

ELECTRO VISION

INSIDE THIS ISSUE

About the
Department

HOD's DESK

Editorial desk

Orientation
Program

Students' & Alumni
Corner

Faculty
Corner

Department of Electrical & Electronics Engineering



Vision

- To be a forerunner in producing Electrical and Electronics graduates who will be competent in innovations among federal institutions, be a dynamite entrepreneur, and a skilled representative to complement in industry with ethical values to address the needs of the society and Nation



Mission

- To provide academic excellence by adopting innovative teaching and learning methods to enhance lifelong learning.
- To bridge the gap between the industry and academia by undertaking collaborative projects from industry.
- To promote multidisciplinary activities by enhancing the skills of faculty and students to solve complex technological problems of the society.
- To raise entrepreneurs with a passion to contribute to the needs of the society.
- To produce responsible leaders by inculcating moral and ethical values to the faculty and the students.

ABOUT THE DEPARTMENT

The Department of Electrical & Electronics Engineering (EEE) at GEMS Polytechnic College, established in 2015, has successfully completed over a decade of academic excellence and service in technical education. Since its inception, the department has been committed to providing quality education aligned with industry and societal needs.

The EEE Department takes pride in being the first department in Bihar to receive NBA accreditation, marking a significant milestone and reflecting its strong academic framework, Outcome-Based Education (OBE) practices, and continuous improvement processes.

With experienced faculty and well-equipped laboratories, the department emphasizes hands-on learning, industry interaction, student mentoring, and skill development. Students are encouraged to participate in workshops, industrial visits, technical events, project exhibitions, and placement activities to enhance their professional readiness.

Through consistent academic rigor, ethical values, and innovative teaching-learning methods, the EEE department continues to nurture competent diploma engineers and remains committed to excellence in technical education.

Dear Readers,

Our EEE Department has achieved remarkable progress through technical events, and meaningful industry collaborations that enrich both teaching and learning. The recent Faculty Development Programme (FDP) has further strengthened faculty competency in emerging technologies, enabling effective knowledge transfer to students.

We continue to integrate advanced tools, modern laboratory practices, and project-based learning into our curriculum to enhance practical skills and innovation. With a strong focus on Outcome-Based Education, we strive to create an engaging and industry-relevant learning environment.

Together, we move forward with a shared commitment to innovation, quality education, and academic excellence, shaping competent professionals for the future.

HOD'S DESK



Mrs. Pameela M
HoD/EEE

ORIENTATION PROGRAM

Alumni Talk *Sharing the Journey of an EEE Achiever*

The Department of Electrical & Electronics Engineering organized an Orientation Program for the 2025–28 batch on 17 October 2025 at the GPC Assembly Hall under the coordination of Mr. Ketu Kumar Sahitya, through the Plug-in Association.

The program began with an opening prayer by Babu Sir, creating a positive and meaningful start for the new academic journey. This was followed by a melodious welcome song presented by the EEE Choir, which warmly received the newly admitted students.

A special highlight of the event was the presentation of a Department Journey Video, showcasing the department's academic growth, achievements, activities, and alumni success, giving the freshers a clear understanding of the department's legacy and vision.



The Head of the Department honoured the Chief Guest, Ms. Shweta Shishya, Junior Electrical Engineer, Government of Bihar, and addressed the gathering with motivating words on discipline, commitment, and the importance of engineering education. The Principal also delivered an inspiring address, emphasizing skill development, professionalism, and effective utilization of institutional resources.

The alumni interaction session by Ms. Shweta Shishya was highly inspiring. She shared her journey from student life to securing a government position and guided students on career planning, exam preparation, and goal setting. Another alumni session by Mr. Ambrose provided practical insights into industry expectations and the importance of building technical skills from the first year.



Another alumni session by Mr. Ambrose provided practical insights into industry expectations and the importance of building technical skills from the first year. The Orientation Program was informative, motivating, and well-organized. It successfully helped first-year students gain clarity, confidence, and enthusiasm as they begin their academic journey in the EEE Department.

STUDENTS' CORNER

Title: Wide Bandgap Devices – The Future of Power Electronics

- Wide Bandgap (WBG) devices are the next-generation semiconductors that are revolutionizing power electronics. Unlike traditional silicon-based devices, WBG materials like Silicon Carbide (SiC) and Gallium Nitride (GaN) can operate at higher voltages, temperatures, and frequencies with greater efficiency.
- Why WBG Devices are Special:
 - Higher Breakdown Voltage: They can handle more voltage without failure.
 - High Temperature Operation: Suitable for harsh environments.
 - Faster Switching Speeds: Reduce energy loss and improve system efficiency.
 - Smaller and Lighter Systems: Lead to compact power converters and electric vehicles.
- Applications:
 - Electric vehicles (EVs) and charging stations
 - Renewable energy systems (solar inverters, wind turbines)
 - Industrial drives and motor controllers
 - Aerospace and defense electronics
- Impact:
 - Wide bandgap devices help save energy, reduce heat generation, and increase reliability, making them crucial for modern sustainable technologies.



