UDGHOSH

The Voice of ECE Department
(NBA Accredited)

March 2024 – August 2024
VOL-9 Issue-6 ,7 & 8

Vision & Mission

Vision: To develop the Department into a full-fledged Center of learning in various field of Electronics and Communication Engineering keeping in view the latest development in world.

Mission

Mission 1: To educate the students in Contemporary Technologies in Electronics and Communication Engineering.

Mission 2: To educate the students in Electronics and Communication Engineering to meet the Industrial needs.

Mission 3: To educate the students in Electronics and Communicaiton Engineering to meet the Societal needs.

EDITORIAL TEAM:

Patrons:

Shri Dinesh Kumar Goel

Mr. Akshat Goel

Dr. Laxman Prasad

Dr. D.K. Chauhan

Dr. B.C. Sharma

Dr. R.K. Yadav

Faculty Members:

Dr. Sharmila

Ms. Richa Gupta

Student Members:

Anuradha Pandey

Luckey Sharma

Department Activities

"Emotional Intelligence through Vedas" Organized by AECE Society

Department of ECE's AECE Society hosted a session titled "Emotional Intelligence through Vedas" on April 18, 2024, attended by around 150 students, faculty, and department leaders. Ms. Priya Arya shared insights on harnessing Vedic wisdom for inner strength and purpose, encouraging students to connect with ancient teachings for personal growth. The session highlighted the importance of each person's connection to a greater force, inspiring a vision of Bharat as a global leader. The event concluded with a token of appreciation for Ms. Arya Ji, leaving attendees with practical lessons on emotional resilience.

Technical Talk on "VLSI Insights to Help Build the Future

Department of ECE held a Technical Talk on May 14, 2024, titled "VLSI Insights to Help Build the Future," featuring

Mr. Pranjal Sharma, CEO of VLSI Insights. He shared India's semiconductor industry potential, global trends, and career opportunities, emphasizing advanced education and innovation. An engaging Q&A allowed students to seek guidance on engineering applications and skill development. The event concluded with a vote of thanks and a memento, inspiring attendees about future career prospects in the field.

Alumni Expert Session on Current Corporate Scenario and Responsibilities

On March 15, 2024, the Department of ECE organized an Alumni Expert Session featuring Mr. Manoj Kumar, a 2004 alumnus and Asset Manager at Ericsson India Global Services. He shared his professional journey, offering insights into industry challenges, career opportunities, and essential skills for growth. The session concluded with a memento presentation and a vote of thanks by Prof. R.K. Yadav.

"Skillset Required Becoming Industry-Ready" - Mr.Shyam Narayan Gupta (2017)

On April 4, 2024, the Department of ECE organized an Alumni Expert Session on "Skillset Required to Become Industry-Ready," featuring Mr. Shyam Narayan Gupta, a 2017 alumnus and technical leader at ST Microelectronics. He

shared insights on semiconductor technology trends, career growth opportunities, and essential skills for success in the sector. The session, attended by 50 students and faculty, concluded with an interactive Q&A and a vote of thanks by Prof. R.K. Yadav.

Ghaziabad, Uttar Pradesh, India
PC2R+CP8, Raj Nagar Extension, Ghaziabad, Uttar Pradesh 201017, India
Lat 28.70121°
Long 77.44164°
04/04/24 02:20 PM GMT +05:30

Skill Alumni Expert Session on "Job Opportunities and Future Scope of Semiconductor Industries in India" by Mr.Shubam Chauhan

Department of ECE's AECE Society hosted an Alumni Expert Session on April 1, 2024, featuring Mr. Shubam Chauhan from Cadence Design Systems, who discussed job opportunities in India's semiconductor industry. He shared VLSI insights, placement preparation tips, and recommended online learning platforms. Prof. R.K. Yadav stressed the importance of core ECE skills, while nearly 100 students gained valuable career guidance.

Ghaziabad, Uttar Pradesh, India
PC2R+CP8, Raj Nagar Extension, Ghaziabad, Uttar Pradesh 201017, India
Lat 28.701079°
Long 77.441603°
01/04/24 12:18 PM GMT +05:30

Industrial Visit

Industrial Visit to Yakult Danone India Pvt. Ltd.

