Advanced transistor structures such as FinFETs are therefore being widely adopted to improve performance and efficiency in modern integrated circuits.

One of the most exciting developments in VLSI technology is the rise of AI accelerators and specialized processors. Conventional CPUs are often inefficient for handling large-scale artificial intelligence computations because AI algorithms require massive parallel processing capabilities. To overcome this limitation, companies are developing Tensor Processing Units (TPUs), Graphics Processing Units (GPUs), and dedicated neural network accelerators specifically optimized for machine learning applications. These specialized chips are enabling breakthroughs in fields such as autonomous driving, natural language processing, and computer vision.

The global semiconductor industry has also highlighted the strategic importance of chip manufacturing. Semiconductor shortages have affected industries worldwide, disrupting the production of automobiles, smartphones, gaming consoles, and consumer electronics. As a result, many countries are investing heavily in domestic semiconductor manufacturing and research facilities to reduce dependence on imports. This has created significant opportunities for ECE students and researchers in areas such as chip design, hardware verification, embedded systems, and fabrication technology.

Another emerging trend in VLSI is low-power and sustainable electronics. As electronic devices become more powerful, energy consumption has become a critical concern. Engineers are now focusing on designing power-efficient circuits capable of delivering high performance while minimizing battery usage and heat generation. Techniques such as dynamic voltage scaling, clock gating, and power-aware chip architecture are becoming increasingly important in modern VLSI design. Research is also progressing toward alternative technologies such as quantum computing, photonic integrated circuits, and carbon nanotube transistors, which may eventually overcome the limitations of traditional silicon-based devices.

The rapid evolution of semiconductor technology demonstrates how central VLSI has become to modern engineering and innovation. From artificial intelligence and communication systems to healthcare electronics and space technology, nearly every advanced technological system depends on efficient integrated circuit design. As the demand for high-performance computing and intelligent devices continues to rise, VLSI engineering will remain one of the most influential and promising fields within Electronics and Communication Engineering.

# *Artificial Intelligence and Electronics: Building Smarter Systems*

*-Arijit Dhali, 3rd year, ECE*

Artificial Intelligence (AI) is no longer limited to science fiction movies or advanced research laboratories. It has rapidly become one of the most influential technologies shaping modern electronics and communication systems. From voice assistants and recommendation algorithms to autonomous vehicles and intelligent surveillance systems, AI is transforming the way machines interact with humans and process information. The recent rise of advanced AI models and machine learning systems has demonstrated how electronic devices are becoming smarter, faster, and more capable of independent decision-making.

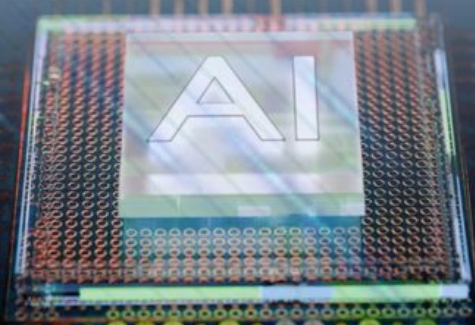
In the field of Electronics and Communication Engineering, AI is playing a major role in improving communication networks and signal processing systems. Traditional communication systems often face problems such as network congestion, interference, and inefficient bandwidth allocation. AI algorithms are now being used to predict network traffic patterns, optimize routing paths, and automatically manage wireless resources in real time. Modern 5G networks increasingly rely on AI-based optimization techniques to reduce latency, improve signal quality, and enhance overall network efficiency. This integration of AI into communication systems is helping create faster and more adaptive wireless technologies.

AI is also revolutionizing embedded systems and consumer electronics. Smart devices today are capable of recognizing speech, understanding images, and learning user behavior patterns. Smartphones can now unlock using facial recognition, cameras can automatically enhance photographs using AI image processing, and virtual assistants can respond intelligently to voice commands. Embedded AI systems are becoming essential in healthcare devices, industrial automation, and robotics.

