NEW HORIZON COLLEGE OF ENGINEERING

SILVER HORIZONS 25 YEARS OF GLOBAL LEARNING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SPRING TRONICALS

JANUARY - JUNE 2025

INDEX

Message from Chairman

Dr. Mohan Manghnani

Chairman
New Horizon Educational Institution

I am pleased to share my thoughts for this edition of the biannual EEE magazine. The Department of Electrical and Electronics Engineering has always been recognised as one of the most vibrant and progressive departments of our Institute, and it continues to be a strong source of pride. In recent years, our Institute has undergone significant curriculum revisions and structural improvements.

The EEE Department has proactively adapted to these changes with great enthusiasm, anticipating the positive impact they will bring to our students. The newly introduced course plans for both senior and first-year students are already underway, and we look forward to valuable feedback that will help us continue moving in the right direction. It is immensely rewarding to see our students demonstrating their creativity and talents in a variety of fields. This magazine serves as an effective platform for them to present their work, ideas, and innovations. It also provides faculty and students with the opportunity to publish technical articles and highlight their research accomplishments. Wishing everyone continued success and the very best for future endeavours.

Message from Principal

Dr. Manjunatha

Principal
New Horizon College of Engineering

At New Horizon College of Engineering, we firmly believe in going beyond conventional academic learning to equip our students with the practical skills required to excel in today's competitive industry landscape. Recent insights from industry experts have highlighted a growing concern many engineering graduates lack the necessary employability skills to succeed in their careers.

Our institution has always taken this challenge seriously and continues to make dedicated efforts to ensure that our students are well-prepared for the dynamic demands of the job market. It is with great pleasure that I present a brief address for the newest edition of the EEE Department's in-house magazine, Spring Tronicals. This issue has been thoughtfully compiled to showcase a variety of department events and technical contributions, making it a valuable source of information and inspiration for our readers. I sincerely congratulate all the contributors and the editorial team for their hard work and commitment in bringing out such an exceptional publication. I hope this edition brings you both insights and enjoyment as you explore the pages ahead.

Message from HoD-EEE

Dr. S. Sujitha

Professor and HoD EEE, NHCE

It gives me great pleasure to present my thoughts for the biannual EEE magazine, Spring Tronicles 2025. The Department of Electrical and Electronics Engineering continues to excel as one of the most energetic and forward-thinking departments of our Institute. It is an achievement that has consistently made us proud. Our institution has recently introduced substantial curriculum enhancements and academic reforms.

The EEE Department has proactively adapted to these developments, confident that they will significantly enrich our students' learning experience. The newly revised course framework has been rolled out across both the first-year and senior undergraduate levels, and we look forward to valuable feedback that will help us refine our path further. It is always inspiring to witness our students expressing their innovation, creativity, and talent through various initiatives.

This magazine serves as an outstanding stage to showcase those remarkable accomplishments. It also provides a meaningful avenue for both students and faculty to publish technical contributions, promoting the exchange of knowledge and research within the department. With great enthusiasm, I extend my heartfelt wishes for the continued success for this wonderful initiative.

NEW HORIZON COLLEGE OF ENGINEERING

VISION

To emerge as an institute of eminence in the fields of Engineering, Technology and Management in serving the industry and the nation by empowering students with a high degree of technical, managerial and practical competence.

MISSION

To strengthen the theoretical, practical and ethical dimensions of the learning process by fostering a culture of research and innovation among faculty members and students.

To encourage long-term interaction between the academia and industry through their involvement in the design of curriculum and its hands-on implementation.

To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.

QUALITY POLICY

To provide educational services of the highest quality both curricular and co-curricular to enable students integrate skills and serve the industry and society equally well at the global level.

VALUES:

- Academic Freedom
- Inclusiveness
- Professionalism
- Integrity
- Innovation
- Social Responsibility

ABOUT THE DEPARTMENT

Welcome to the Department of Electrical & Electronics Engineering (EEE) at New Horizon College of Engineering (NHCE), Bangalore. EEE is one of the prestigious branches of Engineering and one among the oldest Departments of NHCE-Bangalore. The EEE Department has been playing a vital role in producing Engineers and Technologists of high caliber ever since it was established in the year 2001. The Department is accredited by NAAC with 'A' Grade and accredited by NBA. The vision of EEE Department is to create contemporary Engineers, Innovators and Entrepreneurs to make a better nation and in turn, a better world. A critical investigation and innovation into the modern state-of-the-art and cutting edge technology lead to the fact that an electrical graduate fits better in today's competitive world.

The strength of the Department are highly qualified faculty members with expertise in various fields of Electrical Engineering, state - of - the - art - laboratory facilities. The Department is inclined towards bridging the gap between Industry and Academia by collaborating with Multinational Companies in the field of Electrical Engineering.