Department of ECE organized an industrial visit for 25 third-year students to Yakult Danone India Pvt. Ltd. on 18th March 2024, providing insights into the production of probiotic drinks. Students engaged with Ms. Swati Yadav, Senior Assistant Manager – QA, and explored IoT applications in industrial processes like water level control and air quality measurement. This visit enriched students' practical understanding of sensor technology and IoT applications in the food industry.

Sonipat, Haryana, India
W3PP+FXJ, Sector 38, Sonipat, Rai, Haryana 131029, India
Lat 28.936409°
Long 77.087224°
18/03/24 12:13 PM GMT +05:30

" Industrial Visit to "SEMICON India 2024," India Expo Mart, Greater Noida

- Department of ECE organized an industrial visit to "SEMICON India 2024" at India Expo Mart, Greater Noida, on September 12, 2024, for 36 students to explore advancements in electronic components. The visit provided insights into manufacturing processes, PCB integration, and semiconductor technologies. Students gained practical knowledge of hardware implementation and the latest

innovations in Electronics Engineering. Feedback highlighted the visit's role in bridging the gap between academic theory and industry practices. Dr. R K Yadav served as a **Session Chair** at the I3CEET-2024 conference, organized by Galgotias College of Engineering & Technology, from September 20 to 21, 2024. Dr. R K Yadav also served as a Reviewer at the I3CEET-2024 conference, organized by Galgotias College of Engineering & Technology, from September 20 to 21, 2024.

Faculty Interaction with Outside World

- Dr. R K Yadav served as an Examiner for a Viva Voce at IIT Dhanbad on October 14, 2024.
- Dr. R K Yadav served as an External Referee for a Viva Voce at Savitribai Phule Pune University on September 26, 2024.
- Dr. Sharmila served as a Session Chair at the conference on Emergent Converging Technologies and Biomedical Systems (ETBS 2024), organized by Sanjivani College of Engineering, Maharashtra, from April 27 to 29, 2024.
- Mr. Nitish Vashishth served as a Reviewer at the I3CEET-2024 conference, organized by Galgotias College of Engineering & Technology, from September 20 to 21, 2024.

Faculty & Student Research Paper Publication

1. Charu Tyagi, "Water pollution monitoring boat using IOT," *Journal of Novel Research and Innovative Development*, vol. 2, no. 5, May 2024. ISSN: 2984-8687.
2. Deepak Kumar and Nitish Vashishth, "Fruit recognition and its calorie measurement using convolutional neural network (CNN)," *International Journal of Research Publications And Reviews*, vol. 5, no. 5, May 2024.
3. Divya, Neha Goel, Sharmila, Hashmat Usmani, and R. K. Yadav, "Sense Amplifier Performance in 180nm Technology: A Comparative Analysis of Voltage-Mode and Current-Mode," in *Proc. i3ceet Conference*, Galgotias College of Engineering & Technology, Sep. 2024. ISBN: 979-8-3315-4156-9.
4. Madhu Verma and Divya, "Mobile detection system in Examination hall," *Industrial Engineering Journal*, vol. 53, no. 5, pp. 13280-13283, May 2024. ISSN: 0970-2555.
5. Neha Goel and Nitish Vashishth, "A Review on Bomb Displacing Robot With Wireless Video Camera," *Industrial Engineering Journal*, vol. 53, no. 5, May 2024. ISSN: 0970-2555.
6. Priyanka Tyagi, and Sharmila "Exploring FinFET and GNRFET with a Study of Full Adder Circuit Design," *Nanotechnology Perceptions*, vol. 20, no. S10, pp. 1-2, Sep. 2024. DOI: https://doi.org/10.62441/nano-ntp.v20iS10.49.
7. Puneet Chandra Srivastava and Robin Abraham, "Real Time Temperature Detection using Open-Cv," *International Journal of Research Publications And Reviews*, vol. 5, no. 6, pp. 49-52, May 2024. ISSN: 2582-7421.
8. R. K. Yadav and Anuj Kumar, "Anti sleep detection system," *International Journal of Research and Analytical Reviews*, vol. 5, no. 5, pp. 1191-1196, 2024.
9. R. K. Yadav, "A review on photonic-assisted dual-chirp microwave waveform generation methods," *Microwave and Optical Technology Letters*, vol. 66, no. 7, pp. 1-7, Jul. 2024. DOI: https://doi.org/10.1002/mop.34266.
10. R. K. Yadav, "Anomaly Detection in Medical Images Using Deep Reinforcement Learning," in *Proc. 2nd IEEE International Conference on Disruptive Technologies (ICDT-2024)*, Mar. 2024, pp. 506-512. DOI: https://doi.org/10.1109/ICDT61202.2024.10489274.

