2023-24

DEPARTMENTAL NEWSLETTER

A Half yearly in-house Newsletter

By

THE DEPARTMENT OF

Electronics and Communication Engineering

B.P. Poddar Institute of Management and Technology

Issue: MARCH EDITION

EDITORIAL BOARD | Yash Kumar Singh (2nd Year) | Somnath Chakroborty (2nd Year) | Bapan Banik (1st Year) | Prantik Ghosh (1st Year)

DEPARTMENT OF ECE

"Science is a field which grows continuously with ever expanding frontiers

– John Bardeen

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B. P. Poddar Institute of Management & Technology
Department of Electronics & Communication

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

1. Offer quality education through a modern accessible, comprehensive and research oriented teaching-learning process.
2. Create opportunities for students and faculty members in acquiring knowledge through research and development.
3. Providing effective interface with industry by strengthening Industry- Institute interaction and developing entrepreneurial skills.
4. 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

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

Program Educational Objectives:

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 (POS)	
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.

TECH TRENDS-*FUTURE IS NOW*
Semiconductor & Chip Manufacturing Expansion

Release date :- 29 January 2024

Semiconductor: Material (like silicon) with conductivity between conductor and insulator, used to build electronic components.

Chip Manufacturing (Fabrication): Process of designing and producing integrated circuits (ICs) on silicon wafers.

Advanced Nodes: Smaller transistor sizes (5nm, 3nm, 2nm) enabling faster and power-efficient chips.

Enterprise & Industrial Adoption

Major sectors driving semiconductor demand:

- consumer electronics (smartphones, laptops)
- automotive electronics (EV control systems)
- 5G & telecom infrastructure
- defense & aerospace systems
- data centers & high-performance computing

Technical Features

- Smaller transistor technology (nanometer scale fabrication)
- Higher transistor density per chip
- Improved power efficiency
- Faster processing speeds
- Advanced packaging (3D chip stacking)

Manufacturing Significance

- Fabrication plants (fabs) expansion globally
- Government semiconductor missions (India, US, EU)
- Reduced dependency on single-country supply chains
- Strategic national importance

Vision / Future Impact

- 2nm and below fabrication technology
- Domestic chip manufacturing in emerging economies
- Growth of semiconductor ecosystem (design + fabrication + testing)
- Stronger hardware independence globally

Applications

- Industry: automation systems, robotics controllers
- Healthcare: medical imaging processors
- Telecom: base stations, network processors
- Defense: radar systems, secure communication chips
- Consumer Electronics: processors, memory chips

AI INFRASTRUCTURE & CHIPS BOOM

RELEASE DATE :- 18 March 2024

AI infrastructure: Hardware + systems required to run AI models

Includes:

- GPUs / AI chips
- AI servers
- cloud data centers
- networking for AI clusters

Features:

- ultra-high AI compute
- trillion-parameter model support
- energy-efficient AI processing

Physical significance

- Why AI infrastructure matters physically:
- Enables large neural networks
- High-speed parallel processing
- Real-time AI inference

Mobility significance

- Mobility improvements:
- cloud AI accessible anywhere
- edge AI devices emerging
- mobile AI acceleration chips

Vision / future impact

- Expected direction:
- global AI supercomputers
- AI-native internet services
- autonomous systems
- digital twins of cities
- AGI-scale compute

FREQUENCY FUN

Artificial intelligence can now generate images, music, code, and even realistic voices within seconds.

Applications

- AI training: LLMs, vision models
- Cloud AI: SaaS AI tools
- Autonomous tech: robots, vehicles
- Science: drug discovery, climate

RECENT EVENTS – *learn explore and Excel together*

ORIENTATION PROGRAMME ORGANISED BY SPIE STUDENT CHAPTER, BPPIMT

SPIE Student Chapter, BPPIMT organized an Orientation Program on 28th February, 2024 at the Seminar Hall, coordinated by the students of 3rd Year, Department of Electronics & Communication Engineering. The program aimed to introduce first-year students to the domain of optics and photonics while fostering a spirit of collaboration and professional growth. The session featured insightful talks, interactive discussions, and an engaging introduction to the activities and vision of SPIE. Participants had the opportunity to interact with senior members and gain a clear understanding of the chapter's objectives and future initiatives.