Indo-French Center of Excellence in Electricity, Automation and Energy (IFCEEAE) is one such initiative evolved through "MoU" with French Ministry of National Education and Schneider Electric India Pvt. Ltd., The main objectives of IFCEEAE are

- To train the students of all streams of Engineering in Automation.
- To facilitate interdisciplinary and applied research with a focus on innovative product development .
- To provide excellent career opportunities to students through Exchange Programs with French Universities, Industrial Training, Innovative Learning and R & D activities especially in the areas like Smart Grid, Internet of Things (IoT), Energy Management Systems, Embedded Systems, Supervisory Control and Data Acquisition (SCADA) and Industrial Automation.

The Department nurtures young minds beyond the curriculum by facilitating technical clubs that promote technical events, community development, societal impact, and programs on universal values and ethics. In support of this initiative, the Department of Electrical and Electronics Engineering has established several IEEE Student Branch Chapters under the world's largest non-profit technical Professional Organization dedicated to the advancement of technology. These include:

- IEEE Power Electronics Society (PELS) Student Branch Chapter (Geo-Code: SBC66131)
- IEEE Industrial Electronics Society (IES) Student Branch Chapter (Geo-Code: SBC66131B) IEEE Power and Energy Society (PES) Student Branch Chapter (Geo-Code: SBC66131D)
- IEEE Dielectrics and Electrical Insulation Society (DEIS) Student Branch Chapter (Geo-Code: SBC66131F)
- IEEE Systems, Man, and Cybernetics Society (SMC) Student Branch Chapter (Geo-Code: SBC66131K)
- IEEE Nanotechnology Council (NANO) Student Branch Chapter (Geo-Code: SBC66131J)
- IEEE Biometrics Council (BIO) Student Branch Chapter (Geo-Code: SBC66131I)
- IEEE Council on Superconductivity (CSC) Student Branch Chapter (Geo-Code: SBC66131H)
- IEEE Transportation Electrification Council (TEC) Student Branch Chapter (Geo-Code: SBC66131G)

These chapters provide students with enhanced exposure, skill development, and increased opportunities for campus placements in core industries, IT sectors, and Public Sector Units (PSUs).

VISION

To evolve into a centre of excellence in Electrical and Electronics Engineering for bringing out contemporary Engineers, Innovators, Researchers and Entrepreneurs for serving nation and society.

MISSION

- To provide suitable forums to enhance the teaching-learning, research and development activities.
- Framing and continuously updating the curriculum to bridge the gap between industry and academia in the contemporary world and serve society.
- To inculcate awareness and responsibility towards the environment and ethical values.

PROGRAMME OUTCOMES (POS)

PO1: Engineering knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6).

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7)

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

KNOWLEDGE AND ATTITUDE PROFILE (WK)

WK1: A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.

WK2: Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.

WK3: A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.

WK4: Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.

WK5: Knowledge, including efficient resource use, environmental impacts, whole-life cost, reuse of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.

WK6: Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.

WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.

WK8: Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.

WK9: Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To provide good learning environment to develop entrepreneurship capabilities in various areas of Electrical and Electronics Engineering with enhanced efficiency, productivity, cost effectiveness and technological empowerment of human resource.

PEO2: To inculcate research capabilities in the areas of Electrical and Electronics Engineering to identify, comprehend and solve problems and adopt themselves to rapidly evolving technology.

PEO3: To create high standards of moral and ethical values among the graduates to transform them as responsible citizens of the nation.

PROGRAMME SPECIFIC OUTCOME (PSOs)

PSO1: Graduates will be able to solve real life problems of Power Systems and Power Electronics using MiPower, PSPICE and MATLAB software tools and hardware.

PSO2: Graduates will be able to develop and support systems based on renewable and sustainable Energy sources.

EDITORIAL TEAM

SATISHKUMAR D
Senior Assistant Professor EEE, NHCE

STUDENT COORDINATORS

Jagan Panigrahi
1NH23EE034

Shashank A
1NH23EE094

CLUB ACTIVITIES

Circuit Forge

28.03.2025

The Green Energy Club, in collaboration with the Indian Society for Technical Education (ISTE) Student Chapter and the Institution's Innovation Council (IIC) at New Horizon College of Engineering, successfully organised a hands-on workshop titled "Circuit Forge" on 28th March 2025 in the Electrical Lab. This interactive session gave students practical exposure to Circuit Design, Component Selection, and Assembly, reinforcing their theoretical knowledge with real-world applications. Circuit Forge provided an engaging platform for students to apply theoretical knowledge in a practical and competitive environment. The logical reasoning and circuit-building challenges encouraged them to think critically, collaborate effectively, and innovate solutions. The Green Energy Club, in association with ISTE and IIC, looks forward to organising more events that promote Technical Excellence, Innovation, and Problem-Solving in Engineering.

