BABU BANARASI DAS
INSTITUTE OF TECHNOLOGY AND MANAGEMENT

BBDITM

(FORMERLY KNOWN AS BABU BANARASI DAS NATIONAL INSTITUTE OF TECHNOLOGY AND MANAGEMENT)

ELECTRONICA

THE MAGAZINE OF INNOVATION AND INSIGHTS

DEPARTMENT OF

ELECTRONICS & COMMUNICATION

BBDITM | BABU BANARASI DAS INSTITUTE OF TECHNOLOGY AND MANAGEMENT

CONNECTING **IDEAS**. CREATING **IMPACT**. INSPIRING **TOMORROW**.

SESSION 2025-26

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"Dreams are not those which comes while we are sleeping, but dreams are those when u don't sleep before fulfilling them."

– Dr. A.P.J Abdul Kalam

WORDS OF THANKS

We are highly thankful to every member for their dedications and hard work. It is the team work that made this Magazine possible. We on behalf of our team would also like to express our gratitude towards our readers.

THANK YOU

Our Inspiration

LATE BABU BANARASI DAS JI

(1912 – 1985)

Ex Chief Minister

Govt. of Uttar Pradesh

"*To provide an open opportunity to the young generation for evolving their core competencies and to build their career as world class professionals with broad based foundation, in-depth knowledge & versatile personality to meet the challenges of Global Economy…*" – Babuji's Vision.

Cherishing Founder

DR. AKHILESH DAS GUPTA

MBA, LLB, Ph.D

Ex-Member of Parliament (Rajya Sabha)

Hon'ble Founder Chairman, BBD Group

"*We not only make technocrats at BBD, we churn out citizens of the world, perfect in all respect in all respects, be it leadership, competence, confidence, communication, moral or knowledge…*" – **Akhilesh Das Gupta's Vision.**

MRS. ALKA DAS

CO-FOUNDER & CHAIRPERSON, BBD EDUCATIONAL GROUP
ADVOCATE AND SOCIALWORKER

"A lady with spirit, determination and zeal, Mrs. Alka Das has been the driving force behind her husband Dr. Akhilesh Das. She is the daughter of Late Justice D.P. Gupta, who held high positions in the State of Rajasthan, as its Governor and Chief Justice. She was brought up on Gandhian ideals and philanthropic traditions."

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CHIEF EXECUTIVE DIRECTOR, BBD EDUCATIONAL GROUP

VISION OF INSTITUTE

"To become a leading institute of providing professionally competent and socially responsive technocrats with high moral values"

MISSION OF INSTITUTE

M1: To create an eco-system for the dissemination of technical knowledge, to achieve academic excellence.
M2: To develop technocrats with creative skills and leadership qualities, to solve local and global challenges.
M3: To impart human values and ethics in students, to make them socially and Eco-friendly responsible.

VISION OF DEPARTMENT

"To emerge as a globally recognized center of excellence in engineering education, fostering innovation, ethical values, entrepreneurial spirit and leadership qualities to create professionals who contribute meaningfully to society and industry"

MISSION OF DEPARTMENT

M1: To achieve global standards of excellence through continuous synchronization with the latest technologies and innovation.
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M3: To inculcate professional ethics, self learning abilities, entrepreneurial skills and leadership qualities for holistic professional success.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: Graduate of the program shall be adaptive to emerging technologies to pursue their career in hardware and software industry.

PEO 2: Graduate of the program shall have technical excellence to augment their proficiency towards higher education and progress in research.

PEO 3: Graduate of the program shall have professional and ethical attitude to uphold team work skills and multidisciplinary approach.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1: In depth theoretical & practical knowledge of modern engineering in electronic circuitry.

PSO 2: Design and analyze modern communication systems to meet the present and future needs of industry with cost effective solutions.

DIRECTOR'S MESSAGE-

I extend my heartiest congratulations to the faculty, staff, and students on the publication of the ECE Departmental Magazine for Session 2025-26. This release highlights department's unwavering commitment to academic and extra-curricular excellence.

I commend the editorial board and contributors for their outstanding efforts.

May this success inspire to scale even greater heights in the future.

Prof (Dr.) Pratul Arvind
DIRECTOR
BBDITM

HOD'S MESSAGE-

As part of our commitment to continuous learning, the Department of Electronics and Communication Engineering is proud to present the ECE Departmental Magazine for Session 2025-26. This edition serves as a testament to our ongoing efforts to enhance the expertise and provide significant value to all our stakeholders.

As an NBA Accredited Department, we take immense pride in our standards of excellence. To maintain this momentum, I encourage everyone to continue their hard work as we enter the upcoming semester with high expectations and renewed ambition.

With Best Wishes

Prof (Dr.) Shailendra Tahilyani
HOD (EC)
BBDITM

EDITOR'S MESSAGE-

Dear Readers,

The Department of Electronics and Communication Engineering remains dedicated to fostering holistic student development by balancing academics with a vibrant range of extracurricular activities.

This edition of our Magazine (2025-26) provides a comprehensive overview of the milestones and initiatives achieved by BBDITM's ECE department over the past session. We have made every effort to capture the diverse achievements that continue to drive and strengthen our departmental vision.

Thanks & Regards

Mr. Pankaj Verma
Assistant Professor
ECE, BBDITM

➢ EVENT ORGANIZED @ ECE DEPARTMENT

1. Expert talk on "Career opportunities in VLSI Design and Embedded System"

Event Summary:-

Department of Electronics and Communication, BBDITM organized an expert talk in collaboration FORCE and IETE on **Career Opportunity in VLSI Design and Embedded System.**

This event was organized on 21st November 2025, with the motive to spread the message of importance of VLSI Design and Embedded Systems because they power the core intelligence of all modern electronic devices, from mobiles to automotive systems. These fields drive innovation, enabling faster, smarter, and energy-efficient technologies for the future. The event was organized under the guidance of our respected Head of Department, Prof. (Dr.) Shailendra Tahilyani. The resource person of the event was Mr. Vaibhav Mishra, Founder, PinE Training Academy**.** Students of the department of ECE had a very useful session on the topic "**Career Opportunity in VLSI Design and Embedded System**". Total 73 participants (students/faculty) were present in the event. Vote of thanks for the speaker's was given by Dr. Rupali Agarwal.

Objective of the event: -

The objective of organizing this event is to make awareness in the students regarding the ongoing semiconductor developments and opportunities for students in VLSI and Semiconductor sector.

Benefits in terms of Learning/ Skill/ Knowledge Obtained: -

The basic learning from the event was that students learnt how to prepare for the embedded systems and secure the jobs in semiconductor domain.

Glimpses of Event:

2. Startup Competition

Event Summary:-

The Startup competition took place on August 29, 2025, organized under the guidance of respected Head of Department Prof. (Dr.) Shailendra Tahilyani sir with a message that the future of entrepreneurs is bright.

The Startup competition successfully created an inspiring atmosphere for innovation and collaboration. With engaging presentations, insights, and interactive discussions, the event showcased the dynamic startup ecosystem.

Objective of the event: -

To promote and cultivate entrepreneurship mindsetamong students.

Benefits in terms of Learning/ Skill/ Knowledge Obtained: -

The basic learning of the event was the development of budding Startups and increased knowledge and skills among students.

Glimpses of Event:

Student Participants on event Startup Competition

3. Faculty Development Program on topic Advanced Computing and Sustainable Technologies –

BABU BANARSI DAS
NATIONAL INSTITUTE OF TECHNOLOGY & MANAGEMENT
(Recognized by AICTE, Govt. of India, affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow) AKTU College Code - 054

Online
Faculty Development Program
on

Advanced Computing and Sustainable Technologies

08th – 12th December, 2025

FORCE

Organized by
Department of Electronics and Communication Engineering,
Babu Banarasi Das Institute of Technology and Management, Lucknow, Uttar Pradesh- 226028

Objective

This Faculty Development Program (FDP) is designed to enhance the technical and professional competency of faculty members in the fields of Electronics and Communication Engineering.

The program aims to empower educators with advanced knowledge and skills that are essential for driving innovation and excellence in both teaching and research. this FDP aims to bridge the gap between academic theory and practical industry applications, fostering a dynamic learning environment that benefits both educators and students alike.

Program Objectives

Update Knowledge: Equip faculty with current trends and advancements in Electronics and Communication Engineering.

Skill Enhancement: Improve teaching methodologies and integrate new technologies in the curriculum.

Research Insights: Provide insights into ongoing research and potential areas of study.

Industry Practices: Bridge the gap between academic concepts and industry practices.

Outcomes

Enhanced Teaching Skills: Faculty members will be better equipped to teach the latest advancements.

Research Collaboration: Opportunities for collaborative research projects.

Curriculum Development: Updated course content to reflect current industry standards.

Networking: Build a network of professionals and researchers in the field.

About the Institute

BABU BANARASI DAS INSTITUTE OF TECHNOLOGY AND MANAGEMENT (Formerly Known as Babu Banarasi Das National Institute of Technology and Management - BBDNITM) (Recognized by AICTE, Govt. of India, affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow) AKTU college code - 054, is committed to provide the excellence in teaching, learning and research and develop the cream of the crop in all the field of education. BBDITM is one of the India's premier technology and management college.
BBDITM has driven new ways of thinking since 1998 – the founding year of college. The college attracts students from all around the world due to its excellent facilities. BBDITM established and run by the group having exceptional experience and performance excellence of more than 20 years.

About the Department

The Department of Electronics and Communication Engineering was established in the year 1998 in Babu Banarasi Das National Institute of Technology and Management, Lucknow campus. The department has well equipped Labs as Communication lab, Microprocessor Lab, Electronics circuit Lab, Digital/Analog circuits lab, The department has highly educated Faculty members having a vast experience in their field. The department has a well-balanced workforce having experience in academics and in industries. Students are given education as well as training exposure in order to get placed in highly reputed industries. Symbiosis between placement cell and the Department help the students to achieve the best of the jobs of their careers. Proper industrial interaction is given to the students by organizing National level workshops in the Campus.

Vision of the Department

"To emerge as a globally recognized center of excellence in engineering education, fostering innovation, ethical values, entrepreneurial spirit and leadership qualities to create professionals who contribute meaningfully to society and industry."