For example, wearable health monitors can continuously track vital signs and detect abnormalities instantly, while industrial robots can identify defects in manufacturing processes with remarkable accuracy. Another significant area of advancement is AI-driven image and signal processing. Deep learning algorithms are now capable of enhancing low-quality images, reducing noise in audio systems, and analyzing medical scans for disease detection. AI-based systems are also being applied in defense and space communication technologies for radar analysis, satellite image interpretation, and intelligent target tracking. These developments demonstrate how the combination of electronics and intelligent software is creating systems capable of performing tasks that once required human expertise.

Despite its rapid growth, AI also raises important technical and ethical concerns. AI systems require enormous computational power and large datasets for training, resulting in increased energy consumption and hardware demands. Concerns regarding privacy, cybersecurity, misinformation, and algorithmic bias are also becoming more prominent. Engineers must therefore ensure that AI technologies are designed responsibly and securely. This has led to growing research in energy-efficient AI hardware, neuromorphic computing, and ethical AI system development.

Artificial Intelligence is fundamentally changing the future of Electronics and Communication Engineering. Electronic systems are becoming more autonomous, communication networks are becoming more intelligent, and devices are increasingly capable of learning and adapting to their environments. As industries continue embracing automation and smart technologies, the demand for engineers skilled in AI, embedded systems, machine learning, and signal processing is expected to grow significantly in the coming years.





# ART CORNER

## *The Value of Unfinished Journeys*

*-Dr. Vedatrayee Chakraborty, Assistant Professor*

We often measure life through achievements.

From a very young age, we are taught to move from one milestone to another — good grades, careers, recognition, success. Gradually, we begin to believe that our worth depends upon how much we achieve. Success becomes measurable, failure becomes visible, and comparison becomes unavoidable.

Yet life rarely unfolds as perfectly as we imagine.

There are dreams that remain unfinished, plans that unexpectedly change direction, and moments that leave behind more questions than answers. Still, life continues. Perhaps that is the true strength of human beings — not perfection, but persistence.

In today's world, people live under constant pressure to succeed quickly and visibly. Social media often creates the illusion that everyone else is moving ahead faster. In such an environment, uncertainty and self-doubt become common companions.

But growth is rarely linear. Some journeys move slowly, some take unexpected turns, and some appear incomplete for a long time before revealing their meaning. A delay is not always failure, confusion is not weakness.

And unfinished paths are not meaningless.

With time, people rarely remember every achievement or setback in detail. What remains are the experiences that shaped them, the people who guided them, and the struggles that quietly made them stronger.

In the end, life is not defined only by destinations reached. It is equally shaped by unfinished journeys and the courage to continue despite uncertainty.

Perhaps that is what growth truly means.



*-Satakshi Guha, 2nd year, ECE*



*-Koyena Ghosh, 2nd year, ECE*

বইয়ের ভেতর অনেক জ্ঞান,  
সংখ্যা, সূত্র, ইতিহাস,  
তবু জীবনের সবচেয়ে কঠিন শিক্ষা  
মানুষ হওয়ার অভ্যাস।

সফলতার উঁচু সিঁড়িতে  
অনেকে পৌঁছে যায়,  
কিন্তু সকলের পক্ষে কি আর  
সহজে মানুষ হওয়া যায়?

জীবনের পথে চলতে গিয়ে  
শেখা হয় বহু কিছু,  
কখনো জয়, কখনো ব্যর্থতা,  
কখনো নীরব পিছুটান পিছু।

সময় মানুষকে বদলে দেয়,  
বদলে যায় দৃষ্টিভঙ্গি,  
তবু হৃদয়ের মানবিকতাই  
থেকে যায় সবচেয়ে সঙ্গী।

ক্ষমতা ক্ষণিক, অর্থ অস্থায়ী,  
অহংকার ভীষণ ক্ষয়,  
শেষ পর্যন্ত পাশে থাকে  
শুধু ব্যবহারের পরিচয়।

মানুষ বড় হয় না শুধু  
পদ, প্রতিপত্তি বা খ্যাতিতে,  
মানুষ বড় হয় তার  
সহানুভূতি আর মানবিকতায়।