INDUSTRIAL VISITS

Industrial Visit to BEML – Exploring Metro Rail Manufacturing

28.05.2025

On their visit to BEML, Old Airport Road, Bengaluru, 99 students, accompanied by 2 faculty members and 2 lab instructors, gained valuable exposure to the manufacturing of Metro Rail Cars for both domestic and international markets. Students observed the complete production process—from component fabrication to final assembly—and explored the Testing and Quality Control

Department. BEML officials provided detailed insights and addressed student queries, enhancing their understanding of advanced manufacturing systems and defense production technologies. Key Takeaways: Practical exposure to large-scale industrial operations. Insights into metro rail production and quality assurance. Interaction with industry professionals and supervisors. Awareness of career opportunities in manufacturing and defense sectors.

ISRO URSC Visit
30.05.2025

On 30th May 2025, EEE students visited ISRO U R Rao Satellite Centre, Bengaluru, gaining firsthand exposure to satellite technology. They explored models of iconic satellites, observed clean room setups, and learned about components like solar panels and thrusters. A video on CHANDRAYAAN-3 and interactive sessions deepened their understanding of satellite imaging, communication, and career opportunities at ISRO. Highlights:- Insight into satellite design and assembly. Exposure to ISRO's missions and technologies. Career guidance and recruitment insights.

TEDx TALKS

How Semiconductors and AI are Driving Forces for Future Innovation
08.04.2025 & 09.04.2025

The Department of Electrical and Electronics Engineering hosted a TEDx Talk (Recorded) event on April 8th 2025, for 4th Semester students, featuring Mr. Sougata Bhattacharjee, Senior Staff Engineer/Manager at Samsung Semiconductor India Research (SSIR). His talk, "How Semiconductors and AI are Driving Forces for Future Innovation," explored the transformative role of semiconductors and AI in shaping future technologies. With over 10 years of experience in VLSI, Mr. Bhattacharjee shared insights into RTL Design, ASIC Verification, and Blockchain Applications. He emphasised innovation in the semiconductor domain, highlighting his expertise in UVM testbench infrastructure, System Verilog, and Assertion-Based Verification (ABV). Students gained valuable knowledge on coding practices, verification strategies, and industry standards. He inspired attendees to consider semiconductors' impact on AI-driven advancements and productivity enhancements in Engineering. This TEDx talk, independently organised, aligned with TEDx Talk's mission of sharing "Ideas Worth Spreading."

Welcome to the Era of Energy Disruption
10.04.2025

The Department of Electrical and Electronics Engineering organised a TEDx Talk (Recorded) event on April 10th, 2025, for 6th Semester students, featuring Mr. Gerard Reid, a renowned expert in the energy transition. His talk, "Welcome to the Era of Energy Disruption," explored how solar power, battery technology, and energy intelligence are transforming the global energy landscape. Reid emphasised China's key role in scaling clean technologies and reducing costs, enabling widespread adoption worldwide. He highlighted trends like accelerated solar deployment, advancements in battery storage, and the rise of smart energy systems. Reid predicted a shift in global wealth from fossil fuels to renewables, envisioning a decentralised energy future. He emphasised the potential of the Global South, with its abundant solar resources, to lead this transition.

With over 20 years of experience, Reid is widely recognised for his insights at the intersection of finance, technology, and regulation. His presentation underscored sustainable innovation's transformative power and aligned with TED's mission of spreading impactful ideas.

TEDx Talk by Paul Perrone
12.04.2025

The Department of Electrical and Electronics Engineering (EEE) organised a TEDx Talk (Recorded) event on 12th April 2025 for students of the 8th Semester. The event featured influential speaker, Paul Perrone, founder and CEO of Perrone Robotics, sharing visionary insights on the future of Autonomous Vehicles. Mr. Paul Perrone is a trailblazer in robotics and autonomous systems with over two decades of experience integrating AI into real-world mobility. In his TEDx talk, "Unleashing the Power of GPT AI in Autonomous Vehicles," he explored the transformative potential of generative AI, specifically GPT, in autonomous driving. Perrone discussed how GPT's natural language processing and reasoning capabilities enhanced perception, decision-making, and adaptability in self-driving vehicles. Key breakthroughs included enabling vehicles to reason through complex scenarios, like rare edge cases, and simulate a wide range of driving conditions to expand their operational domains. He emphasised the importance of safety, verification, and validation in deploying AI on public roads. Perrone envisions a future where generative AI combined with traditional autonomous technologies creates intelligent, adaptable vehicles. His talk underscores the potential of GPT AI to revolutionise modern transportation.

ACHIEVEMENTS

Circuit Forge - ISTE Karnataka State Level Student Convention 2024-25
28.03.2025

Kudumula Sivakumar Reddy (1NH23EE046) and Jagan Panigrahi (1NH23EE034), 4th EEE students, achieved remarkable success by securing the second prize in the “Circuit Forge” competition. New Horizon College of Engineering organised this event as part of the 20th ISTE Karnataka State Level Student Convention 2024-25, held on March 28th, 2025. Their outstanding performance was recognised with a cash prize of INR 2000.