11. Richa Gupta, "Solar based Mobile power filler with wireless connectivity using Arduino uno," *TIJER - International Research Journal*, vol. 11, no. 5, May 2024. ISSN: 2349-9249.

12. Robin Abraham, "Blind shoes using ultrasonic sensor," *TIJER - International Research Journal*, vol. 11, no. 5, May 2024. ISSN: 2349-9249.

13. Robin Abraham, "Ultra-scalable ensemble clustering with simulated annealing based coot bird routing protocol for WSN," *International Journal of Communication Networks and Distributed Systems*, vol. 30, no. 5, pp. 523-549, Aug. 2024. DOI: 10.1504/IJCNDS.2024.140677.

14. Sharmila and R. K. Yadav, "Humerus Bone Fracture Detection Utilizing YOLOv4 Algorithm: A Deep Learning Approach," in *Proc. 2nd IEEE International Conference on Disruptive Technologies (ICDT-2024)*, Mar. 2024, pp. 1191-1196. DOI: https://doi.org/10.1109/ICDT61202.2024.10489429.

15. Sharmila, "AI-Enhanced Dyscalculia Screening: A Survey of Methods and Applications for Children," *Diagnostics*, vol. 14, no. 13, pp. 1-13, Jul. 2024. DOI: https://doi.org/10.3390/diagnostics14131441.

16. Sharmila, "Design and Implementation of Energy-Efficient Protocols for Underwater Wireless Sensor Networks," *ETBS 2024*, Apr. 2024.

17. Sharmila, "Enhancing IoT Ecosystems with Adaptive Wireless Sensor Networks: Challenges and Solutions," *ETBS 2024*, Apr. 2024.

18. Sharmila, "Exploration of Composition-Microstructure Relations in Polymer Nanocomposites: Intelligent Honey," *Journal of Nano & Electronics Physics*, vol. 16, no. 4, pp. 1-3, Aug. 2024. DOI: 10.21272/jnep.16(4).04004.

19. Sharmila, "Machine Learning Approaches for Predictive Maintenance in Wireless Sensor Networks," *ETBS 2024*, Apr. 2024.

20. Sharmila, "Securing Wireless Sensor Networks: An Exploration of Encryption And Intrusion Detection Systems," *International Conference on Emergent Converging Technologies and Biomedical Systems*, Apr. 2024.

21. Sharmila, "The Evolution of 5G: Impact and Integration of Wireless Sensor Networks in Modern Communication," *ETBS 2024*, Apr. 2024.

Patents

1. Neha Goel and R. K. Yadav, "A cereal crop harvesting assistive device," Indian Patent, Patent No. 202411046765, published on June 18, 2024.

2. Puneet C. Srivastava, "Circular cut multi-band microstrip antenna with defected ground for wireless application," Indian Patent, Patent No. 202011055654, granted on June 15, 2024, Patent Reference No. 541821.

FDP Organized

The Departments of EII and ECE successfully organized a 5-day Faculty Development Program (FDP) on **"Start-up and Entrepreneurship Ecosystem Development"** from **September 2 to September 6, 2024**. This program aimed to foster entrepreneurial skills and provide in-depth insights into building and sustaining a robust start-up ecosystem. The FDP featured expert sessions, interactive discussions, and hands-on activities to equip participants with the knowledge and tools essential for driving innovation and entrepreneurship. We extend our gratitude to all participants and organizers for making this event a success.