The Faculty Advisor and Head of the Department of ECE, Dr. Ivy Majumdar, addressed the gathering and emphasized the importance of unity, integrity, and active participation within the SPIE community. Her words encouraged students to take initiative and contribute meaningfully to technical advancement.

More than 90 first-year students attended the program, marking the beginning of an enthusiastic.

SOCIAL AWARENESS PROGRAM AT GHORAMARA ISLAND, SUNDARBAN

SPIE Student Chapter, BPPIMT organized a Social Awareness Program on 3rd March, 2024 at Ghoramara Island, Sundarban, led by the core committee members of the chapter. The visit was undertaken in the presence of the Faculty Advisor, Dr. Ivy Majumdar, along with Dr. Surajit Mandal, Dr. Susmita Biswas, and Mr. Debasish Sarma. During the visit, the team observed firsthand the persistent challenges faced by the local community, particularly due to the absence of a stable electricity supply.

Understanding the pressing need for sustainable support, the SPIE Student Chapter took the initiative to donate a Solar Home Light System to the Multipurpose Community Centre of the island. This contribution aimed to provide partial relief through renewable energy support and promote awareness about sustainable energy solutions.

The program not only strengthened the students' sense of social responsibility but also reflected the chapter's commitment toward community engagement and technological outreach beyond the campus.

WORKSHOP ON KHET – THE LASER CHESS

SPIE Student Chapter, BPPIMT organized a workshop on KHET – The Laser Chess on 14th March, 2024. The session provided participants with a hands-on experience of strategic gameplay, where they maneuvered pieces to reflect laser beams and outwit their opponents. The activity encouraged logical thinking, tactical planning, and precision in decision-making.

Beyond gameplay, the workshop connected the principles of laser reflection and optics to their practical applications in modern technology.
Students gained a clearer understanding of how fundamental optical concepts are applied in real-world systems.

The workshop successfully combined strategic gaming with technical learning, offering an engaging platform to strengthen analytical skills while exploring the fundamentals of optical science.

STAFF DEVELOPMENT PROGRAM

A two day Staff Development Program is organised focusing on Microwave and Free Space Optics from 11.1.2024 to 12.1.2024 including principles, components, propagation characteristics and application comparisons. These two technologies are often taught together in a hybrid context because they are complementary: microwave provides reliable long-range stability, while FSO offers high-speed, fiber-like bandwidth. Our institutional faculty members Prof. (Dr.) Sutapa Mukherjee, Mr. Arindrajit chowdhury, Dr. Susmita Biswas and Dr. Surajit Mandal have covered topics on Fundamentals of Antenna and Its Applications, Overview on Microwave Components and Circuits, Microwave Communication and Antenna Design.

Introduction on Free Space Optical (FSO) Communication etc. during this two days event. Fifteen members from the Electronics, Electrical engineering and Applied Science departments have participated in this event and successfully completed the program.

ACHIVEMENTS & AWARDS-
YOU MAKE US PROUD

Kshitij 2024

- Arijit Dhali - **2nd** position in **Robowars**, BPPIMT
- Probuddha Bikas Chatterjee – **2nd** position in **Robowars**, BPPIMT
- Priyanshu Mandal – **2nd** position in **Robowars**, BPPIMT
- Shoeb Mir – **2nd** position in **Robowars**, BPPIMT
- Deboshmita Paul – **2nd** position in **Robowars**, BPPIMT
- Anamika Bhunia – **2nd** position in **Robowars**, BPPIMT

Forma 2.23

- Anuska Das – **2nd** Position in **Hardware Model Design Competition**, BPPIMT

Tech Enquesta'23 (Technical Quiz)

- Vaishnavi Shaw – **1st** Runner up, BPPIMT
- Ayush Singh - **Quiz Master**, BPPIMT