*-Dwaipayan Roy, 2nd year, ECE*



*-Dwaipayan Roy, 2nd year, ECE*

# একটি শহর, কিছু মানুষ

-Shreyasi Dutta, 2nd year, ECE

একটি শহরকে শুধু তার রাস্তা, উঁচু বাড়ি বা বলমলে আলো দিয়ে চেনা যায় না।

চেনা যায় সেখানে থাকা মানুষদের মাধ্যমে — তাদের অভ্যাসে, ব্যস্ততায়, ক্লাস্তিতে, আর ছোট ছোট আনন্দে।

প্রতিটি শহরেরই একটি আলাদা হৃদস্পন্দন থাকে। কোথাও সেই স্পন্দন দ্রুত, কোথাও ধীর। কোথাও মানুষের মুখে সারাক্ষণ তাড়াছড়ো, কোথাও বিকেলের আড্ডা এখনো সময়কে থামিয়ে রাখতে জানে। কিন্তু যে শহরই হোক না কেন, তার প্রকৃত পরিচয় লুকিয়ে থাকে সাধারণ মানুষের দৈনন্দিন জীবনের মধ্যেই।

ভোরবেলার চায়ের দোকান, রাস্তার ধারে পুরোনো বইয়ের স্টল, অফিসফেরত ক্লাস্ত মুখ, কিংবা কলেজের করিডোরে ভেসে আসা হঠাৎ হাসির শব্দ — এই ছোট ছোট দৃশ্যগুলোই আসলে একটি শহরের আত্মা তৈরি করে।

একটি শহর কখনো শুধু স্থাপত্য নয়, এটি স্মৃতির সমষ্টি।

বন্ধুর সঙ্গে হেঁটে যাওয়া রাস্তা, বৃষ্টিভেজা বাসস্ট্যান্ড, কিংবা বহুদিন পরে ফিরে এসে হঠাৎ কোনো পুরোনো গন্ধ চিনে ফেলা — এইসব অনুভূতি ধীরে ধীরে মানুষকে তার শহরের সঙ্গে অদৃশ্য বন্ধনে বেঁধে ফেলে।

সময়ের সাথে শহর বদলায়। পুরোনো সিনেমা হল ভেঙে নতুন শপিং মল তৈরি হয়, চেনা দোকান হারিয়ে যায়, সম্পর্কের ধরন বদলে যায়। তবু কিছু জিনিস অদ্বুতভাবে থেকে যায়।

পুরোনো অলিগলির গন্ধ, শীতের সকালের রোদ, পাড়ার উৎসবের শব্দ, কিংবা কলেজ স্ট্রিটের বইয়ের পাতায় জমে থাকা সময় — এসব যেন শহরের স্মৃতিশক্তি। মানুষ হয়তো দূরে চলে যায়, কিন্তু শহর তার ভেতরে সমস্ত পদচিহ্ন জমিয়ে রাখে নিঃশব্দে।

আজকের পৃথিবীতে প্রযুক্তি আমাদের জীবনকে দ্রুত করেছে, কিন্তু কোথাও যেন মানুষকে আরও একা করেও তুলেছে। চারপাশে সংযোগ বেড়েছে, অথচ কথোপকথন কমেছে। সবাই যেন কোথাও পৌঁছানোর তাড়ায় ছুটে চলেছে, অথচ কোথায় পৌঁছাতে চায়, সেই উত্তর অনেকেই জানে না।

তবু শহর মানুষকে থামতে শেখায় — কখনো সন্ধ্যার আকাশ দেখে, কখনো পুরোনো বন্ধুর সঙ্গে হঠাৎ দেখা হয়ে, কখনো কোনো অচেনা মানুষের ছোট্ট সহানুভূতিতে।

কারণ শেষ পর্যন্ত, একটি শহর মানে শুধু একটি জায়গা নয়।

একটি শহর মানে কিছু মানুষ, কিছু স্মৃতি, কিছু অসম্পূর্ণ গল্প, আর একরাশ থেকে যাওয়া অনুভূতি।