Faculty Development Program

1. **Dr. R. K. Yadav attended the AICTE Recognized FDP on "Preparing Students for Placements and Higher Studies"** from 5th to 9th August 2024, held at Curriculum Development Centre, National Institute of Technical Teachers Training and Research, Chandigarh, Ministry of Education, Government of India.

2. **Dr. Robin Abraham** attended **the AICTE Sponsored STTP on "Funding Project Proposal Drafting & IPR Design, Filing, Copyright and Patenting Strategies"** from 11th to 15th March 2024, held at NIT, Nagaland.

3. **Dr. Robin Abraham attended the AICTE Sponsored STTP on "Next Generation AI – Research Perspectives"** from 18th to 22nd March 2024, held at NIT, Nagaland.

4. **Dr. Robin Abraham attended the FDP on Cutting Edge Technologies in Computer Science** from 23rd to 29th

September 2024, held at Easwari Engineering College, Chennai.

5. **Dr. Robin Abraham attended the FDP on Enhancing Research Capabilities for Academic Career Progression** from 23rd to 27th September 2024, held at NITTTR, Chandigarh, Centre at RKGIT, Ghaziabad.

6. **Dr. Robin Abraham attended the FDP on Entrepreneurship and Start-up Development** from 3rd to 6th September 2024, held at RKGIT, Ghaziabad.

7. **Dr. Sharmila attended the AKTU Sponsored FDP on "Design & Development of Biomedical Antennas"** from 22nd to 28th July 2024, held at KIET.

8. **Dr. Sharmila attended the FDP on Cloud Practitioner (AWS)** from 1st to 5th April 2024, organized by ICT Academy.

9. **Dr. Sharmila attended the FDP on Cutting Edge Technology in Computer Science** from 23rd to 29th September 2024, held at Easwari Engineering College, Chennai.

10. **Dr. Sharmila attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024, organized at RKGIT.

11. **Dr. Sharmila attended the FDP on Recent Trends in Computing 4.0** from 8th to 13th July 2024, conducted at VIT, Pune.

12. **Mr. Anil Verma attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024, held at RKGIT, Ghaziabad.

13. **Mr. Anil Verma attended the FDP on Recent Trends in Computing 4.0** from 8th to 13th July 2024, held at Vishwakarma Institute of Technology, Pune.

14. **Mr. Nitish Vashishth attended the AKTU Sponsored FDP on "Design & Development of Biomedical Antennas"** from 22nd to 28th July 2024, held at KIET.

15. **Mr. Nitish Vashishth attended the Course on "What is the Metaverse?"** on 20th June 2024, organized by Coursera.

16. **Mr. Nitish Vashishth attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024, held at RKGIT.

17. **Mr. Nitish Vashishth attended the FDP on Recent Trends in Computing 4.0** from 8th to 13th July 2024, held at VIT, Pune.

18. **Mr. Nitish Vashishth attended the FDP on VLSI Physical Design Using Synopsys Tools** from 24th to 26th June 2024, held at VGTI, Bengaluru.

19. **Mr. Nitish Vashishth attended the IETE Approved FDP on "21st Century: Recent Trends, Challenges and Future Road Map for Transitions in Technological Generations"** from 25th to 30th April 2024, held at YCCE, Nagpur.

20. **Mr. Sachin Tyagi attended the FDP on Entrepreneurship and Start-up Development** from 3rd to 6th September 2024, held at RKGIT, Ghaziabad.

21. **Mr. Sachin Tyagi attended the FDP on National Education Policy 2020** from 24th to 30th August 2024, held at ABESIT, Ghaziabad.

22. **Mr. Swatantra Kumar attended the 5 Days FDP on Application of AIML in Emerging Fields** from 29th July to 2nd August 2024, held at Guru Tegh Bahadur Institute of Technology.

23. **Mr. Swatantra Kumar attended the 5 Days FDP on Recent Trends in Computing** from 8th to 13th July 2024, held at Vishwakarma Institute of Technology, Pune.

24. **Mr. Swatantra Kumar attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024, held at RKGIT, Ghaziabad.

25. **Mr. Vivek Singh attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024, held at RKGIT.

26. **Ms. Divya attended the 7 Days National Level FDP on Python** from 19th to 25th March 2024, held in Tamil Nadu.