Circuit Masters - National Level Technical Fest
04.04.2025

The New Horizon College and Team wishes a heartfelt congratulations to the talented IV semester EEE students for winning the I Place in the prestigious “Circuit Masters” event at the National Level Technical Fest, hosted by Nitte Meenakshi Institute of Technology on April 4th 2025. The victorious team, comprising of Kudumula Sivakumar Reddy (1NH23EE046), Jagan Panigrahi (1NH23EE034), Soujanya N S (1NH23EE060), and Deekshitha S (1NH23EE020), was expertly led by Jagan Panigrahi. Their remarkable prowess in circuit design and troubleshooting set them apart, earning them a well-deserved cash prize of ₹3,000. This achievement is truly a testament to their hard work, dedication, and exceptional skills. Kudos to the entire team for their outstanding performance.

National-Level Project Competition - Custom-Built Electric Bike
12.04.2025 and 13.04.2025

Team Liion proudly showcased their project, Liion Mark 2 – a fully custom-built electric bike – at the National-Level Competition held at Sri Ramakrishna Institute of Technology (SRIT), Coimbatore. The event brought together top Engineering talents from across India, offering a platform for innovation and technical excellence. Liion Mark 2 stood out for its complete in-house development, including a custom chassis, drivetrain, and a Raspberry Pi-powered digital dashboard. The team demonstrated exceptional skills in embedded systems, mechanical fabrication, and electrical integration. Their live demonstration impressed judges with the bike's performance, design, and real-time data display. Competing against numerous advanced projects in EVs, Robotics, and IoT, Team Liion earned the prestigious Best Self-Manufactured Design Award. This recognition highlights the team's dedication to hands-on Engineering and minimal outsourcing. The project emphasised cost-effective innovation and practical application of classroom knowledge. Team Liion's collaborative spirit and technical synergy were key to overcoming real-world Engineering challenges. The team now looks forward to enhancing Liion Mark 2 with improved performance, design, and user experience in future iterations.

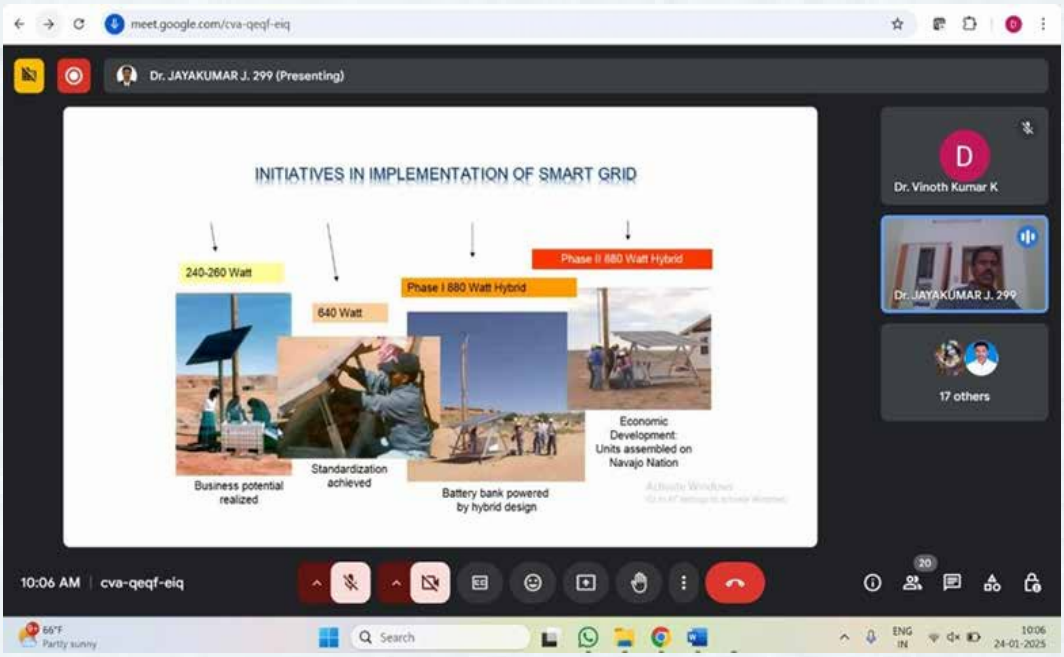
NHCE EEE Stars Shine in VTU Handball Tournament
23.05.2025

We are thrilled to announce that Pavan Kumar M (USN: 1NH23EE406) and Baru Tejesh (USN: 1NH22EE017), students from the Department of Electrical and Electronics Engineering, were part of the New Horizon College of Engineering (NHCE) Handball Team that emerged as Winners in the VTU Bengaluru Central Division Inter-Collegiate Handball (Men) Tournament. The tournament was held

at Cambridge Institute of Technology on 23rd May 2025, and their exceptional performance and team spirit played a key role in securing this prestigious victory.