Mr. Amit Kumar
EEE - II Year

Digital Twin Technology in Engineering

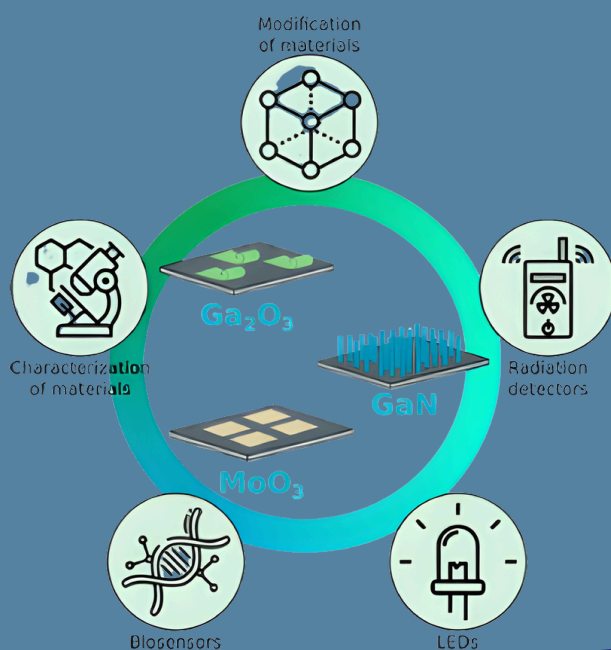
- Digital Twin technology refers to the creation of a virtual replica of a physical system, process, or asset that continuously receives data from real-world sensors and control systems.



Ms. Kajal Kumari
EEE - III Year



- In engineering applications, Digital Twins are widely used in manufacturing plants, power systems, smart grids, and industrial automation.
- By comparing real-time data with simulated models, engineers can detect faults early, optimize system efficiency, and plan maintenance activities more effectively. This reduces downtime, improves reliability, and lowers operational costs.
- Digital Twins also support better design and decision-making. Engineers can test different operating conditions, upgrades, or control strategies in the virtual environment before applying them to real systems. As industries move toward automation and data-driven operations, Digital Twin technology is becoming a key element in smart and sustainable engineering solutions.



EXCELLENCE IN ACADEMICS: STUDENTS' JOURNEY

The Department of Electrical & Electronics Engineering is delighted to congratulate the toppers of the Even Semester examination – May 2025 for their exemplary performance. Their dedication, perseverance, and commitment to learning have not only earned them outstanding results but also set a remarkable benchmark for their peers.

II Sem Toppers



IV Sem Toppers



Academic excellence is the result of consistent effort, disciplined study habits, and a passion for learning. The achievements of our toppers reflect the high standards of our department and the strong foundation provided by our faculty.

During the orientation program, our Principal, HOD, alumni Shwetha Shishya, and Ragunath Sir felicitated the toppers by presenting them with mementos in recognition of their accomplishments. Such celebrations aim to motivate all students to pursue their academic goals with enthusiasm and diligence.

The department wishes all students continued success and encourages them to strive for excellence in both academics and future endeavors."

— HOD, EEE Department

Congratulations

PROFESSIONAL PATHWAYS: ALUMNI EDITION

Bifacial Solar Modules – An Emerging Trend:



From my industry exposure, I observed that bifacial solar modules are widely adopted in modern solar power plants to improve energy generation. These modules produce power from both front and rear sides by utilizing reflected sunlight from the ground. In practical installations, ground reflectivity, module height, and spacing play a major role in increasing bifacial gain. Bifacial systems deliver higher output without increasing land area. Proper design and monitoring are essential to fully realize their benefits. This technology highlights how innovative engineering solutions enhance the efficiency of large-scale solar projects.

— By Mr. Sugandh Kumar,
Junior Manager, SAEL Solar P6 Pvt. Ltd., (2021-2024)

Industry 4.0 – Smart Manufacturing:

Industry 4.0 is revolutionizing traditional manufacturing by creating intelligent, automated, and connected factories. It integrates technologies like automation, artificial intelligence, IoT, and real-time monitoring to enable machines to communicate, analyze data, and make decisions with minimal human intervention. This leads to higher productivity, better quality, and reduced errors. Engineers are now playing a key role in designing, implementing, and maintaining these advanced systems, shaping the future of sustainable and efficient manufacturing



— By Ms. Kirti Kumari Verma, (2022-25)



Electric Vehicle:



I have observed that electric vehicle (EV) systems are rapidly evolving with a focus on efficient power conversion, battery management, and motor drive technologies. Modern EVs use high-performance traction motors, advanced controllers, and regenerative braking systems to maximize efficiency and range. Electrical engineers are now playing a key role in designing reliable charging infrastructure, onboard power electronics, and safety systems. This trend highlights the growing opportunities for students to work on cutting-edge EV technologies and sustainable transportation solutions.