27. **Ms. Divya attended the FDP on Emerging Trends in Electronic Circuit Design, Signal Processing, and Communication** from 1st to 6th July 2024, held in Hyderabad, Telangana.

28. **Ms. Divya attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024, held at RKGIT.

29. **Ms. Hashmat Usmani attended the FDP on Emerging Trends in Electronic Circuit Design, Signal Processing, and Communication** from 1st to 6th July 2024, held in Hyderabad, Telangana.

30. **Ms. Hashmat Usmani attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024, held at RKGIT.

31. **Ms. Priyanka Tyagi attended the AKTU Sponsored FDP on "Next Generation AI – Research Perspectives"** from 18th to 22nd March 2024, held at National Institute of Technology, Nagaland, Chumukedima, Nagaland.

32. **Ms. Priyanka Tyagi attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024.

33. **Ms. Priyanka Tyagi attended the FDP on Recent Trends in Computing 4.0** from 8th to 13th July 2024.

34. **Ms. Renu Rani attended the 7 Days National Level FDP on Python** from 19th to 25th March 2024, held in Tamil Nadu.

35. **Ms. Renu Rani attended the FDP on Emerging Trends in Electronic Circuit Design, Signal Processing, and Communication** from 1st to 6th July 2024, held in Hyderabad, Telangana.

36. **Ms. Renu Rani attended the FDP on Entrepreneurship and Start-up Development** from 2nd to 6th September 2024, held at RKGIT.

Appreciations

We are proud to announce that **Dr. Sharmila, Ms. Charu Tyagi, and Ms. Richa Gupta** have successfully completed the *AWS Academy Cloud Foundations* program and earned the prestigious **AWS Academy Graduate Badge** on **August 4, 2024**. This certification highlights their expertise in foundational cloud computing concepts, further strengthening their contributions to the department.

Book Chapters

- **Hashmat Usmani** and **Renu Rani**, "Machine Learning Enabled IoT for Biomedical Applications: Problem and Challenges," *CRC Press*, Aug. 2024. ISBN: 9781032550824.
- **Neha Goel**, "A Comprehensive Study of the Problem and Challenges Associated with Machine Learning Enabled IoT in Biomedical Applications," *CRC Press*, Aug. 2024. ISBN: 9781032550824.
- **Nitish Vashishth**, "AI-driven software development lifecycle optimization," *IGI Global*, May 2024. ISBN13: 9798369335024, ISBN13 (Softcover): 9798369348758, EISBN13: 9798369335031.

- **R. K. Yadav**, "IoT: The Smart Technology of Autonomous Navigation System," in *Apple Academic Press*, *CRC Press*, May 2024. ISBN: 9781774917008.

Book Published

Neha Goel and **R. K. Yadav**, *Internet of Things Enabled Machine Learning for Biomedical Applications*, *CRC Press*, Aug. 2024. ISBN: 9781032550824.
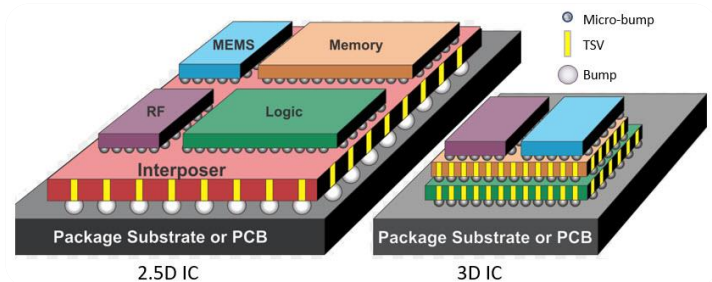
Professional Developement