*-Anamika Bhunia, 1st year, ECE*



*-Anamika Bhunia, 1st year, ECE*



গত বছর নাগাল্যান্ড গিয়েছিলাম হনবিল Festival দেখতে। ডিসেম্বর মাসের ১ থেকে ১০ তারিখ এই ফেস্টিভ্যাল হয় নাগাল্যান্ডের রাজধানী কোহিমার কাছে কিসামা হেরিটেজ ভিলেজে। নাগাল্যান্ডে প্রায় সাতেরোটি উপজাতি আছে। এই হনবিল ফেস্টিভ্যালে বিভিন্ন উপজাতির উপস্থিত হয় তাদের নাচ, গান, খাওয়াদাওয়া, সংস্কৃতি ইত্যাদি নিয়ে। প্রত্যেক উপজাতি তাদের নিজস্ব বৈচিত্র্যময় ঐতিহ্য তুলে ধরে। এখানে স্থানীয় খাবার, বাঁশের তৈরি পণ্য, হাতে বোনা বস্ত্র এবং নাগাদের ঐতিহ্যবাহী "মোরুং" (যুবকদের ছাত্রাবাস) ও তৈরী করা থাকে। এই উৎসব ঘুরে দেখা সত্যিই এক অনন্য অভিজ্ঞতা

আমার হোটেল থেকে দশ মিনিটের হাঁটাপথ BOC চক। ওখান থেকে NSTC র special bus এ উঠে বসলাম। স্থানীয় বহু মানুষ চলেছেন ১৪কিমি দূরের কিসামা হেরিটেজ গ্রামে। ওখানেই হচ্ছে Hornbill festival. আধঘন্টায় পৌঁছে গেলাম সেখানে। বাইরে ticket counter থেকে ১০০/- টাকা দিয়ে ticket নিতে হলো। একটা Band পরিবেশনা দিল হাতে। camera charge নিলো আরো ১০০/- টাকা। ভিতরে স্টেডিয়ামে ঢুকতেই চোখ ধাঁধিয়ে গেলো। গ্যালারিতে উজ্জ্বল রঙের পোশাক পরে বসে আছেন বিভিন্ন নাগা জনজাতির performer এবং দেশ-বিদেশের দর্শকরা। সময় হলে performer রা সুশৃঙ্খলভাবে উঠে গিয়ে নাচের মাধ্যমে তাদের সংস্কৃতি তুলে ধরছেন। তাতে শিকার করে বা যুদ্ধজয় করে ফেরার পরের উল্লাস প্রকাশের নাচ যেমন আছে তেমনি মায়ের শিশু কে আদর করা, বালকদের বিভিন্ন খেলাধুলা, তুলো থেকে সুতা বের করার পদ্ধতি, প্রাচীনকালে আগুন জ্বালানোর পদ্ধতি, rice beer তৈরি করা ও আছে। এমনকি কোনো বাড়িতে মৃত্যু হলে সেই পরিবারকে কি ভাবে সহমর্মিতা জানানো হয় তাও তুলে ধরলেন নাচের মাধ্যমে। প্রসঙ্গত বলে রাখি ১৭টি প্রধান নাগা জনজাতি আছে। নাগাল্যান্ড দেখলাম প্রতিবেশী রাজ্য সিকিম দ্বারা অনেকটাই অনুপ্রাণিত। এই অনুষ্ঠানে তাই ছিল সিকিমের। তারা তাদের famous রাই, সিংঘি নাচ perform করলো। এই নৃত্যানুষ্ঠান চললো দুপুর ১.৩০ টা অবধি। তারপর ঘন্টা দেড়েকের break. এইসময় ঘুরে দেখে নিলাম বিভিন্ন গোষ্ঠীর মোরাং , যেখানে প্রবীনরা নবীনদের জীবনের পাঠ দিতেন, একসাথে সময় কাটাতেন। (এখনকার community hall আর কি), তাদের হাতে তৈরি জিনিসপত্র, পোশাক, খাওয়া দাওয়া ইত্যাদি। প্রতিটি জনগোষ্ঠীর মোটা এর গঠনশৈলী, নিশান আলাদা। তাদের খাদ্যাভ্যাস, পোশাক, গহনা, খেলাধুলা ও ভিন্ন ভিন্ন। তবে একটা জিনিস সবার এক, এরা যোদ্ধারজাত, সেটা স্বাধীনতা আন্দোলনের সময় ও দেখা গেছে। আবার ৩টে থেকে সাংস্কৃতিক অনুষ্ঠান শুরু হলো, চললো ৪.৩০ পর্যন্ত। অনুষ্ঠান শেষে আর একবার ঘুরে দেখলাম বিভিন্ন দোকানপাট। আলাপ করলাম বিভিন্ন জনজাতির মানুষদের সাথে। তাদের বৈচিত্র্যময় জীবনযাত্রার সাথে কিছুটা পরিচিতি ঘটলো। সন্ধ্যার পর স্থানীয় ও দেশের অন্যান্য জায়গার বিখ্যাত গায়ক আর band এর performance ছিল। আমি অবশ্য তার জন্য অপেক্ষা করিনি। আজকের সারাদিনে আমার যা সঞ্চয় হলো তা এই ক্ষুদ্র পরিসরে সম্পূর্ণ রূপে ব্যক্ত করা সম্ভব নয়।