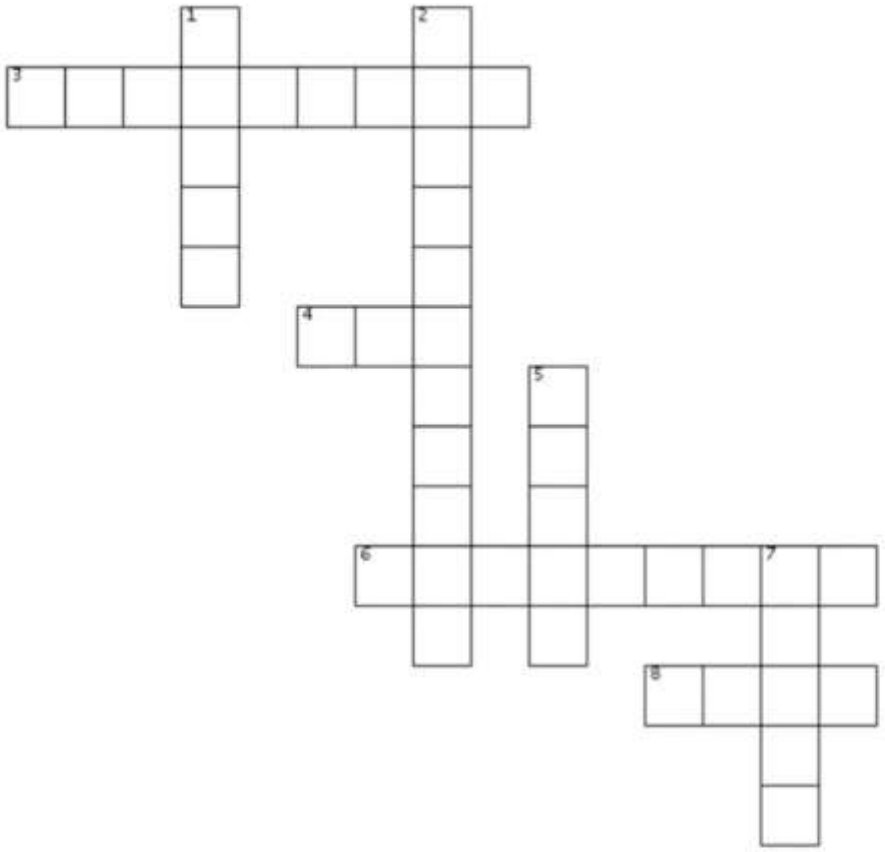
All India National Level Online Solo Dance Competition

- Sayantika Paul - **1st** Position, BPPIMT

Tech Tips

The "Ctrl + Tab" Navigator: Switch between open browser tabs quickly. On Mac, use **Ctrl + Tab** (or **Cmd + Option + Right Arrow** in some browsers).