Dr..R.K.Yadav, Dr..Puneet Srivastava, Dr.Neha Goel, Dr.Sharmila and Mr. Nitish Vashishth received an Appreciation Letter from the College for his research publication on Innovation Day.
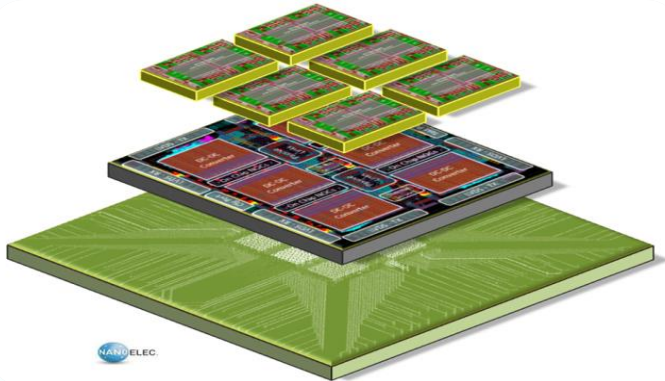
Student Technical Corner

3D Integrated circuits (3D ICs)

3Dintegrated circuits (3D ICs) represent a significant advancement in semiconductor technology, allowing for the stacking of multiple layers of circuitry in a single package. This innovation enhances performance, reduces space, and improves power efficiency, addressing the growing demands of modern electronics.

3D ICs are built by stacking silicon wafers or dies vertically, connecting them using vertical interconnections known as through-silicon vias (TSVs). This vertical arrangement enables shorter interconnects, which can lead to faster signal transmission and reduced latency. By stacking components, 3D ICs significantly reduce the footprint compared to traditional 2D ICs, making them ideal for portable devices. Shorter connections between layers decrease signal delay, improving overall speed and performance. Reduced

interconnect lengths lower power consumption, which is crucial for battery-operated devices.

3D IC technology is transforming various sectors, including:

Smartphones, tablets, and wearables benefit from compact designs and improved functionality. Advanced driver-assistance systems (ADAS) and electric vehicles leverage 3D ICs for enhanced processing power and reliability. The fabrication process for 3D ICs is more intricate than for traditional ICs, requiring advanced techniques and equipment. Stacking chips can lead to increased heat generation, necessitating efficient cooling solutions to maintain performance and reliability. The design of 3D ICs requires specialized tools and methodologies, which can slow down the development process.

There is potential for integrating various types of materials and technologies, such as photonics, into 3D ICs. As the demand for AI accelerates, 3D ICs may play a crucial role in providing the necessary computational power. Efforts to make 3D IC fabrication more environmentally friendly are gaining traction, focusing on reducing waste and energy consumption. 3D integrated circuits are poised to reshape the landscape of electronics, offering solutions to the challenges of size, speed, and power consumption. As technology continues to evolve, the impact of 3D ICs will likely expand, paving the way for more efficient and powerful electronic devices in the future. Their adoption across various industries signals a shift towards more compact and capable computing solutions, making them a crucial element in the on-going evolution of technology.

Sneha Agarwal
2nd Year

Students Achievement

- **Harsh Shukla** successfully completed an internship program in **VLSI at CODETEH IT Solutions** from June 20, 2024, to August 20, 2024.
- **Jyotsna Singh** made a valuable contribution to **IMAGINEARIUM,** held on September 20, 2024, and conducted by the BIRDS Society.
- **Mayank Singh** successfully completed a **Virtual Internship Program in Web Development** at **BHART Internship** as an active participant from February 10, 2024, to March 10, 2024.
- **Rohit Kumar,** a third-year student, successfully completed the **NPTEL** course on **Digital System Design** during the January–April 2024 session.
- **Nishika Raj,** a third-year student, successfully completed the **NPTEL** course on **Analog Circuits and Systems** during the July–September 2024 session.
- **Shagun** completed the NPTEL course on **Analog Circuits and Systems** during the July–September 2024 session.
- **Rajat Kumar**, an ECE student, also successfully completed **the NPTEL program** on *Analog Circuits and Systems* during the July–September 2024 session.
- **Rajat Kumar**, an ECE student, also successfully completed **the NPTEL program** on *Soft Skill* during the July – October 2024 session.

Congratulations to all for their remarkable achievements and dedication to learning!!

Upcoming Events

The Department of Electronics and Communication Engineering is excited to announce the upcoming **Advancement in Electronics & Communication Engineering (AECE-2024)** conference, which is **IEEE-sponsored**. The event will be held on **November 22–23, 2024**, and will feature insightful discussions and presentations on cutting-edge advancements in the field of Electronics and Communication Engineering.

Stay tuned for more updates and participation opportunities!!