**Dr. Ivy Majumdar**

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## *At Some Point*

*-Snehashis Paul , 2nd year, ECE*



*-Soumi Dey, 2nd year, ECE*

At some point,  
we stopped counting birthdays  
with excitement  
and started counting time  
in responsibilities.

Conversations became shorter,  
nights became longer,  
and silence slowly became familiar.

The world kept moving quickly —  
people chasing success,  
approval,  
and meaning —  
as if slowing down  
was a kind of failure.

Yet somewhere between  
unfinished thoughts  
and sleepless nights,  
we understood that growing up  
is not becoming fearless.  
It is learning to continue  
despite fear.

Perhaps life was never meant  
to be fully understood.

So we keep moving forward,  
carrying old dreams,  
new scars,  
and hope for better days ahead.



*-Anonnweshu Guha, 2nd year, ECE*



*-Ipsita Raha, 3rd year, ECE*

# শহর, স্বপ্ন আর আমরা

-Susmita Das , 2nd year, ECE

কলেজ জীবনটা বড় অদ্ভুত।

চার বছরের একটা সময় — যেখানে মানুষ একসাথে স্বপ্ন দেখতে শেখে, আবার একই সাথে ভয় পেতেও শেখে।

কেউ চাকরির পিছনে দৌড়ায়, কেউ higher studies-এর, কেউ আবার নিজের passion টাকে বাঁচিয়ে রাখার লড়াই করে।

প্রথমদিকে সবকিছু নতুন লাগে — নতুন ক্লাসরুম, নতুন মানুষ, নতুন স্বাধীনতা। ধীরে ধীরে সেই অচেনা জায়গাগুলোই নিজের হয়ে ওঠে। করিডোর, ক্যান্টিন, লাইব্রেরি, ল্যাব — সবকিছুর সাথে জড়িয়ে যায় ছোট ছোট স্মৃতি।

ECE বিভাগের করিডোরগুলো শুধু ক্লাসরুমের রাস্তা নয়।

এখানে রাত জেগে project বানানোর ক্লান্তি আছে, viva-র আগে nervous silence আছে, assignment submission-এর panic আছে, আর আছে বন্ধুদের সাথে হেসে ওঠার মুহূর্ত।

কখনো ক্লাসের ফাঁকে ভবিষ্যৎ নিয়ে আলোচনা, কখনো fest-এর rehearsal, কখনো exam-এর আগের রাতে notes খুঁজে বেড়ানো — এই বিশৃঙ্খল মুহূর্তগুলোই ধীরে ধীরে কলেজ জীবনকে তৈরি করে।

সময় শেষ হয়ে যায় খুব দ্রুত।

একদিন attendance, lab file আর semester নিয়ে অভিযোগ করতে করতেই হঠাৎ বুঝতে পারি — এটাই ছিল জীবনের সবচেয়ে সুন্দর বিশৃঙ্খলা।

যে দিনগুলো একসময় exhausting মনে হতো, পরে সেগুলোই স্মৃতি হয়ে সবচেয়ে বেশি ফিরে আসে।