FACULTY DEVELOPMENT PROGRAMME ORGANISED

Research Potential in Advanced Power Electronics and Renewable Energy
13.01.2025 to 24.01.2025



The Faculty Development Programme (FDP) on “Research Potential in Advanced Power Electronics and Renewable Energy” aimed to equip faculty with contemporary advancements in power electronics and renewable energy. Organised by NIT Warangal, New Horizon College of Engineering, and IEEE Power Electronics Society Bangalore, it ran virtually from January 13 to 24, 2025. The FDP targeted faculty, researchers, and academicians, focusing on the latest research trends, fundamental principles, and integration of renewable energy into power systems.

FDP featured 25 eminent experts from NIT, VIT, BITS Pilani, and the Industry. Key topics included advancements in power electronics, intelligent integration of renewable energy, state-of-the-art power converters for EVs, and deep learning for fault detection in windmills. The programme featured expert lectures, hands-on sessions, and discussions on collaboration strategies. Participants praised the expert insights, practical sessions, collaborative atmosphere, and structured approach to research proposal writing. The FDP successfully broadened participants' understanding of the technological landscape, fostering future research collaborations and innovations. The organizing committee thanked all contributors for their support in making the FDP a comprehensive and enriching experience.

Advancements in VLSI /Semiconductor Industry and Introduction to Design for Test Methodologies 22.03.2025

The Department of Electrical and Electronics Engineering, along with the R&D division of New Horizon College of Engineering, in collaboration with IEEE CSE SBC, hosted a full-day Faculty Development Program at Tejas Seminar Hall. Mr. Praveen Kumar Reddy K, a DFT Engineer at Qualcomm India Pvt Ltd, Bengaluru, led the session with a focus on emerging trends in semiconductor and VLSI technologies. A key highlight was the introduction of Design for Test (DFT) methodologies, vital to modern electronic design and production. The event offered deep academic and industry insights and featured interactive discussions between the speaker and participants. Attendees expressed appreciation for the seminar's relevance and practical depth. The session saw active involvement from 40 faculty members and students, and concluded with a heartfelt thanks to Mr. Praveen and the organising committee for their commendable efforts.

PLACEMENT DETAILS - AY: 2024 - 2025

S.No	Name	USN	Company Name
1	Achinth Hs	1NH21EE005	Zepto
2	Aneelkumar Madarakha	1NH21EE015	Capgemini
3	Anusha L	1NH21EE016	Capgemini
4	Apoorva Kulkarni	1NH21EE018	Siemens
5	Bhuvan Singh Rajput	1NH21EE024	BOSCH Limited
6	Darshan Mk	1NH21EE028	DYNALEKTRIC EQUIPMENT LIMITED
7	Gowthami A	1NH21EE033	Capgemini
8	Harish Kumar A N	1NH21EE035	Zepto
9	Harshitha N	1NH21EE036	Capgemini
10	Harshitha S	1NH21EE037	Intellipaat
11	K Rajini	1NH21EE040	Siemens
12	Keerthi T E	1NH21EE042	DYNALEKTRIC EQUIPMENT LIMITED
13	Kruthika B J	1NH21EE047	Micronel Global Engineers Pvt Ltd/Hitachi Energy
14	Kruthika Dc	1NH21EE048	L&T Technology Services Ltd
15	Jeevan M	1NH21EE052	Capgemini
16	Mahima Yadav	1NH21EE053	Intellipaat
17	Manasa Vt	1NH21EE054	Micronel Global Engineers Pvt Ltd
18	Manohar J S	1NH21EE056	DYNALEKTRIC EQUIPMENT LIMITED
19	Monica G	1NH21EE064	Bulk Liquid Solutions
20	Monika C	1NH21EE065	Siemens
21	N S Meghana	1NH21EE068	Siemens
22	Nikhita Ghalagi	1NH21EE073	Siemens
23	P Indra Reddy	1NH21EE074	Capgemini
24	Poojitha M Reddy	1NH21EE078	Siemens
25	Prakash Raj M	1NH21EE081	Capgemini
26	S Praveen Babu	1NH21EE085	Intellipaat/Zepto
27	Preetham H B	1NH21EE086	Megha Engineering and Infrastructure Limited
28	R Puneeth Kumar	1NH21EE090	Capgemini
29	Raghu Nandan Ks	1NH21EE091	Capgemini
30	Raksha Shankar Kajagar	1NH21EE092	Siemens
31	Riddhi B N	1NH21EE096	Capgemini
32	Rishab R	1NH21EE097	Ernst & Young
33	Kavya S	1NH21EE098	Capgemini
34	Salanke Anni Rao	1NH21EE100	Capgemini
35	Samuel W S	1NH21EE101	Megha Engineering and Infrastructure Limited
36	Sandeep Naikar	1NH21EE103	Capgemini
37	Shankaranand Anandu M	1NH21EE105	DYNALEKTRIC EQUIPMENT LIMITED
38	Shashank B S	1NH21EE107	Stratergi Automation Pvt Ltd
39	Shravani S	1NH21EE108	Moulex
40	Spoorthi R	1NH21EE110	Capgemini
41	Srinivas Abhinay Gandla	1NH21EE112	Capgemini
42	Suchithra .	1NH21EE113	Infogain
43	Suprith U	1NH21EE115	Capgemini
44	Tannu Priya .	1NH21EE119	Capgemini
45	Thanuja K	1NH21EE120	Capgemini
46	Uday A Kammar	1NH21EE122	Capgemini
47	Vaishnavi D	1NH21EE123	Capgemini
48	Vaishnavi J B	1NH21EE124	Moulex(Molex)
49	Vijay Kumar J	1NH21EE125	Zepto
50	S Suhel Ahmed	1NH22EE409	Megha Engineering and Infrastructure Limited