— By Mr. Ambrose Kumar,
Junior Engineer,
Bezalel Skilligence.

FACULTY DEVELOPEMENT PROGRAM**EXPERTS**

Dr. R. K. Jarial,
Associate Professor,
NIT, HP.



Dr. N. B. Samuel, COO,
Huebits Tech Pvt. Ltd.



Dr. Kumara Swamy,
HoD/Mech, GPC.



Dr. Narnepati Krishna Chaitanya,
Post Doctoral Researcher, IIT
Hyderabad.



Mr. Christian Hensel, CTO,
Bezalel Skillgence, GPC



Mr. Atul Jaysing Patil, Assistant
Professor, Researcher,
NIT, HP.



Mr. Mathewos,
Researcher, NIT HP.



The Department of Electrical & Electronics Engineering, GEMS Polytechnic College, organized a One-Week Virtual Faculty Development Programme (FDP) on “Emerging Trends in Engineering” from 15th to 19th September 2025. The programme aimed to enhance faculty knowledge, research orientation, and teaching effectiveness by exposing them to recent technological advancements across engineering disciplines.

The FDP was conducted under the guidance of the management and coordinated by the EEE Department, with eminent resource persons from NIT Himachal Pradesh, IIT Hyderabad, industry experts, and GPC faculty delivering expert sessions.

The programme covered a wide range of emerging topics, including IoT applications, renewable energy and power electronic converters, smart materials, machine learning in power systems, 3D printing, civil engineering innovations, and electric vehicle technologies, including high-power EV charging systems. Each session provided valuable insights into current trends, practical applications, and future research directions.

Faculty members from various departments actively participated and benefitted from the interactive and knowledge-rich sessions. During the valedictory session, certificates of participation were distributed, and special appreciation was extended to contributors and mentors for their guidance and support.

The FDP was highly informative and enriching, strengthening interdisciplinary knowledge and reinforcing the department’s commitment to continuous professional development and academic excellence.



FACULTY'S CORNER

Loose connections cause sparks and failures. Strong connections—with family, mentors, and God—bring clarity and purpose.

A complete circuit allows current to flow smoothly. Stay connected to positive people, good habits, and meaningful goals.

Every overload needs a breaker—learn to disconnect before you burn out.

The faculty members of the Electrical & Electronics Engineering Department successfully participated in the two-week online Faculty Development Program titled “AI and EV Synergy: Driving the Evolution of Next-Gen Smart Energy Systems (AI-EVS-2025)”, held from 7th July to 18th July 2025.

The FDP was jointly organized by the Electronics & ICT Academy, NIT Patna and NIT Agartala, under the MeitY Scheme of Financial Assistance for Electronics and ICT Academies (Phase-II), Government of India.

EEE staff members actively engaged in all the sessions, enhancing their knowledge in emerging technologies related to Artificial Intelligence and Electric Vehicles. Their performance in the online assessments was noted as Good, reflecting their commitment to continuous professional development.

EDITORIAL DESK



Ms. Pathma
Lecturer
Chief Editor

Dear Readers,

We are pleased to present Electro Vision – Volume 10, the departmental newsletter of the Department of Electrical & Electronics Engineering, GEMS Polytechnic College, for the Academic Year 2025–26 (Odd Semester). This edition reflects the department's continuous efforts toward strengthening academic practices and enhancing the overall learning experience.

During this academic period, the department focused on initiatives aimed at faculty enrichment and academic preparedness, enabling effective teaching–learning processes and continuous improvement. At the same time, special efforts were made to support newly admitted students by helping them understand academic expectations, departmental culture, and professional responsibilities, ensuring a smooth transition into diploma engineering education.

As a NBA-accredited department, we remain committed to upholding quality standards, structured academic planning, and continuous development. The contributions highlighted in this newsletter showcase the collective dedication of faculty members and students toward academic excellence and professional growth.

We sincerely thank all contributors and well-wishers for their support in bringing out this edition of Electro Vision. We hope this newsletter serves as a meaningful platform to share progress, achievements, and aspirations of the department.

Editorial Team

Electro Vision – Volume 10

EEE Department, GEMS Polytechnic College

Ms. Kajal Kumari
EEE-III Year
Content Writer



Mr. Devanshu Kumar
EEE-III Year
Content Coordinator



Ms. Prachi Kumari
EEE-II Year
Student Contributor