হয়তো ভবিষ্যতে সবাই আলাদা শহরে থাকবে, আলাদা জীবনে ব্যস্ত হয়ে পড়বে।

কেউ corporate office-এ, কেউ research lab-এ, কেউ হয়তো সম্পূর্ণ অন্য কোনো পথে।

তবু কোথাও না কোথাও, একটা part of us চিরকাল কলেজেই থেকে যাবে —

কোনো পুরোনো classroom-এর বেঞ্চে, ক্যান্টিনের আড্ডায়, কিংবা বিকেলের ফাঁকা করিডোরে আটকে থাকা হাসির শব্দে।



-Shaswati Biswas, 2nd year, ECE



*-Amlan Ghosh, 2nd year, ECE*



*-Ankita Das, 2nd year, ECE*



*-Debojyoti Das, 2nd year, ECE*



*-Anish Poddar, 2nd year, ECE*

# ফিরে দেখা ক্যাম্পাস

-Debparna Ghatak, 2nd year, ECE

শেষ বেঞ্চে ধুলো জমে,  
বোর্ডে লেখা মুছে যায়,  
তবু কিছু বিকেল এখনো  
করিডোর জুড়ে হেঁটে বেড়ায়।

ল্যাবের তারে জড়িয়ে আছে  
অগোছালো কত স্মৃতি,  
প্রক্সি দেওয়া বন্ধুগুলো  
আজও ভীষণ প্রিয় নীতি।

ক্যান্টিনের সেই চায়ের কাপে  
অপূর্ণ কত গল্প ছিল,  
পরীক্ষার আগের রাতগুলো  
ভয়ের সাথে বন্ধুত্ব দিল।

হয়তো সবাই দূরে যাবো,  
বদলে যাবে শহর, সময়,  
তবু কলেজ নামের জায়গাটা  
ভেতরে কোথাও রয়ে যায়।

## Temporary

-Snigdha Debnath, 2nd year, ECE

Nothing ever truly stays —  
not people,  
not seasons,  
not even the versions  
of ourselves we once knew.

Yet somehow,  
between endings and beginnings,  
life quietly teaches us  
how to carry memories  
without living in them.



*-Dwaipayan Roy, 2nd year, ECE*



*-Dwaipayan Roy, 2nd year, ECE*



*-Dwaipayan Roy, 2nd year, ECE*

# মাঝে মাঝে

-Shrestha Das, 2nd year, ECE

মাঝে মাঝে খুব ইচ্ছে করে  
সব শব্দ থেমে যাক,  
শহরের ব্যস্ত রাস্তাগুলো  
একটু নীরব হয়ে থাক।

মাঝে মাঝে খুব ইচ্ছে করে  
পুরোনো দিন ফিরে পাই,  
যেখানে এত হিসেব ছিল না,  
এত তাড়াছড়োও নয়।

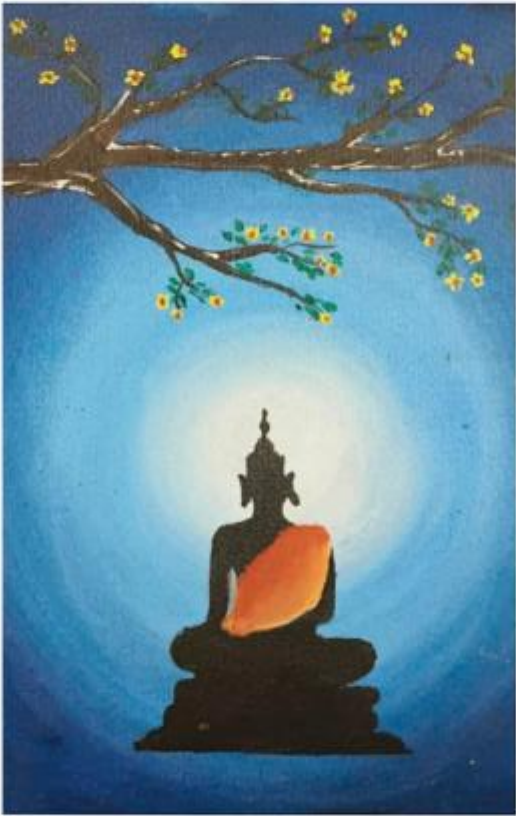
এখন সবাই ছুটছে শুধু  
অজানা কোনো গন্তব্যে,  
কেউ সময় পায় না থামার,  
নিজের সাথেও গল্পের।