51	Jayasourya U	1NH22EE402	Capgemini
52	Likhith R	1NH22EE406	Bulk Liquid Solutions
53	Khadar Basha D	1NH22EE404	Megha Engineering and Infrastructure Limited
54	Mallesha K	1NH22EE407	Capgemini
55	Sagar	1NH22EE410	Capgemini
56	Buggesh .	1NH22EE401	Megha Engineering and Infrastructure Limited
57	Akshata Sutar	1NH22EE400	Capgemini
58	Syeda Mehak Fathima	1NH21EE118	Micronel Global Engineers Pvt Ltd
59	Karthik R (Off campus)	1NH21EE041	Zepto
60	Abdul kahader(Off camp	1NH21EE003	Alorica
61	Moulya (Off campus)	1NH21EE066	DCX System Ltd
62	Santhosh kumar	1NH22EE412	INFINITALENT CONSULTING PVT LT D.
63	Kumari Vaishnavi Chour	1NH21EE049	Hitachi Energy
64	Meghana P V	1NH21EE059	Unnathi HR solutions
65	Shashank Tonape	1NH21EE106	ACTER
66	Anushree Koti	1NH21EE017	Hindustan Aeronoutical contractual
67	Manjunath V	1NH21EE055	thinker bells
68	Kiran Kumar	1NH22EE405	IPEC Mobility
69	Chandrahas Sai	1NH21EE025	Thinker bells

JOURNAL PUBLICATION DETAILS

Sl No	Faculty Name	Paper Title	Month, Year	Journal Title	Volume	Issue	Page start	Page end	Source (Scopus / WoS)	DOI
1	Dr. Sujitha S	Efficient Net Driven Smart Detection of Dust Accumulation on Solar Panels	July, 2025	Journal of Innovative Image Processing	7	2	504	518	Scopus	https://doi.org/10.36548/jiip.2025.2.011
2	Dr.Gunapriya B	Deep learning model for hair artifact removal and Mpox skin lesion analysis and detection	July, 2025	Scientific Reports	15	21212	1	18	Scopus/Wos	https://doi.org/10.1038/s41598-025-05324-2
3	Dr.Arangarajan Vinayagam	Bayesian Optimized of CNN-M-LSTM for Thermal Comfort Prediction and Load Forecasting in Commercial Buildings	June, 2025	Designs	9	3	1	24	Scopus/WoS	https://doi.org/10.3390/designs9030069
4	Dr.Arangarajan Vinayagam Dr. R Mohan Das	Discrimination of High Impedance Fault in Microgrids: A Rule-Based Ensemble Approach with Supervised Data Discretization	June, 2025	Processes	13	6	1	28	Scopus/WoS	https://doi.org/10.3390/pr13061751
5	Sakthivel Aruchamy	Energy management in alternating current microgrids with renewable energy sources integration using giant trevally optimizer-self-adaptive physics-informed neural networks	April, 2025	Journal of Renewable and Sustainable Energy	17	24105	1	17	Scopus/WoS	https://doi.org/10.1063/5.0249419
6	Dr. Agalya V	Blockchain-based secure data communication with an optimal energy trading model in the IoEV system	April, 2025	Peer-to-Peer Networking and Applications	18	3	1	24	Scopus/WoS	https://doi.org/10.1107/s12083-025-01919-8
7	Soumya K V	Optimization of Quantum Dilated Convolutional Neural Networks: Image Recognition With Quantum Computing	April, 2025	Internet Technology Letters	8	3	1	6	Scopus/WoS	https://doi.org/10.1002/itl2.70027
8	Dr. Vinoth Kumar.K	The Physical Parameters of EDFA and SOA optical Amplifiers and Bit Sequence Variations Based Optical Pulse Generators impact on the Performance of Soliton Transmission Systems	January, 2025	Journal of Optical Communications	45	s1	15	20	Scopus	https://doi.org/10.1515/joc-2019-0156
9	Dr.Arangarajan Vinayagam	Discriminiation of high impedance fault in micrgrid power network using semi-supervised machine learning algorithm	January, 2025	Ain Shams Engineering Journal	16	1	1	19	WoS	https://doi.org/10.1016/j.asej.2024.103187
10	Sangeetha C N	Design and Analysis of a High Sensitive Terahertz Biosensor for Early Cancer Detection Using Silver Surface Plasmon Resonance Mete surface and Elestic Reflection starting Mummuation	January, 2025	ECS Journal of Solid State Science and Technology	14	1	1	20	Scopus/WoS	https://doi.org/10.1149/2162-8777/ada4da