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Mr. Kishan Kumar, ECE

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Mr. Diwakar Singh (8953194144)
Email-ID: rajeevsingh1aug@bbdnitm.ac.in
ddiwakarsingh@bbdnitm.ac.in

Registration Fees: - No Registration Fee
Registration Link: - https://forms.gle/hKciP9wDwdw6vNtX7

Event Objective:-

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- **Research Insights:** Provide insights into ongoing research and potential areas of study.
- **Industry Practices:** Bridge the gap between academic concepts and industry practices.

Outcomes -

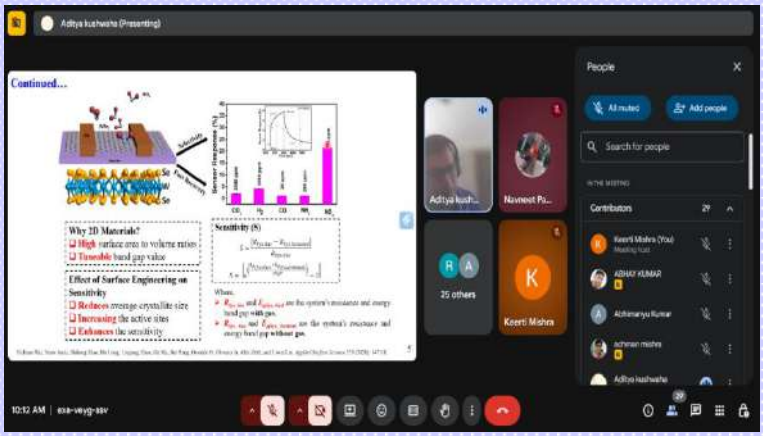
- **Enhanced Teaching Skills:** Faculty members will be better equipped to teach the latest advancements.
- **Research Collaboration:** Opportunities for collaborative research projects.
- **Curriculum Development:** Updated course content to reflect current industry standards.
- **Networking:** Build a network of professionals and researchers in the field.

Schedule of 5 Day Online Faculty Development Program

Schedule of FDP on Adaptive Computing and Sustainable Technologies

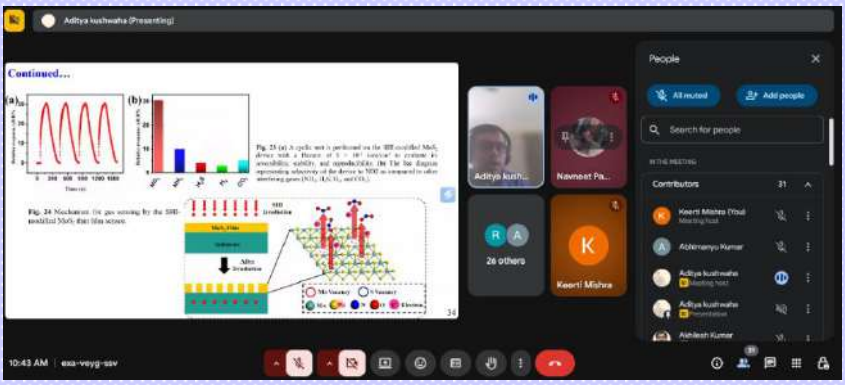
Day	Topics	Time	Date	Speakers
Day 1	1. Inauguration & Introduction	10:00 -11:00 AM	08/12/2025	1. Inaugration(Director, BBDITM) 2. Introduction and Welcome of Speakers (Convenor of FDP)
	2. Sources and Types of Time Delays in Real-Time Systems	11:00 – 12:00 AM	08/12/2025	Dr. Vipin Chadra Pal, Assistant Professor, NIT, Silchar.
	3. Impact of Time Delays and Techniques for Mitigation	2:00 – 4:00 PM	08/12/2025	Dr. Vipin Chadra Pal, Assistant Professor, NIT, Silchar.
Day 2	1. AI-Driven Threat Detection and Analysis	10:00 -12:00 AM	09/12/2025	Dr. Vibha Sinha, Associate Professor, KCC institute of Technology and Management, Greater Noida.
	2. AI-Enabled Defense Mechanisms and Automated Response	2:00-4:00 PM	09/12/2025	Dr. Vibha Sinha, Associate Professor, KCC institute of Technology and Management, Greater Noida.
Day 3	1. Mixed-Dimensional Material Architectures for High-Performance Photodetection	10:00 -12:00 AM	10/12/2025	Mr. Aditya Kushwaha, Research Scholar, Netaji Subhas University of Technology, New Delhi, India
	2. Mixed-Dimensional Hybrid Systems for Advanced Gas Sensing	2:00-4:00 PM	10/12/2025	Mr. Aditya Kushwaha, Research Scholar, Netaji Subhas University of Technology, New Delhi, India
Day 4	1. Linux Operating System Architecture	10:00 -12:00 AM	11/12/2025	Mr. Anand Mohan Tiwari, Principal Software Engineer, Dell Technology, Bangalore
	2. Linux Kernel and Device Driver Development	2:00-4:00 PM	11/12/2025	Mr. Anand Mohan Tiwari, Principal Software Engineer, Dell Technology, Bangalore
Day 5	1. Modern ICT Tools for Effective Teaching	10:00 -12:00 AM	12/12/2025	Dr. Shailendra Kumar, Associate Professor, Integral University, Lucknow.
	2. Implementing Student-Centric Pedagogy through ICT	2:00-3:30 PM	12/12/2025	Dr. Shailendra Kumar, Associate Professor, Integral University, Lucknow.
	3. Valedictory Session and Certification	3:30 – 4:00 PM	12/12/2025	Director (BBDITM)

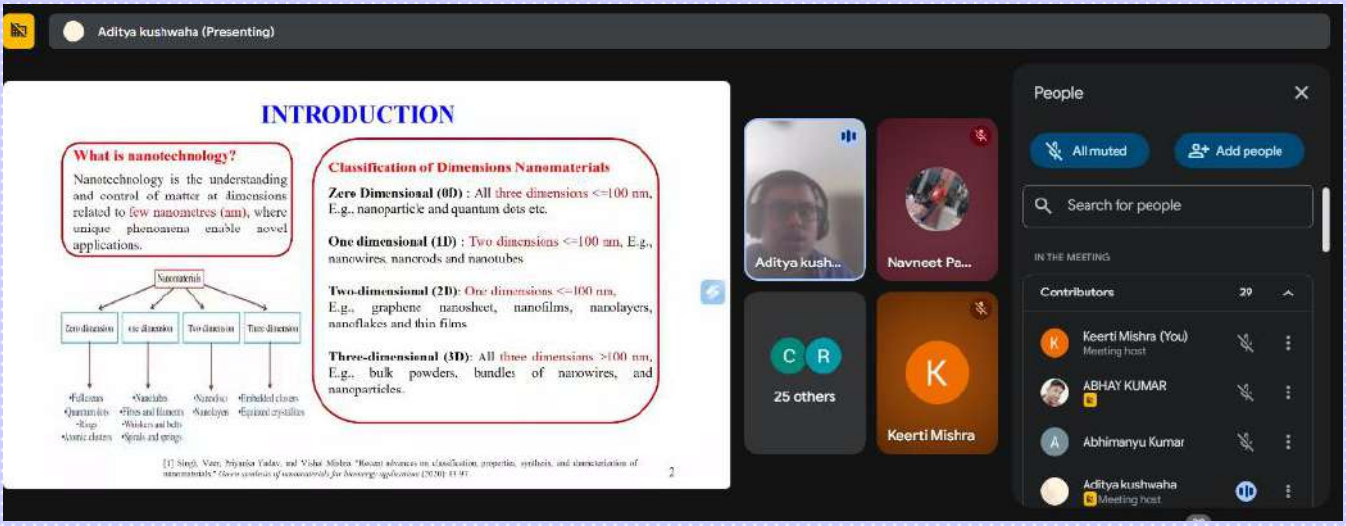
Glimpses of Event:


Aditya kushwaha (Presenting)
Continued...
Why 2D Materials?
High surface area to volume ratios
Tuneable band gap value
Effect of Surface Engineering on Sensitivity
Reduces average crystallite size
Increasing the active sites
Enhances the sensitivity
People
All muted
Add people
Search for people
Contributors
Keerti Mishra (You)
ABHAY KUMAR
Abhimanyu Kumar
Aditya kushwaha
25 others
Keerti Mishra

Unlock Your (Students) Superpower

Challenges & Solutions
Digital Divide
Faculty Training
Data Privacy


Aditya kushwaha (Presenting)
Continued...
People
All muted
Add people
Search for people
Contributors
26 others
Keerti Mishra


Aditya kushwaha (Presenting)
INTRODUCTION
What is nanotechnology?
Nanotechnology is the understanding and control of matter at dimensions related to few nanometres (nm), where unique phenomena enable novel applications.
Classification of Dimensions Nanomaterials
Zero Dimensional (0D) : All three dimensions <=100 nm, E.g., nanoparticle and quantum dots etc.
One dimensional (1D) : Two dimensions <=100 nm, E.g., nanowires, nanorods and nanotubes
Two-dimensional (2D): One dimensions <=100 nm, E.g., graphene nanosheet, nanofilms, nanolayers, nanoflakes and thin films
Three-dimensional (3D): All three dimensions >100 nm, E.g., bulk powders, bundles of nanowires, and nanoparticles.
Nanomaterials
Zero dimension
One dimension
Two dimension
Three dimension
People
All muted
Add people
Search for people
Contributors
Keerti Mishra (You)
Meeting host
ABHAY KUMAR
Abhimanyu Kumar
Aditya kushwaha
Meeting host
25 others
Keerti Mishra

4. Workshop on "DESIGN THINKING, CRITICAL THINKING & INNOVATION DESIGN"

Event Summary:-

Department of Electronics and Communication, BBDITM organized a workshop in collaboration IIC, FORCE and IETE on Design Thinking, Critical Thinking & Innovation Design. This event was organized on 23rd February 2026, focused on the importance of Design Thinking, Critical Thinking, and Innovation Design in today's technological era. These approaches help students develop creativity, analytical ability, and problem-solving skills essential for building innovative and user-centric solutions. The session was conducted under the guidance of our respected Head of Department, Prof. (Dr.) Shailendra Tahilyani. The resource person of the event was Mr. Anand Mohan, Principal Software Engineer. Students of the department of ECE had a very useful session on

the topic "Design Thinking, Critical Thinking & Innovation Design". Total 68 participants (students/faculty) were present in the event. Vote of thanks for the speaker's was given by Dr. Abhimanyu Kumar Yadav.