দিনগুলো কেমন যেন  
অভ্যাস হয়ে বেঁচে থাকে,  
হাসিগুলোও অনেক সময়  
লুকিয়ে থাকে ক্লান্ত মুখের ফাঁকে।

তবু রাত গভীর হলে  
মন আজও বুঝতে চায় —  
সুখ মানে হয়তো শুধু  
কিছু শান্তি, কিছু মানুষ, আর একটু নির্ভর হাওয়ায়।



-Aparna Das, 2nd year, ECE



*-Sneha Ghosh, 2nd year, ECE*



*-Sristi Choudhuri, 2nd year, ECE*



*-Aparna Das, 2nd year, ECE*





*-Rudranil Biswas, 2nd year, ECE*



*-Dwaipayan Roy, 2nd year, ECE*



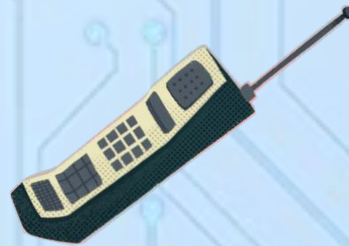
*-Rudranil Biswas, 2nd year, ECE*

# FUN FACTS ABOUT ECE

① Your smartphone contains billions of transistors packed into a chip smaller than your fingernail.



② The first mobile phone call was made in 1973, and the phone weighed around 1.1 kg.



③ Wi-Fi, Bluetooth, GPS, satellite communication — all are applications of ECE.



④ The internet travels mostly through optical fibers using light, not electricity.



⑤ ISRO satellites and Mars missions heavily depend on communication systems designed by ECE engineers.



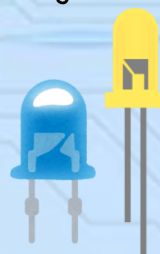
⑥ The human brain works somewhat like an electronic network, using electrical impulses to communicate.



⑦ The tiny chip inside an ATM card or SIM card is actually a microcontroller.



⑧ LEDs consume much less power because they convert electricity directly into light efficiently.



⑨ Modern cars have more electronics than mechanical systems compared to older vehicles.



# BYTE & BEYOND

## *Puzzles & Riddles*

### 1. Binary Puzzle

What decimal number does this binary represent?

101101



### 2. Logic Puzzle

A digital lock has 3 LEDs:

Red LED glows when Switch A is ON

Green LED glows when Switch B is ON

Blue LED glows only when both A and B are ON

Which logic gate is represented by the Blue LED condition?



### 3. Circuit Riddle

I resist the flow but never move,

In every circuit I improve.

Measured in ohms, what am I?



### 4. Communication Riddle

I travel invisible through air,

Carrying voices everywhere.

Phones and radios use me every day.

What am I?