PATENT DETAILS (January to June - 2025)

Sl. No.	Name of the Inventor	Application No.	Date of Application Submitted	Title of Patent	Published/ Granted	Publication Volume No	Publication Date
1	Vinoth Kumar K, Manjunatha	202541013310	17-02-2025	DESIGN OF AIR QUALITY SMART DIAGNOSIS DEVICE FOR DOORS	Published	10-25	07/03/2025
2	Vinoth Kumar K, Revathi V	202541013311	17-02-2025	DESIGN OF VOLTAGE DIAGNOSIS DEVICE FOR SMART CITY	Published	10-25	07/03/2025
3	Dr.R.Mohandas, Rajesh A, Jayasourya U, S Suhel Ahmed, Sanjay Sree Varshan S, Raghunanda K S	202541013297	17-02-2025	SUSPENSION-INTEGRATED ENERGY HARVESTING SYSTEM FOR VEHICLES	Published	10-25	07/03/2025
4	Satish Kumar D, Chaudhary Manas Ray,Thippeswamy S, Divyasree P	202541013292	17-02-2025	AUTOMATIC HEADLIGHT CONTROL SYSTEM BASED ON AMBIENT LIGHT CONDITIONS FOR VEHICLES	Published	10-25	07/03/2025
5	Sunil S K, Mohan Das, Sudeep J, Kavyshri K, Sujan Kumar V, Shreyas R Srinivas	202541013283	17-02-2025	A VENTILATION SYSTEM FOR SMART TREKKING SHOE	Published	10-25	07/03/2025

CONFERENCE PUBLICATION DETAILS

Sl No	Faculty Name	Paper Title	Month, Year	Conference Title	Volume	Page start	Page end	Source (Scopus / WoS)	DOI
1	Dr. Sujitha S	Optimized Frequency Regulation in Isolated Renewable Microgrids with Solar PV Generation using Grasshopper Optimization	July, 2025	7th International Conference on Inventive Material Science and Applications (ICIMA)	7	669	674	Scopus	https://doi.org/10.1109/ICIMA64861.2025.11074039
2	Dr. Sujitha S	TriRoute: Low-Latency 1x3 Router for Optimized Data Distribution	July, 2025	7th International Conference on Inventive Material Science and Applications (ICIMA)	7	158	162	Scopus	https://doi.org/10.1109/ICIMA64861.2025.11073997
3	Soumya K V	Electric Vehicle Battery Management for Sustainable Farming	July, 2025	1st International Conference on Sustainability and Technological Advancements in Engineering Domain (SUSTAINED)	1	1013	1016	Scopus	https://doi.org/10.1109/SUSTAINED63638.2024.11073991
4	Dr. Karthika M	Design and Implementation of a Battery Management System with Charge Monitoring and Fire Protection for Electric Vehicles	Jun-25	International Conference on Frontier Technologies and Solutions (ICFTS)		1	7	Scopus	https://doi.org/10.1109/ICFTS62006.2025.11031613
5	Sangeetha CN	An Optimized Technique for Feature Extraction and EEG Signal Processing using MATLAB	May-25	5th International Conference on Trends in Material Science and Inventive Materials (ICTMIM)	5	1639	1643	Scopus	https://doi.org/10.1109/ICTMIM65579.2025.10988239
6	Dr. Sujitha S	AI-Optimized VLSI Amplifier for Real-Time Vehicle-to-Vehicle Data Exchange in Autonomous Vehicles	May-25	International Conference on Inventive Computation Technologies (ICICT)		1928	1931	Scopus	https://doi.org/10.1109/ICICT64420.2025.11005365
7	Vinoth Kumar K	LSTM-Based Deep Learning Long Term Electric Demand Prediction for Karnataka	May-25	International Conference on Data Science, Agents & Artificial Intelligence (ICDSAAI)		1	6	Scopus	https://doi.org/10.1109/ICDSAAI65575.2025.11011862
8	Surat Pyari Atti	Humanoid Robot	May-25	11th Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)	11	1	4	Scopus	https://doi.org/10.1109/UPCON62832.2024.10982951
9	Dr. Gunapriya B	Design and Inmplementation of Real Time Wireless Sensors Network Protocol with Relay Nodes and Localization Methods for Efficient System Performance	Apr-25	International Conference on Intelligent Control, Computing and Communications (IC3)		763	769	Scopus	https://doi.org/10.1109/IC363308.2025.10956427
10	Surat Pyari Atti	Fog Vision For Roads And Rails	Apr-25	IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)		1	4	Scopus	https://doi.org/10.1109/SCEECS64059.2025.10940307