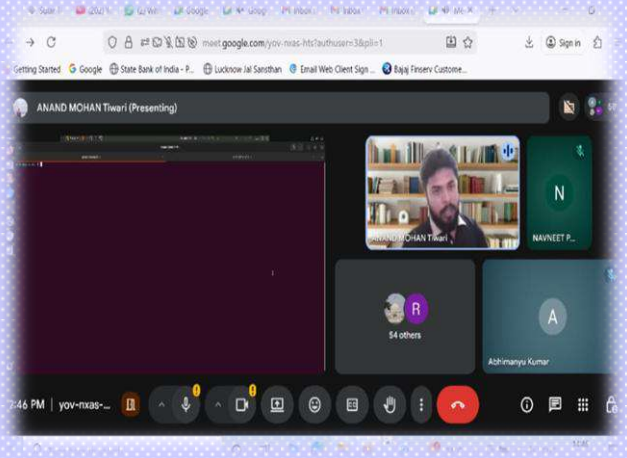
Objective of the event: -

- Develop analytical and logical thinking skills.
- Enhance creativity to design effective solutions.
- Encourage innovation to solve real-world problems.

Benefits in terms of Learning/ Skill/ Knowledge Obtained: -

Students in engineering develop analytical and problem-solving skills through critical thinking, design practical, user-centered systems using design thinking, and foster innovation in technologies and processes. They gain technical knowledge, creativity, decision-making abilities, and teamwork skills, enabling them to design efficient, innovative, and real-world engineering solutions.

Glimpses of Event:



5. Short Term Training Program on topic "Embedded System Design with Linux" –

BABU BANARASI DAS
INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Online

STTP on Embedded System Design with Linux

7th to 11th April, 2026

FORCE "Creators of undefined..."

IAENG The International Association of Engineers

Organized by
Department of Electronics and Communication Engineering,
Babu Banarasi Das Institute of Technology and Management, Lucknow, Uttar Pradesh- 226028

Objective

The objective of this STTP is to provide faculty members with fundamental and practical knowledge of Embedded System Design using Linux platforms. The program aims to enhance skills in embedded programming, hardware interfacing, Linux-based development, and system integration, enabling participants to design laboratory experiments, guide student projects, undertake research activities, and effectively incorporate modern embedded technologies into teaching.

Program Objectives

To develop a strong understanding of Embedded System Design concepts, Linux-based development environments, and hardware-software integration techniques.
To enhance practical skills in embedded programming, peripheral interfacing, system development, and debugging for real-world applications.
To enable participants to design laboratory experiments, mentor student projects, and integrate emerging embedded technologies into teaching, research, and curriculum development.

Outcomes

Participants will be able to develop and test embedded applications using Linux-based platforms and embedded programming techniques.
Participants will gain hands-on experience in interfacing hardware peripherals, sensors, and communication modules with embedded systems.
Participants will be able to design innovative laboratory experiments, guide student projects, and apply embedded system concepts in teaching and research activities.

About the Institute

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Convenor
Prof. (Dr.) Shailendra Tahilyani, HOD, ECE
Dr. Abhimanyu Kumar Yadav, Associate Professor ECE

Coordinator
Dr. Rupali Agarwal, Associate Professor, ECE, BBDITM

Co-coordinator
Mr. Rajeev Singh, ECE
Ms. Keerti Mishra, ECE
Mr. Navneet Kumar Pandey, ECE

Organizing Committee
Mr. Amit Kr. Singh, ECE
Mr. Diwakar Singh, ECE
Mr. Ravi Shankar ECE
Mr. Pankaj Verma, ECE
Mr. Kishan Kumar, ECE

Contact: Mr. Rajeev Singh (7376309696)
Mr. Navneet Kumar Pandey (9451658850)
Email-ID: rajeevsingh1aug@bbdnitm.ac.in

Registration Fees: - No Registration Fee
Registration Link: https://forms.gle/8mzRN1EgJQBCBETS9

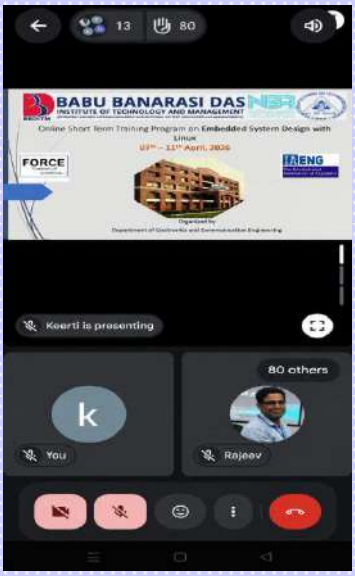
Event Objective:-

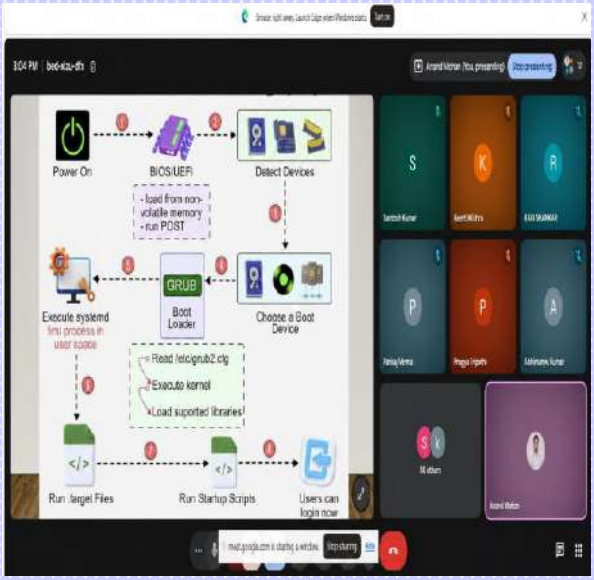
To develop participants' expertise in **Embedded Linux systems, kernel architecture, boot loaders, root file systems, device driver development, automated build systems, and real-time operating systems (RTOS)** while enhancing their technical proficiency, software development skills, and practical knowledge through hands-on training. The programme aimed to strengthen participants' capabilities in designing, developing, debugging, and deploying embedded applications, thereby fostering innovation, research competence, industry readiness, and effective teaching-learning practices in the field of Embedded Systems.

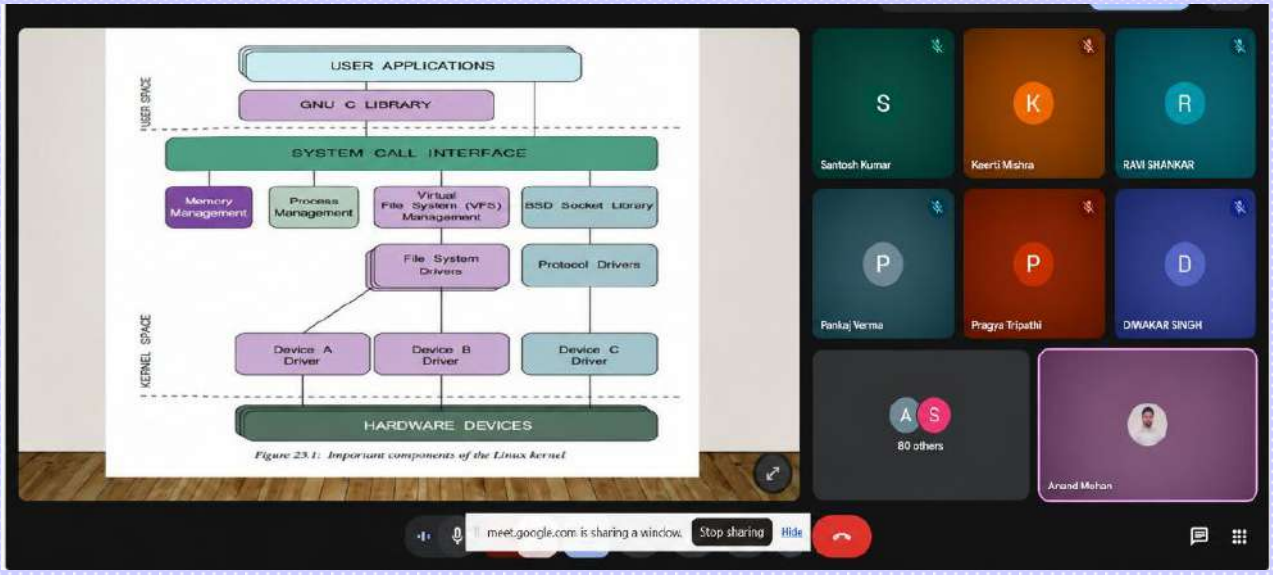
Benefits in terms of Learning/ Skill/ Knowledge Obtained: -

Participants gained practical knowledge of Embedded Linux, kernel development, boot loaders, root file systems, device drivers, RTOS, and automated build systems, enhancing technical competence, programming skills, debugging abilities, and research capabilities.

Glimpses of Event:







6. Workshop on Arduino and Robot control though Bluetooth by Infosys Campus Connect:

Event Summary:-

The hands-on workshop (14th March 2026) on Arduino microcontrollers offered students a practical introduction to embedded systems, coding, and robotics. Participants were guided through the basics of Arduino programming, where they learned how to write and upload code to control hardware components such as motors, sensors, and LEDs. This foundational knowledge helped them understand the interaction between software and hardware in real-time applications.

A key highlight of the workshop was building and controlling a robot using a Bluetooth connection through a mobile device. Students explored how wireless communication works by integrating Bluetooth modules with the Arduino board. They then developed simple mobile-controlled interfaces, enabling them to send commands from their smart phone to direct the robot's movement—such as moving forward, backward, or turning. This interactive exercise made learning both engaging and practical, as students could immediately see the results of their coding efforts.

Overall, the workshop proved to be an enriching experience, equipping students with essential technical skills and fostering creativity, problem-solving, and teamwork. It also provided valuable insights into emerging technologies like robotics and IOT, inspiring participants to further explore innovation in these fields.