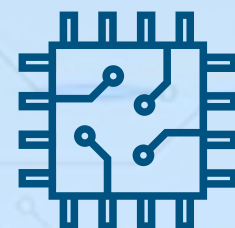
### 5. Microprocessor Riddle

I am the brain of a computer,

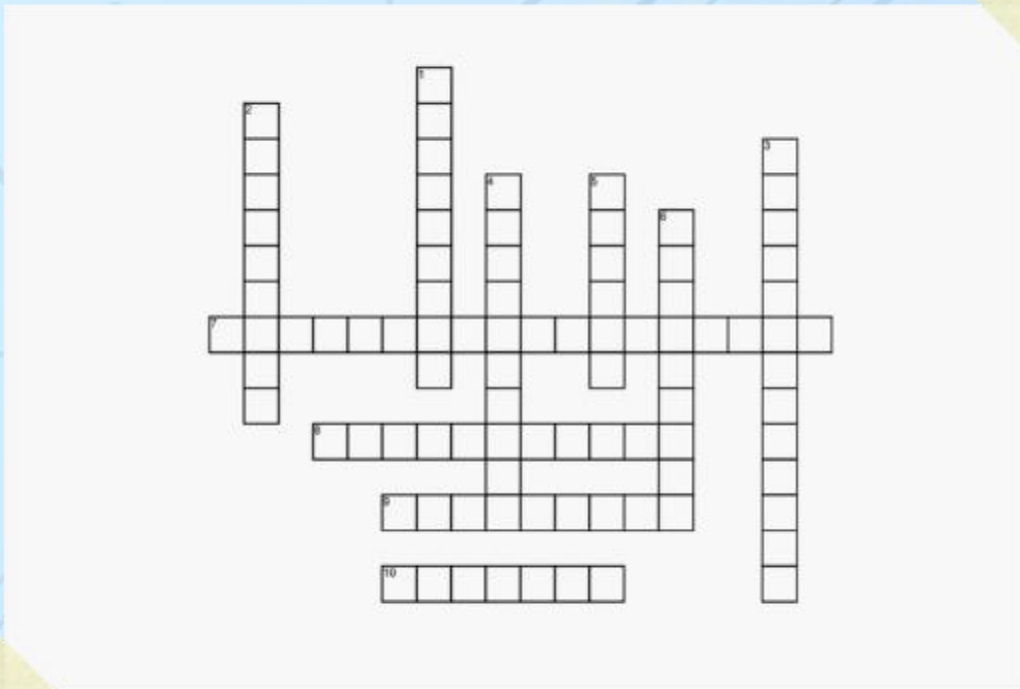
I process data super fast.

Without me the system is useless.

Who am I?



# Crossword



## **Down:**

1. P-N junction diode used in.....
2. The material which has no gap.
3. The material which has energy gap around 1 eV.
4. Energy level corresponding to the average energy of electrons and holes.
5. The process of adding impurity.
6. The material which has large energy gap.

## **Across:**

7. Semiconductor with excess of electrons.
8. Type of impurity in n-type semiconductor.
9. N-P-N transistor acts as an .....
10. Process of applying suitable D.C. voltage to the P-N junction diode.

# Sudoku

			5	4	2		1	9
1					6			
	2	9				6		
				9			6	4
	3	2	6		7		9	8
				3				
2		7		1	8		5	
					9		3	
		3	7	6	5	9		1

## Quick Quiz

1. What does CPU stand for?
2. Which device converts AC to DC?
3. Full form of LED?
4. Which semiconductor material is most widely used?
5. What is the SI unit of capacitance?

# Answers

## Puzzles and Riddles :

1. 45
2. AND Gate
3. Resistor
4. Electromagnetic Waves
5. CPU/ Microprocessor

## Crossword :

Down :

1. P-N junction diode used in → **RECTIFICATION**
2. The material which has no gap → **CONDUCTOR**
3. The material which has energy gap around 1 eV → **SEMICONDUCTOR**
4. Energy level corresponding to the average energy of electrons and holes → **FERMI LEVEL**
5. The process of adding impurity → **DOPING**
6. The material which has large energy gap → **INSULATOR**

Across :

7. Semiconductor with excess of electrons → **N-TYPE SEMICONDUCTOR**
8. Type of impurity in n-type semiconductor → **PENTAVALENT**
9. N-P-N transistor acts as an → **AMPLIFIER**
10. Process of applying suitable D.C. voltage to the P-N junction diode → **BIASING**

## Sudoku :

3	8	6	5	4	2	7	1	9
1	5	4	9	7	6	2	8	3
7	2	9	1	8	3	6	4	5
5	7	8	2	9	1	3	6	4
4	3	2	6	5	7	1	9	8
9	6	1	8	3	4	5	7	2
2	9	7	3	1	8	4	5	6
6	1	5	4	2	9	8	3	7
8	4	3	7	6	5	9	2	1

## Quick Quiz :

1. Central Processing Unit
2. Rectifier
3. Light Emitting Diode
4. Silicon
5. Farad

*“From tiny transistors to limitless possibilities—ECE shapes the future.”*

THANK YOU!