Brain-Break



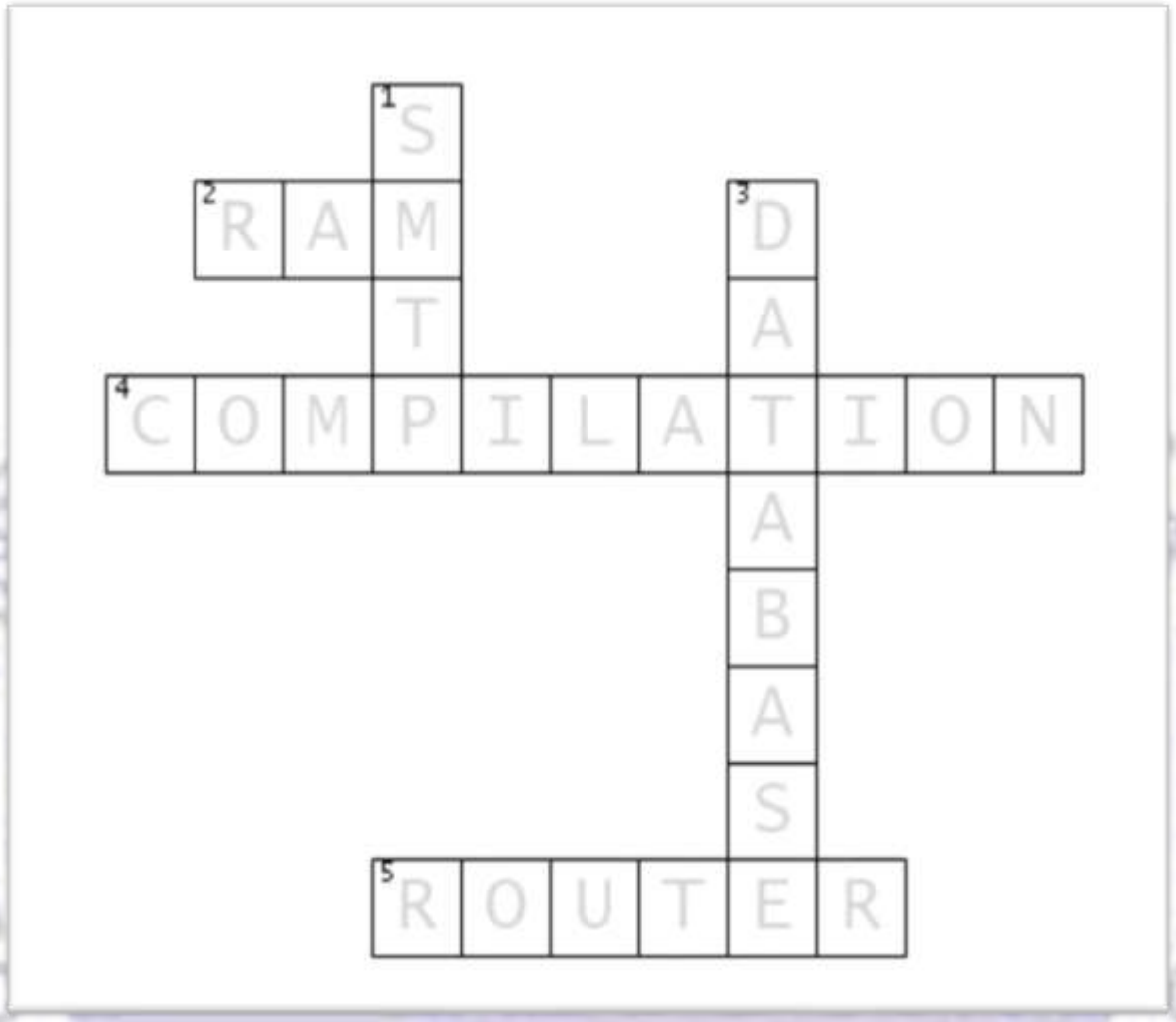
ACROSS

3. SYSTEM A system that manages hardware and software resources
4. A high-level programming language known for web development
6. A process of finding and fixing errors in code
8. TABLE A structure used to store key-value pairs

DOWN

1. A software bug that causes a program to crash
2. A program that translates high-level language into machine code line by line
5. COMPUTING A model that provides on-demand computing resources over the internet
7. A type of database that stores data in JSON-like format

ANSWERS FOR OCTOBER 2022-23 EDITION



An electric cell is a device that converts stored chemical energy into electrical energy, providing a portable power source for electronic devices

"Every day sees humanity more victorious in the struggle with space and time." –

GUGLIELMO MARCONI

Guglielmo Marconi was an Italian electrical engineer and inventor. He is known as the father of wireless communication. Marconi developed the first successful wireless telegraph system. He proved that signals could be sent through the air using electromagnetic waves. In 1901, he sent the first wireless signal across the Atlantic Ocean.

This experiment connected England and Canada without wires. His invention made long-distance communication faster and easier. Radio, television, and mobile communication are based on his work. He received the Nobel Prize in Physics in 1909.

Marconi's discoveries laid the foundation for modern communication systems. His work is very important for Electronics and Communication Engineering (ECE).

EDITORIAL BOARD

Faculty

- Dr. Ivy Majumdar
- Ms. Rashmita Mishra
- Dr. Vedatrayee Chakroborty

ECE isn't just a department — it's a vibe. Keep exploring. Keep creating. Keep shining.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