Objective of the event: -

The objective of organizing this event was to cover the complete working of Robots and Hands-on Arduino microcontroller.

Benefits in terms of Learning/ Skill/ Knowledge Obtained: -

The basic learning of the event was to understand the microcontroller Arduino and Robot workings and codes which is shaping the future of the industry.

Glimpses of Event:

7. Plantation drive on occasion of "World environment Day"

Event Summary:-

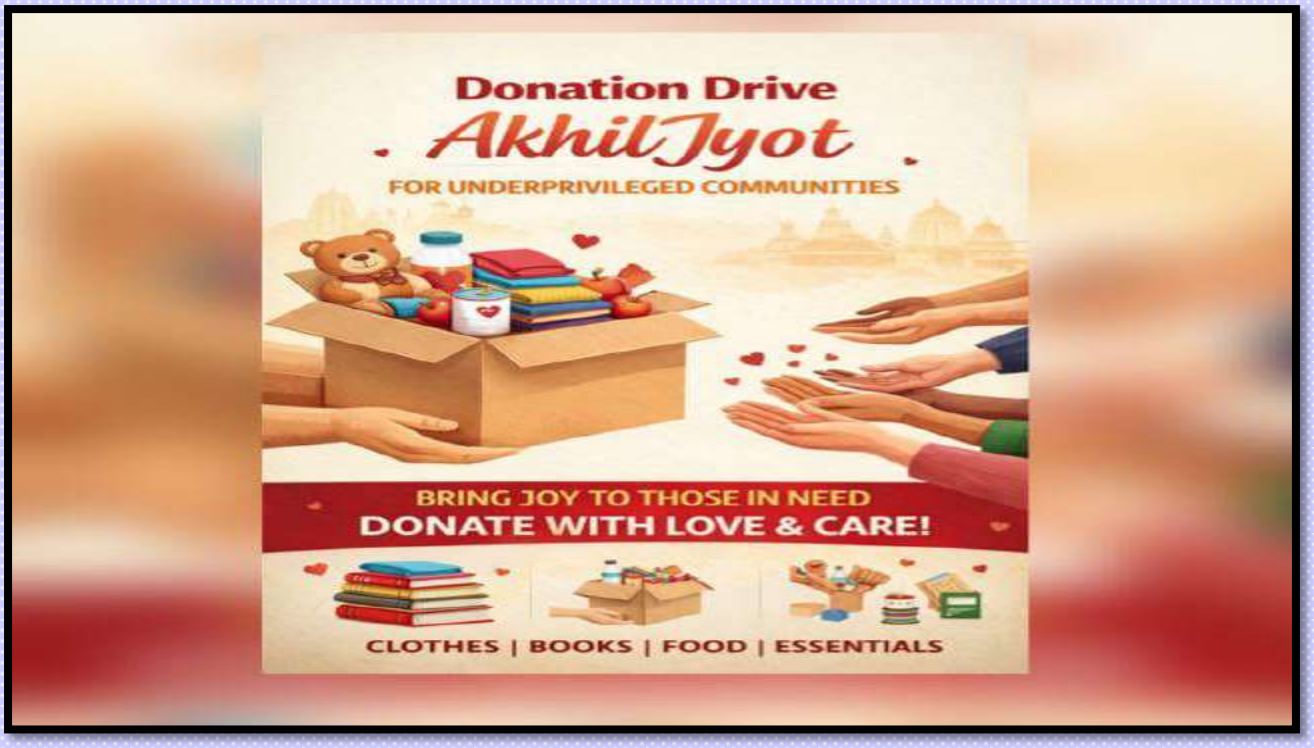
The Electronics and Communication Engineering (ECE) department successfully organized an inspiring tree plantation drive to mark World Environment Day (05 June 2026), demonstrating a strong commitment to ecological restoration. Faculty members and students volunteers came together with enthusiasm to plant numerous native saplings across the campus grounds, transforming empty spaces into green zones. The event served as a powerful reminder of the engineering community's role in combating deforestation and global warming. During the drive, faculty members emphasized how small, practical steps like planting trees complement advanced technical solutions for climate change. This hands-on initiative not only enhanced the campus's biodiversity but also instilled a deep sense of environmental responsibility among the future innovators. The drive concluded with a pledge by students and faculty to adopt sustainable habits, successfully bridging technical innovation with ecological preservation.

Objective of the event: -

The tree plantation drive was organized with a clear vision to bridge academic learning with environmental action, aligning our institution with global climate goals.

Glimpses of Event:

8. AKHIL JYOT (DONATION DRIVE) - ECE DEPARTMENT, BBDITM



Event Summary:-

The Department of Electronics and Communication Engineering (ECE) at Babu Banarasi Das Institute of Technology and Management (BBDITM) successfully organized the Akhil Jyot Donation Drive. This impactful community welfare initiative was held in cherished memory of the Hon'ble Founder and Chairman of the BBD Group, **Dr. Akhilesh Das Gupta**, carrying forward his profound vision of spreading happiness and serving society. Embracing the core spirit of social responsibility, ECE students, faculty members, and volunteers enthusiastically mobilized to collect and distribute essential daily items, educational books, and food to support the underrepresented sections of the community.

Objective of the event: -

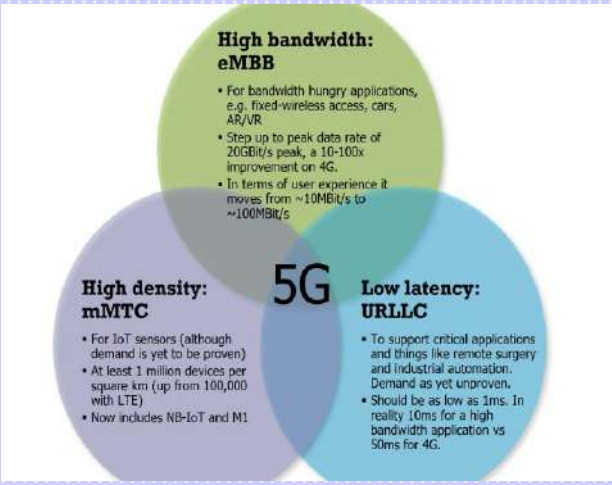
Department not only provided meaningful relief to those in need but also successfully instilled a deep, lifelong commitment to civic duty and compassion among future engineers.

➢ FACULTY CORNER :

❖ 5G Internet of Things

There have been a lot of superlatives thrown around about 5G, up to and including it being the most important invention since electricity. While that is almost certainly not true, it is one of the hottest technology topics today. 5G offers a number of significant improvements compared to previous mobile generations. Those involved with the Internet of Things (IoT) have been intrigued to understand what capabilities might be used for connecting things other than phones, tablets and PCs.

5G is the Fifth Generation of the technology standards for cellular communications. The capabilities required for 5G have been defined by the International Telecommunications Union. The standards have since been developed by the Third Generation Partnership Project (3GPP), which is a consortium of the major global standards development organizations. Its name stems from its creation to develop the 3G standard in the late 1990s and it has stuck ever since. All subsequent cellular technology evolutions from 4G (i.e. LTE) onwards, have been standardized by 3GPP.



Features of 5G relevant for IoT

5G has significant changes to architecture and capabilities relative to 4G. With regard to 5G NR and the access network, there are three major capabilities delivered by 5G that will be of interest for IoT:

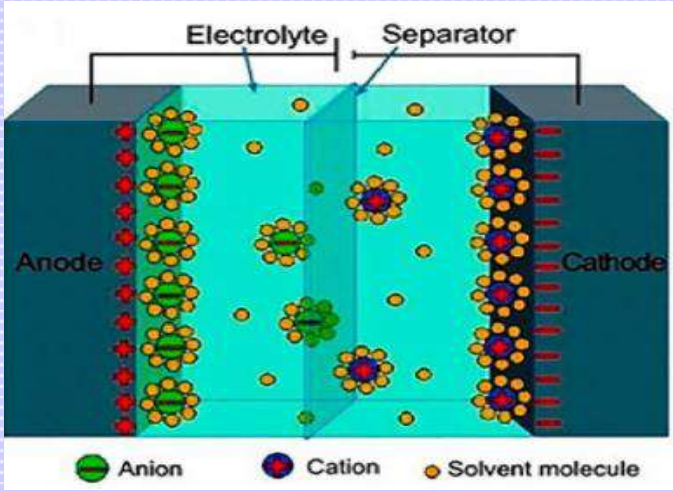
- **Increased bandwidth** – The enhanced Mobile Broadband (eMBB) capability provides theoretical speeds of up to 10Gbit/s.
- **Support for massive IoT deployments** – the massive Machine-Type Communications (mMTC) features provide for supporting many more devices per cell, with additional features for supporting Low Power Wide Area (LPWA) deployments, for instance much longer battery life.
- **Lower latency and reliability across all applications** – The capabilities referred to as Ultra Reliable Low Latency Communications (URLLC) reduce the time it takes messages to travel over the network, and increases the reliability of delivery.

Mr. Diwakar Singh
Assistant Professor
Electronics & Communication Engineering

❖ Hybrid Supercapacitors: Emerging As a Better Choice For Residential And Commercial Use:

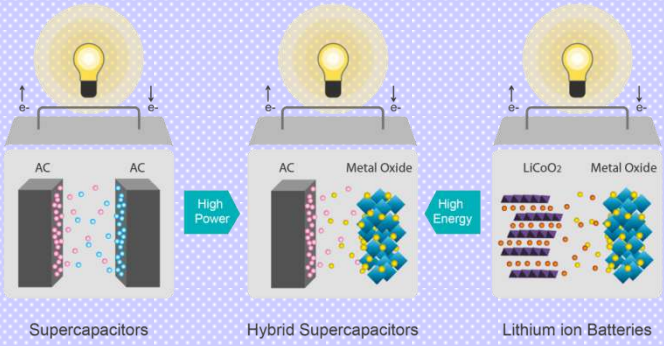
Hybrid super capacitors and solar energy are reshaping energy storage, from India's solar boom to maintenance-free solutions.

Capacitors are a basic yet very important component in electronics. Imagine them as tiny batteries inside almost every electronic device, made up simply of two metal plates that store electric charge. However, there is a more advanced version called a supercapacitor. Supercapacitors use a special carbon material on the metal plates, which allows them to store more electricity and release it very quickly. This makes them perfect for tasks where energy needs to be used or saved very quickly, such as in the brakes of an electric car.



Supercapacitors are great at what they do, but they can't hold as much energy as a regular battery, so they are not used for driving the car long distances. Instead, they work alongside the battery, particularly when the car needs a quick burst of energy or needs to save energy quickly, such as when braking. This not only helps the car run efficiently but also keeps the battery in good condition by preventing overcharging.

Some companies are working on hybrid supercapacitors, which combine features from both batteries and supercapacitors. They are designed for larger tasks, like storing energy in homes or for cellphone towers. This type of capacitor can handle a lot of energy and release it slowly over time, which is perfect for using solar or wind energy even when the sun isn't shining or the wind isn't blowing.



These hybrid systems are especially useful because they last a long time, they are safe, and they help reduce energy costs. They can shift energy usage to times when it is cheaper, and by doing so, they also help reduce the strain on energy grids. This not only saves money but is also better for the environment, as it helps cut down on greenhouse gas emissions.

Mr. Navneet Kumar Pandey
Assistant Professor
Electronics & Communication Engineering

❖ Application of AI in Education – Boon or Bane?

Artificial Intelligence (AI) is transforming education by changing the way knowledge is delivered, assessed, and managed. From intelligent tutoring systems and virtual teaching assistants to automated grading and personalized learning platforms, AI has become an integral part of modern education. As schools, colleges, and universities increasingly adopt AI-powered technologies, the debate continues whether AI is a boon or a bane.

Artificial Intelligence (AI) has transformed the education sector by offering numerous benefits to both students and educators. It enables personalized learning by tailoring educational content to individual learning styles, pace, strengths, and areas requiring improvement. AI-based learning platforms provide immediate feedback, helping students identify errors and enhance their understanding effectively. Additionally, AI-powered virtual tutors and chatbots offer continuous academic assistance, making quality learning accessible anytime and anywhere. For educators, AI streamlines routine administrative tasks such as attendance management, assessment, grading, report preparation, and question paper generation. By automating these time-consuming activities, AI allows teachers to devote greater attention to mentoring students, fostering interactive learning environments, and pursuing academic research and innovation.

Another important benefit is inclusivity. AI-based translation, speech recognition, and text-to-speech technologies help students with different languages and disabilities participate effectively in learning. During online and hybrid education, AI has supported virtual classrooms, plagiarism detection, learning analytics, and student performance monitoring, improving educational quality and institutional efficiency.

However, AI also has limitations. Excessive dependence on AI tools may reduce critical thinking, creativity, and independent problem-solving skills among students. Easy availability of AI-generated answers can encourage plagiarism and academic dishonesty if used irresponsibly. Privacy and cyber security are additional concerns because AI systems collect and process large volumes of personal and academic data.

Most importantly, AI cannot replace the human qualities of a teacher such as empathy, motivation, ethical guidance, emotional support, and classroom management. Education is not only about acquiring knowledge but also about developing values, communication skills and social responsibility. In conclusion, AI is largely a boon when implemented responsibly. It should complement rather than replace teachers. Educational institutions must promote ethical AI usage, protect student data, and ensure equal access to technology. A balanced partnership between human intelligence and artificial intelligence can create a more effective, inclusive, and future-ready education system while preserving the essential role of educators.

Dr. Abhimanyu Kumar Yadav
Associate Professor
Electronics & Communication Engineering

❖ Artificial Intelligence: Reshaping the Semiconductor Industry:

Artificial Intelligence has emerged as one of the most transformative technologies driving the evolution of the semiconductor industry. Semiconductors are the backbone of modern electronic devices, including smart phones, computers, autonomous vehicles, medical equipment, communication systems, and Internet of Things (IOT) devices. As the complexity of semiconductor manufacturing and chip design continues to increase, AI has become an essential tool for improving efficiency, accuracy, and innovation throughout the semiconductor value chain.

One of the most significant applications of AI is in semiconductor manufacturing. Fabrication facilities (fabs) generate enormous volumes of data from sensors, production equipment, and quality inspection systems. AI algorithms analyze this data in real time to detect process variations, predict equipment failures, and identify manufacturing defects before they occur. Predictive maintenance powered by machine learning minimizes equipment downtime, reduces maintenance costs, and increases production efficiency. Furthermore, AI-based quality control systems use computer vision to inspect wafers and integrated circuits with greater precision than conventional inspection methods, resulting in higher production yield and improved product reliability.

In research and development, AI accelerates innovation by enabling faster material discovery, simulation, and optimization of semiconductor processes. Machine learning models can predict the electrical and thermal properties of novel semiconductor materials without requiring extensive laboratory experimentation. This capability reduces research costs and shortens the development cycle for next-generation semiconductor technologies.

Environmental sustainability is another important area where AI contributes significantly. Semiconductor fabrication is highly energy-intensive and consumes substantial amounts of water and chemicals. AI-driven resource management systems optimize energy consumption, regulate process parameters, minimize material wastage, and improve water recycling, thereby reducing the environmental footprint of semiconductor manufacturing facilities. Intelligent scheduling and process optimization further contribute to sustainable and environmentally responsible production.

The integration of AI is also transforming the semiconductor workforce. While AI automates repetitive manufacturing and inspection tasks, it simultaneously creates demand for highly skilled professionals in artificial intelligence, data science, semiconductor process engineering, and advanced chip design. This transition requires continuous workforce up skilling and interdisciplinary education. However, many countries face challenges such as talent shortages and the migration of experienced semiconductor professionals to regions offering better research opportunities and compensation, a phenomenon commonly referred to as "brain drain."

Overall, Artificial Intelligence is reshaping every stage of the semiconductor ecosystem—from design and manufacturing to testing, supply chain management, and research. Its ability to improve productivity, accelerate innovation, enhance sustainability, and enable next-generation intelligent devices positions AI as a fundamental driver of future technological progress and economic growth

Dr. Rupali Agarwal
Associate Professor
Electronics & Communication Engineering

➢ STUDENT CORNER :

Robots and Drones in Modern Electronic and Communication Systems:-

Introduction:

Robots and drones have shifted from being futuristic concepts to becoming essential tools across industries. From precision agriculture and smart warehouses to disaster response, surveillance, transportation, and healthcare, these machines have become an extension of human capability. Their effectiveness depends heavily on the electronic systems that drive them and the communication networks that connect them.

Modern robots rely on sensors, microcontrollers, cameras, actuators, wireless modules, AI processors, and navigation systems to perform tasks accurately. Drones depend on similar components but add flight-control systems, GPS modules, and real-time communication links. Together, these systems allow robots and drones to sense their environment, make decisions, coordinate with each other, and carry out tasks autonomously or semi-autonomously.

The growth of high-speed wireless communication, low-latency networks, and advanced embedded electronics is what made today's generation of intelligent machines possible.

How Robots Work in Modern Digital Systems

1. Sensors and Perception - Robots gather information through cameras, LiDAR, ultrasonic sensors, IR sensors, force sensors, and environmental detectors. These inputs help them understand location, movement, obstacles, and tasks.

2. Control Systems - Microcontrollers and embedded processors convert sensor data into actions. Advanced robots use AI chips to recognize objects, plan movements, and learn from patterns.

3. Actuators and Motion - Motors, hydraulic units, and servo systems allow robots to move, lift, rotate, or grasp objects. Industrial robots rely on high-precision actuators for tasks like welding or assembly.

How Drones Operate

1. Flight Control System (FCS)- This is the "brain" that manages stability, altitude, acceleration, and orientation using gyroscopes, accelerometers, and magnetometers.

2. GPS and Navigation -Drones use GPS modules for route planning, autonomous flight paths, geofencing, and return-to-home capabilities.

3. Communication Links - Radio-frequency control, Wi-Fi, and 4G/5G networks allow live video streaming, telemetry monitoring, and remote piloting.

Applications of Robots

- Manufacturing and Automation: Assembly, welding, packaging, inspection.
- Healthcare: Surgical robots, rehabilitation devices, hospital logistics systems.
- Logistics & Warehousing: Picking, sorting, inventory management, autonomous guided vehicles (AGVs).

- Agriculture: Soil scanning, crop monitoring, automated harvesting.
- Household & Service: Cleaning robots, delivery robots, and customer service bots.
- Hazardous Environments: Bomb disposal, mining, nuclear inspection.

Applications of Drones

- Aerial Surveillance and Mapping: Border security, wildlife tracking, land surveys.
- Agriculture: Spraying, crop analysis, irrigation monitoring.
- Disaster Management: Search and rescue, damage assessment, supply delivery.
- Media and Film: Aerial cinematography, live broadcasting.
- Logistics: Parcel delivery and last-mile transportation.
- Environmental Monitoring: Air quality, deforestation tracking, ocean studies.

Challenges and Limitations

- Despite their capabilities, robots and drones come with practical constraints:
- Battery limitations reduce flight time and operation hours.
- Dependence on communication networks can cause failure in remote areas.
- High maintenance cost for sensors, motors, and electronics.
- Security risks including signal jamming, hacking, and data interception.
- Regulatory restrictions, especially for drones in populated or sensitive areas.
- Ethical concerns regarding privacy, job displacement, and autonomous decision-making.

Future Scope

1. Fully Autonomous Robots and Drones - With better AI and sensor fusion, machines will operate independently in warehouses, fields, and urban spaces with minimal human intervention.

2. Swarm Robotics and Drone Fleets - Groups of robots or drones communicating in real-time will perform large-scale tasks like rescue missions, synchronized mapping, and rapid delivery.

3. 5G and 6G-Enabled Machines - Ultra-low latency networks will allow real-time cloud processing, remote robotic surgeries, and near-instantaneous drone response.

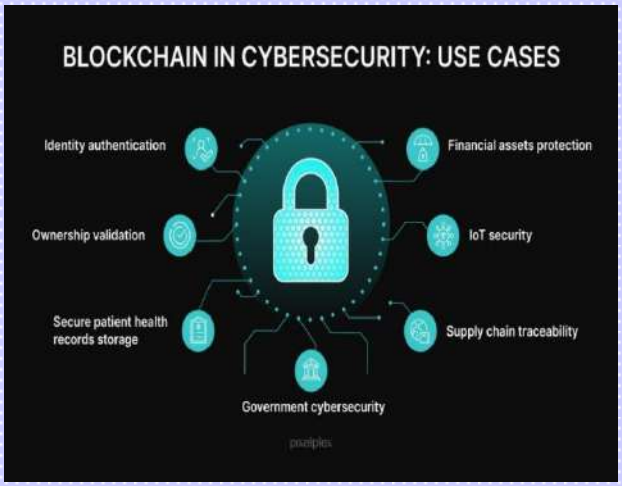
4. Human-Robot Collaboration (Cobots)- Safer and smarter designs will let robots work directly alongside humans without cages or barriers.

Conclusion

Robots and drones are no longer optional technologies — they're becoming essential parts of modern society. Their integration with advanced electronics, AI-driven control systems, and fast communication networks has transformed how industries operate. While technical, regulatory, and ethical challenges remain, the potential is enormous. The future points toward smarter, safer, and more connected robotic systems that work alongside humans, handle high-risk tasks, and increase efficiency across almost every field.

LAKSHAY RASTOGI
2400540310028
EC2

Blockchain and Cyber Security:



Introduction: In the digital age, data has become one of the most valuable assets for individuals, organizations, and governments. However, with the growing dependence on interconnected systems, the threat of cyber attacks has also increased significantly. Cyber security breaches can lead to massive financial losses, data theft, and erosion of public trust. As a result, there is a growing need for technologies that can enhance the security, integrity, and transparency of digital transactions. Among these emerging technologies, **blockchain** stands out as a promising solution to many cyber security challenges.

Understanding Blockchain Technology :

Blockchain is a **distributed ledger technology (DLT)** that records transactions across a decentralized network of computers. Each transaction is stored in a "block" that is cryptographically linked to the previous one, forming a chain of blocks — hence the name *blockchain*.

Once a block is added to the chain, it becomes nearly impossible to alter without changing all subsequent blocks, making the system highly tamper-resistant.

Unlike traditional databases controlled by a central authority, blockchain operates on a **peer-to-peer network**, where each participant maintains a copy of the ledger. This decentralized structure eliminates single points of failure and ensures data transparency and resilience against attacks.

Blockchain's Role in Enhancing Cyber security :

Blockchain technology offers several features that can strengthen cyber security systems across different sectors:

1. **Data Integrity and Immutability:** Every transaction on a blockchain is cryptographically secured and time-stamped. Once recorded, it cannot be altered without consensus from the network. This ensures data integrity and protects against unauthorized modifications, a common issue in traditional databases.
2. **Decentralization and Reduced Single Points of Failure:** In conventional systems, cybercriminals often target centralized servers to steal or manipulate data. Blockchain's decentralized structure makes such attacks significantly harder, as compromising a distributed ledger would require controlling the majority of the network nodes simultaneously.
3. **Secure Identity Management:** Blockchain can revolutionize digital identity verification through **self-sovereign identity systems**, where users control their own data instead of relying on centralized authorities. This reduces risks of identity theft and data breaches, which are common in current online systems.

4. **Enhanced Authentication and Encryption:** Blockchain networks use advanced cryptographic algorithms for data authentication and verification. These mechanisms prevent unauthorized access and ensure that only legitimate participants can perform transactions.
5. **Supply Chain and IoT Security:** In supply chain management, blockchain ensures product authenticity and traceability, minimizing the risk of counterfeit goods. Similarly, in the Internet of Things (IoT), blockchain can secure communication between devices by providing decentralized trust mechanisms and preventing unauthorized data manipulation.

Applications and Case Studies:

Several industries are already leveraging blockchain to improve cyber security. For example, **financial institutions** use blockchain for secure digital payments and fraud prevention. **Healthcare organizations** adopt blockchain to protect sensitive patient data and ensure secure sharing of medical records. **Government agencies** explore blockchain for securing voting systems, land registries, and public records, reducing risks of corruption and tampering.

A notable example is **Estonia**, which has integrated blockchain into its national digital identity system, allowing citizens to securely access e-government services. Similarly, companies like **IBM** and **Microsoft** are developing blockchain-based cyber security frameworks to enhance enterprise data protection.

Challenges and Limitations:

Despite its advantages, blockchain is not a complete solution to cyber security issues. It faces several challenges:

- **Scalability:** Public blockchains can be slow and energy-intensive, making them less suitable for high-volume applications.
- **Regulatory and Legal Issues:** The absence of uniform global standards for blockchain use creates uncertainty around data privacy and compliance.
- **Smart Contract Vulnerabilities:** Bugs or flaws in smart contract code can lead to security breaches, as seen in several high-profile crypto currency hacks.
- **Integration Difficulties:** Implementing blockchain within existing IT infrastructure can be complex and costly.

Future Prospects

As research and development continue, blockchain is expected to evolve into a key pillar of cyber security. Innovations like **quantum-resistant encryption**, **hybrid blockchain models**, and **AI-integrated security systems** are likely to make blockchain even more robust and adaptable. In the coming years, the convergence of blockchain, artificial intelligence, and the Internet of Things will redefine how organizations approach data protection and digital trust.

Conclusion

Blockchain technology represents a transformative approach to cyber security. By leveraging decentralization, cryptography, and transparency, it addresses some of the most pressing challenges in data protection today. While it is not without its limitations, blockchain's potential to create more secure, trustworthy, and resilient digital systems is undeniable.

MEHUL PURI
2400540310030
EC2

❖ The Blackwell Era: How NVIDIA's Silicon Sovereignty Redefines Humanity's Computing Horizon

Introduction: The Apex of Human Engineering

Every so often, humanity builds something that shifts the boundaries of what we thought was possible. NVIDIA's Blackwell architecture—anchored by the B200 GPU and the integrated GB200 Grace Blackwell Superchip—is exactly that kind of milestone. This system packs an astonishing 208 billion transistors onto a single, split-die design. It isn't just a traditional piece of computer hardware; it is one of the most intricate and powerful physical tools our species has ever engineered.

By engineering a blindingly fast 10 TB/s communication link between its internal components, Blackwell elegantly connects subatomic physics with tangible, real-world usefulness. For the massive AI models shaping our future, it delivers up to 30 times the performance of the older Hopper chips while drastically cutting down on electricity usage. Blackwell pushes up against the hard physical limits of how tightly we can pack circuits, serving as the heavy-duty engine for the next chapter of human progress.

BLACKWELL CORE	NVLINK LANES	THE AI FACTORY	HUMAN LIMITLESS
208B Transistors	10 TB/s Link	30x Scaling Perf	Unlocking Horizons

Figure : Simplified Pipeline mapping Silicon Innovation to Global Human Impact.

Catalyzing the Industrial, Quantum, and AI Paradigms

Artificial Intelligence: Before Blackwell, training massive, multi-trillion parameter AI models required vast warehouses of hardware that strained power grids. Blackwell completely shifts this dynamic via a second-generation Transformer Engine. By processing information with hyper-efficient 4-bit precision, it cuts down compute barriers—allowing models to learn rapidly while keeping operational and environmental costs beautifully manageable.

Quantum Simulation: True, error-free quantum computers are still a work in progress, but Blackwell builds a vital bridge to that future right now. Using optimized software frameworks like cuQuantum, it simulates complex quantum behavior on classical silicon with incredible accuracy. This allows researchers to model intricate chemical reactions and subatomic systems that used to require physical quantum machines.

Architectural Metric	Performance Leap (Blackwell Transistor vs. Hopper)
Density	208 Billion Transistors (Dual-Die) vs. 80 Billion (Hopper)
AI Inference Leap	Up to a 30x Performance Boost for massive language models
Interconnect Speed	1.8 TB/s bidirectional high-speed data lanes per GPU
Energy Conservation	Uses up to 25x less power than H100 to process the exact same work

Breaking Biological and Computational Limits

Humanity's story has always been a quest to process our world faster—moving past our biological memory constraints and our rigid, slow tools. Blackwell breaks right through those ceilings. When tens of thousands of these processors are linked into liquid-cooled, factory-scale clusters, they effectively build a shared external brain. This engine handles massive streams of multi-modal data—text, video, and sensory arrays—all at once.

In the real world, this unlocks tasks that sound like science fiction: mapping out life-saving protein structures in seconds rather than decades, predicting volatile weather patterns down to specific neighborhoods, and calculating deep-space paths for exploration. It shifts our role from passive onlookers to active creators of our physical reality.

A Visionary Leap Into the Future

The true magic of Blackwell isn't hidden in its raw engineering numbers; it is found in the everyday independence it grants to global systems. By bringing down the massive financial and thermal costs of computing power, NVIDIA is making intelligence affordable and sustainable everywhere. We are moving quickly toward a world where silent, helpful computing works constantly behind the scenes—powering self-adjusting green energy grids, predicting ecological issues, and personalizing medicine specifically for your body.

Conclusion: The Blueprint of Tomorrow

NVIDIA's Blackwell architecture is far more than just a premium upgrade for server racks; it is the concrete foundation upon which the next stage of human potential will stand. By blending raw computational muscle with elegant energy efficiency, it makes the theoretical promises of artificial general intelligence and deep-scale simulation functional realities. As these processors ship out to data centers across the globe, they will reshape our industries, our economies, and our wildest dreams—proving that our limits are no longer set by our biology, but by the heights of the silicon we build.

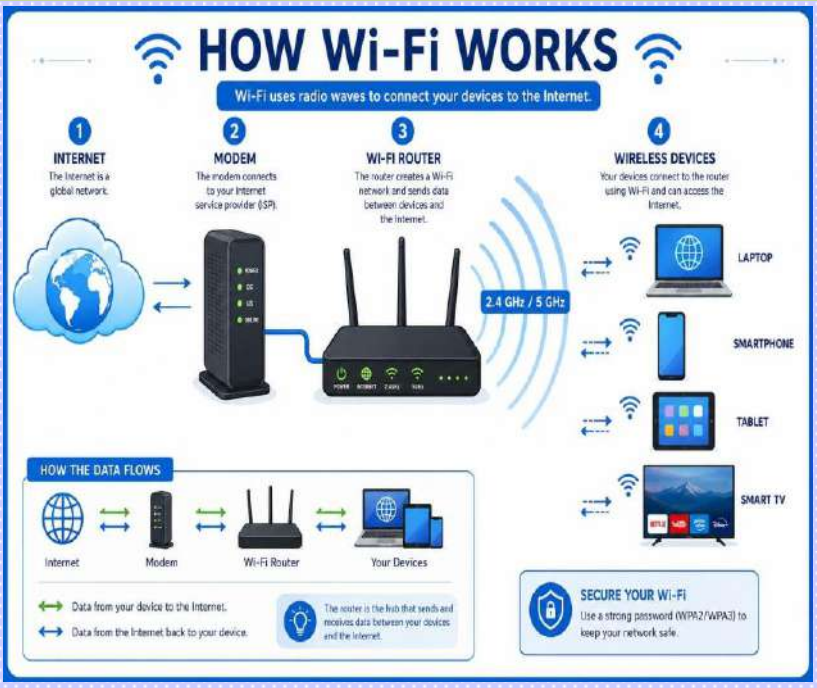
GEETAM SHARMA
2300540310020
EC3

• WI-FI Technology:

Introduction: *Wi-Fi is a wireless networking technology that enables electronic devices such as smart phones, laptops, tablets, smart televisions, printers, and Internet of Things (IOT) devices to connect to a local network and the internet without the need for physical cables.*

It is based on the IEEE 802.11 family of standards and operates by transmitting data through radio waves, primarily in the 2.4 GHz, 5 GHz, and 6 GHz frequency bands. A typical Wi-Fi network consists of a modem, which receives the internet connection from an Internet Service Provider (ISP), and a wireless router or access point, which broadcasts radio signals that nearby devices can detect and use to communicate. Each Wi-Fi network is identified by a unique Service Set Identifier (SSID), commonly known as the network name.

HOW IT WORKS ?:



- The Request: Your device (like your phone) translates data into a radio signal and sends it via its internal antenna.
- The Router: A wireless router receives that signal, decodes it, and sends the information to the internet via a physical wired connection (like a fiber optic or cable line).
- The Return: The router receives the requested data from the internet, translates it back into a radio signal, and beams it back to your phone.

FUTURE OF WI-FI:-

The future of Wi-Fi is focused on higher speeds, lower latency, better reliability in crowded environments, and closer integration with other wireless technologies. While today's networks are widely using Wi-Fi 6 and Wi-Fi 6E, the next decade will bring significant improvements.

- **Wi-Fi 7 features:**
- Faster and More Responsive
- Wi-Fi 7 is the newest generation of Wi-Fi and offers:
- Peak theoretical speeds above 40 Gbps.
- Lower latency, making it better for cloud gaming, virtual reality, and video conferencing.
- Simultaneous use of multiple frequency bands (Multi-Link Operation), improving both speed and reliability.
- Better performance in homes, offices, and stadiums with many connected devices.
- In practice, most users will notice smoother performance rather than reaching the maximum advertised speeds.

Toward Wi-Fi 8

- Research and standardization for Wi-Fi 8 are underway. Rather than dramatically increasing top speeds, it is expected to focus on:
- More consistent performance.
- Higher reliability in congested environments.
- Better support for real-time applications such as augmented reality, industrial automation, and robotics.
- Improved power efficiency.

SIDRA FATIMA
2400540310047
EC2

CONGARULATIONS

Testimonial: "*I would like to express my heartfelt gratitude to the Department of Electronics & Communication Engineering and all my teachers for their constant guidance and support throughout my academic journey. Thank you for believing in me, encouraging me, and helping me grow. I will always cherish everything I have learned here."*

With regards- Sayyed Sania (2200540310040)

Student Achievement:

- **Gate qualified :** Satyam Tiwari (AKTU Roll No: 2300540310039)

GRADUATE APTITUDE TEST IN ENGINEERING 2026
अभियांत्रिकी स्नातक अभिक्षमता परीक्षा 2026
Organizing Institute : INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SCORE CARD

GATE 2026 IIT GUWAHATI

Name of the Candidate: SATYAM TIWARI
Name of the Parent/Guardian: DINESH KUMAR TIWARI
Registration Number: EC26S75024194
Date of Birth: July 7, 2005
Test Paper: Electronics and Communication Engineering (EC)
Date of Examination: February 15, 2026
GATE Score: 369
Marks out of 100: 28.0
All India Rank (AIR) in the test paper: 11938
Number of candidates appeared for the test paper : 95752
Qualifying Marks
General: 26.4
EWS/OBC-NCL: 23.7
SC/ST/PwD: 17.5

A candidate is considered qualified if the marks secured are greater than or equal to the qualifying marks mentioned for the category, for which a valid category certificate, if applicable, must be produced along with this scorecard

This Score Card is valid up to 31st March 2029

Prof. Manabendra Sarma
Organizing Chairperson, GATE 2026
On behalf of NCB-GATE, Ministry of Education

- **Utkarsh :** Winners of Utkarsh'25 Technical Events, ECE Branch, BBDITM

ROBO LINE FOLLOWER EVENT WINNER

- Winner of Street Dance Event, ECE Branch, BBDITM

CONGARULATIONS

Congratulations to following students for their exceptional performance in end semester exam ***Dr. APJ Abdul Kalam Technical University*** *Examination,* ***Odd Semester 2025-26***

YEAR	UNIVERSITY ROLL NO.	STUDENT NAME	III SEM SGPA
EC 2nd Year	2400540310047	SIDRA FATIMA	8.92
	2400540310021	AYUSH SRIVASTAVA	8.64
	2400540310013	ANSHIKA TIWARI	7.88
	2400540310028	LAKSHYA RASTOGI	7.64
	2400540310037	RAGHAV AWASTHI	7.64

YEAR	UNIVERSITY ROLL NO.	STUDENT NAME	III SEM SGPA
EC 3rd Year	2300540310020	GEETAM SHARMA	8.48
	2300540310036	SANJAY GUPTA	8.22
	2300540310056	VARTIKA SINGH	7.78
	2300540310037	SANSKRITI MISHRA	7.65
	2300540310034	SADHANA SAHANI	7.39

YEAR	UNIVERSITY ROLL NO.	STUDENT NAME	III SEM SGPA
EC 4th Year	2200540310040	SAYYED SANIA	9.53
	2200540310012	APARNA TIWARI	9.37
	2200540310021	JAYSHRI YADAV	9.37
	2200540310026	NIHARIKA ANAND	9.37
	2300540319002	NIDHI AGRAHARI	8.95

➢ FDP attended / Patent / Research Paper published by faculty members-

Prof. (Dr.) Shailendra Tahilyani
Professor & HOD
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Rendered Valuable services as Convenor and participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

[3] Participated in Two week **FDP** on topic "Research Methodology for Commerce & Management" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre (MH-MMTTC), Hansraj College, University of Delhi in collaboration with Dr. Akhilesh Das Gupta Institute of Professional Studies during 16 Dec 2025-03 Jan 2026.

[4] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

Dr. Rupali Agarwal
Associate Professor
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized as Coordinator and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM, Lucknow during 08 -12 Dec 2025.

[4] Participated in one week **FDP** on topic "Modern Web Development & AI Integration" organized by Next Gen Employability Program during 15 -19 Dec 2025.

[5] Participated in one week **FDP** on topic "Generative & Agentic AI – Tools & Demo" organized by Department of CSE, Sardar Vallabhbhai National Institute of Technology technically Co-sponsored by IEEE-Gujarat Section & partnered with Pantech Solutions (India) Pvt., Ltd. during 16-21 Feb 2026.

[6] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

Achievements

- Awarded with **NPTEL** Topper Elite certificate for Digital System Design 12 week course (Jan-April'26).

Mr. Pankaj Verma
Assistant Professor
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM, Lucknow during 08 -12 Dec 2025.

[4] Participated in one week **FDP** on topic "Modern Web Development & AI Integration" organized by Next Gen Employability Program during 15 -19 Dec 2025.

[5] Participated in one week **FDP** on topic "Generative & Agentic AI – Tools & Demo" organized by Department of CSE, Sardar Vallabhbhai National Institute of Technology technically Co-sponsored by IEEE- Gujarat Section & partnered with Pantech Solutions (India) Pvt., Ltd. during 16-21 Feb 2026.

[6] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[7] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

[8] Participated in one week **FDP** on topic "Disruptive Technologies" organized by Department of Electronics and Communication Engineering, Panimalar Engineering College during 22 -27 June 2026.

Mr. Amit Kumar Singh
Assistant Professor
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

[4] Participated in one week **FDP** on topic "Modern Web Development & AI Integration" organized by Next Gen Employability Program during 15 -19 Dec 2025.

[5] Participated in one week **FDP** on topic "Generative & Agentic AI – Tools & Demo" organized by Department of CSE, Sardar Vallabhbhai National Institute of Technology technically Co-sponsored by IEEE- Gujarat Section & partnered with Pantech Solutions (India) Pvt., Ltd. during 16-21 Feb 2026.

[6] Participated in the six-day online FDP on "Digital VLSI Design Using Industry Standard EDA Tools" organized by Department of Electronics and Communication Engineering at Vel Tech Multi Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Avadi, Chennai, during 09 to 14 March 2026.

[7] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[8] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

[9] Participated in one week **FDP** on topic "Disruptive Technologies" organized by Department of Electronics and Communication Engineering, Panimalar Engineering College during 22 -27 June 2026.

Dr. Abhimanyu Kumar Yadav
Associate Professor & DI
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[2] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

[3] Participated in one week **FDP** on topic "Modern Web Development & AI Integration" organized by Next Gen Employability Program during 15 -19 Dec 2025.

[4] Participated in one week **FDP** on topic "Generative & Agentic AI – Tools & Demo" organized by Department of CSE, Sardar Vallabhbhai National Institute of Technology technically Co-sponsored by IEEE- Gujarat Section & partnered with Pantech Solutions (India) Pvt., Ltd. during 16-21 Feb 2026.

[5] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[6] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

[7] Participated in one week **FDP** on topic "Disruptive Technologies" organized by Department of Electronics and Communication Engineering, Panimalar Engineering College during 22 -27 June 2026.

Mr .Navneet Kumar Pandey
Assistant Professor
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

[4] Participated in one week **FDP** on topic "Modern Web Development & AI Integration" organized by Next Gen Employability Program during 15 -19 Dec 2025.

[5] Participated in one week **FDP** on topic "Generative & Agentic AI – Tools & Demo" organized by Department of CSE, Sardar Vallabhbhai National Institute of Technology technically Co-sponsored by IEEE- Gujarat Section & partnered with Pantech Solutions (India) Pvt., Ltd. during 16-21 Feb 2026.

[6] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[7] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

[8] Participated in one week **FDP** on topic "Disruptive Technologies" organized by Department of Electronics and Communication Engineering, Panimalar Engineering College during 22 -27 June 2026.

Achievements

- Awarded with Letter of Appreciation for his innovative teaching skills and excellent performance academic session 2025-26 (Odd Semester).

Mr. Diwakar Singh
Assistant Professor
Electronics & Communication Engineering

Events Attended / Achievements -

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

[4] Participated in one week **FDP** on topic "Modern Web Development & AI Integration" organized by Next Gen Employability Program during 15 -19 Dec 2025.

[5] Published a **Patent** on topic "Fast Charging Pole using Wind and Solar Energy" having design number 463549-001 in the Patent Office, Government of India during 26th June 2025.

[6] Participated in one week **FDP** on topic "Generative & Agentic AI – Tools & Demo" organized by Department of CSE, Sardar Vallabhbhai National Institute of Technology technically Co-sponsored by IEEE- Gujarat Section & partnered with Pantech Solutions (India) Pvt., Ltd. during 16-21 Feb 2026.

[7] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[8] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

[9] Participated in one week **FDP** on topic "Disruptive Technologies" organized by Department of Electronics and Communication Engineering, Panimalar Engineering College during 22 -27 June 2026.

Mr. Ravi Shankar
Assistant Professor
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

[4] Participated in one week **FDP** on topic "Modern Web Development & AI Integration" organized by Next Gen Employability Program during 15 -19 Dec 2025.

[5] Participated in one week **FDP** on topic "Generative & Agentic AI – Tools & Demo" organized by Department of CSE, Sardar Vallabhbhai National Institute of Technology technically Co-sponsored by IEEE- Gujarat Section & partnered with Pantech Solutions (India) Pvt., Ltd. during 16-21 Feb 2026.

[6] Participated in the six-day online FDP on "Digital VLSI Design Using Industry Standard EDA Tools" organized by Department of Electronics and Communication Engineering at Vel Tech Multi Tech Dr. Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai, during 09 to 14 March 2026.

[7] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[8] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

[9] Participated in one week **FDP** on topic "Disruptive Technologies" organized by Department of Electronics and Communication Engineering, Panimalar Engineering College during 22 -27 June 2026.

Mr. Kishan Kumar
Assistant Professor
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

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[7] Participated in the six-day online FDP on "Digital VLSI Design Using Industry Standard EDA Tools" organized by Department of Electronics and Communication Engineering at Vel Tech Multi Tech Dr. Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai, during 09 to 14 March 2026.

[8] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[9] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

[10] Participated in one week **FDP** on topic "Disruptive Technologies" organized by Department of Electronics and Communication Engineering, Panimalar Engineering College during 22 -27 June 2026.

Ms. Keerti Mishra
Assistant Professor
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

[4] Participated in one week **FDP** on topic "Modern Web Development & AI Integration" organized by Next Gen Employability Program during 15 -19 Dec 2025.

[5] Participated in one week **FDP** on topic "Generative & Agentic AI – Tools & Demo" organized by Department of CSE, Sardar Vallabhbhai National Institute of Technology technically Co-sponsored by IEEE- Gujarat Section & partnered with Pantech Solutions (India) Pvt., Ltd. during 16-21 Feb 2026.

[6] Participated in the six-day online FDP on "Digital VLSI Design Using Industry Standard EDA Tools" organized by Department of Electronics and Communication Engineering at Vel Tech Multi Tech Dr. Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai, during 09 to 14 March 2026.

[7] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[8] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

[9] Participated in one week **FDP** on topic "Disruptive Technologies" organized by Department of Electronics and Communication Engineering, Panimalar Engineering College during 22 -27 June 2026.

Mr. Rajeev Singh
Assistant Professor & DI
Electronics & Communication Engineering

Events Attended / Organized:

[1] Participated in two week **Online Training Programme** on topic "NEP 2020 Orientation and Sensitization Programme" organized by Mahatma Hansraj Malaviya Mission Teacher Training Centre, Hansraj College, University of Delhi in collaboration with Babu Banarasi Das Institute of Technology and Management, Lucknow during 04-14 August 2025.

[2] Participated in one week **FDP** on topic "Advances in Augmented & Virtual Reality and Blockchain Technologies" organized by Department of CSE (IoT and Cyber Security including Blockchain Technology), Bansilal Ramnath Agarwal Charitable Trust: Vishwakarma Institute of Technology, Pune during 29 Sep -04 Oct 2025.

[3] Organized and Participated in one week **FDP** on topic "Advanced Computing and Sustainable Technologies" organized by Department of ECE in association with IETE & Force, BBDITM Lucknow during 08 -12 Dec 2025.

[4] Participated in one week **FDP** on topic "Digital Transformation, AI Integration and E Governanace in Higher Education" organized by AIU- AADC and Poornima University during 04-08 May 2026.

[5] Participated in Two week **FDP** on topic "Underwater Robotics and Acoustic Communication Networks (URACN-2026)" organized by NIT Jamshedpur in collaboration with E&ICT Academy NIT Patna during 25 May-05 June 2026.

➢ RESEARCH PAPER PUBLISHEH BY FINAL YEAR STUDENTS (SESSION 2025-26)

S. No.	University Roll No.	Name of Student	Project Guide	Title of Paper	Name of Journal
1.	2200540310037	SAGAR DHAR DWIVEDI	Dr. Shailendra Tahilyani	Home Guard AI Smart Home with Gesture Control for Handicapped	International Journal for Multidisciplinary Research (IJFMR)
2.	2200540310002	ABHIJEET SHARMA			
3.	2200540310045	SRISHTI SHUKLA			
4.	2200540310034	RAJ KUMAR SINGH			
5.	2200540310047	TARUN TIWARI	Dr. Shailendra Tahilyani	PREPAID CAR PARKING SYSTEM	International Journal of Sciences and Innovation Engineering
6.	2200540310006	AMAAN HASHMI KHAN			
7.	2200540310030	PRANSHU SINGH			
8.	2200540310024	MOHAMMAD EHTISHAAM			
9.	2200540310010	ANSHIKA MISHRA	Mr. Kishan Kumar	AUTOMATIC POWER FACTOR DETETCION & CORRECTION USING ARDUINO	International Research Journal of Modernization in Engineering Technology and Science
10.	2200540310001	ABDUL MATEEN SHAH			
11.	2200540310049	UPENDRA KUMAR			
12.	2200540310007	AMRENDRA SINGH GAUTAM			
13.	2200540310012	APARNA TIWARI	Mr. Diwakar Singh	SIGN LANGUAGE GLOVE: A LOW-COSTWEARABLE SYSTEM FOR REAL-TIME GESTURE-TO-VOICE CONVERSION	Journal of Emerging Technologies and Innovative Research
14.	2200540310026	NIHARIKA ANAND			
15.	2200540310033	RAGHAV SARAN SHANKHDAR			
16.	2200540310040	SAYYED SANIA			

S. No.	University Roll No.	Name of Student	Project Guide	Title of Paper	Name of Journal
17.	2200540310013	ARUNANSH MISHRA	Mr. Ravi Shankar	ARDUINO-BASED SMART ROVER WITH WIFI SURVEILLANCE AND CLEANING SYSTEM	International Research Journal of Modernization in Engineering Technology and Science
18.	2200540310027	NITYAM MISHRA			
19.	2200540310028	OMANSH TEWARI			
20.	2200540310021	JAYSHRI YADAV			
21.	2200540310029	PIYUSH VIKRAM SRIVASTAVA	Dr. Abhimanyu Kumar Yadav	Ventilator with Blood Oxygen Sensing System	International Journal of Sciences and Innovation Engineering
22.	2200540310005	AJAY MAURYA			
23.	2200540310043	SHOAIB KHAN			
24.	2200540310048	TEJASVA PANDEY			
25.	2200540310039	SATYENDRA KUMAR TRIPATHI	Ms. Keerti Mishra	Smart Traffic Management System using Artificial Intelligence	International Journal of Sciences and Innovation Engineering
26.	2200540310032	PUSHKAR TIWARI			
27.	2200540310041	SHIVA KANT CHAURASIYA			
28.	2200540310014	ATISH KUMAR			
29.	2300540319004	SANJAY KUMAR	Mr. Pankaj Verma	SELF-DRIVING CAR WITH IOT-BASED CONTROL SYSTEM	Journal of Emerging Technologies and Innovative Research
30.	2300540319001	ADARSH SINGH			
31.	2300540319002	NIDHI AGRAHARI			
32.	2200540310004	ADITYA KUMAR YADAV	Mr. Rajeev Singh	Contactless Switch for Homes and Offices Using Arduino and IR Sensors	International Journal Of Innovative Research In Technology
33.	2200540310019	HRITIK YADAV			
34.	2200540310025	MOHD DANISH KHAN			
35.	2200540310052	YASH SINGH			

S. No.	University Roll No.	Name of Student	Project Guide	Title of Paper	Name of Journal
36.	2200540310023	MOHAMMAD ADIL	Mr. Amit Singh	SMART ENERGY METER	Journal of Emerging Technologies and Innovative Research
37.	2200540310003	ABHISHEK ANJAN			
38.	2200540310036	ROHIT KUMAR PATEL	Mr. Navneet Kumar Pandey	COMPARATIVE ANALYSIS OF BREAST CANCER DETECTION USING ML BASED ALGORITHMS	Journal of Emerging Technologies and Innovative Research
39.	2200540310018	GAURAV UPADHYAY			
40.	2200540310015	AYUSHI SRIVASTAVA			
41.	2200540310038	SAKSHI DIXIT			
42.	2200540310046	SUYASH	Dr. Abhimanyu Kumar Yadav	WATER QUALITY MONITORING RC BOAT	International Journal Advanced Research Publications
43.	2200540310017	CHINMAY CHAKRAVORTY			
44.	2200540310009	ANOOP MISHRA			
45.	2200540310051	VAISHNAVI SHARMA			

REACH US

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