11	Satishkumar D	Intelligent Plant Disease Diagnosis using Deep Neural Networks	Mar-25	International Conference on Advances and Applications of Artificial Intelligence and Machine Learning	1	419	428	Scopus	https://doi.org/10.1007/978-981-97-9507-9_31
12	Dr. Sujitha S	Therapeutic innovative rehabilitation Tools: Treadmill and pedal machines for children with physical impairments	Mar-25	4th International Conference on Soft Computing for Security Applications (ICSCSA)	4	358	360	Scopus	https://doi.org/10.1109/ICSCSA64454.2024.00063
13	Anitha.A	Smart gloves for communication: A survey on Technology for the hearing and speech impaired	Mar-25	4th International Conference on Sentiment Analysis and Deep Learning (ICSADL)	4	424	429	Scopus	https://doi.org/10.1109/ICSADL65848.2025.10933438
14	Satishkumar D	Speed control of PMSM using Fuzzy logic control with PSO technique	Mar-25	International Conference on Recent Innovation in Smart and Sustainable Technology (ICRISST)		1	6	Scopus	https://doi.org/10.1109/ICRISST59181.2024.10921778
15	Mausri Bhuyan Vinoth Kumar K Sangeetha CN	Object oriented RFID with machine learning and IoT	Mar-25	International Conference on Recent Innovation in Smart and Sustainable Technology (ICRISST)		1	4	Scopus	https://doi.org/10.1109/ICRISST59181.2024.10922027
16	R.Mohan Das	Hybrid Electric Vehicle: Energy Optimization and Emission Reduction for Sustainable Transportation	Mar-25	2nd International Conference on Advances in Computation, Communication and Information Technology (ICAICCIT)	2	744	748	Scopus	https://doi.org/10.1109/ICAICCIT64383.2024.10912180
17	Vinoth Kumar K	A certain analysis of solar home based lighting system for smart city designed for sustainable development	Mar-25	International Conference on Recent Innovation in Smart and Sustainable Technology (ICRISST)		1	4	Scopus	https://doi.org/10.1109/ICMSCI62561.2025.10894550
18	Dr. Sujitha S	Smart Pavement Repair Bot with IoT and Machine Learning Integration	Feb-25	International Conference on Multi-Agent Systems for Collaborative Intelligence (ICMSCI)		368	372	Scopus	https://doi.org/10.1109/ICMSCI62561.2025.10894097
19	Dr. Sujitha S	AI-Driven Pavement Repair BoT with IOT connectivity	Feb-25	4th International Conference on Ubiquitous Computing and Intelligent Information Systems (ICUIS)	4	120	123	Scopus	https://doi.org/10.1109/ICUIS64676.2024.10867156
20	Dr. Sujitha S	A novel Swam Robotics System for Navigating and Collective decision making in Dynamic Enivornments	Feb-25	4th International Conference on Ubiquitous Computing and Intelligent Information Systems (ICUIS)	4	1850	1853	Scopus	https://doi.org/10.1109/ICUIS64676.2024.10867086
21	Vinoth Kumar K	A certain investigations of Gesture based Conntrols System in Infotainment of hybrid Car using Inteernt of things	Feb-25	International Conference on Multi-Agent Systems for Collaborative Intelligence (ICMSCI)		594	598	Scopus	https://doi.org/10.1109/ICMSCI62561.2025.10894550
22	Karthika M	Design and Inplementation of Dual Function System for inventory Management and Safety : IOT based Monioring and Gas Detection	Feb-25	International Conference on Multi-Agent Systems for Collaborative Intelligence (ICMSCI)		400	407	Scopus	https://doi.org/10.1109/ICMSCI62561.2025.10894350
23	Vinoth Kumar K	A review investigation on current trends in smart unsighted cane technology	Feb-25	9th International Conference on Communication and Electronics Systems (ICCES)		1417	1420	Scopus	https://doi.org/10.1109/ICCES63552.2024.10859362
24	Vinoth Kumar.K	Analysis of Gesture based Control System in infotainment of Hybrid car using Internet of Things	Feb-25	6th International Conference on Mobile Computing and Sustainable Informatics (ICMCSI)	6	286	292	Scopus	https://doi.org/10.1109/ICMCSI64620.2025.10883553
25	A.S.Anitha Nair	Neuronet: Convergence of Brain-Computer Interfacing and Network Technologies	Jan-25	International Conference on IoT Based Control Networks and Intelligent Systems (ICICNIS)		1504	1509	Scopus	https://doi.org/10.1109/ICICNIS64247.2024.10823315

DETAILS OF FACULTY DEVELOPMENT PROGRAMME (FDP) ATTENDED BY FACULTY

Sl.No	Faculty Name	Title of the FDP	No. of days	Duration	Institute
1	Mr. Satishkumar D	Intelligent Transport Systems for Electric Vehicle	12 days	30/06/2025 to 07/11/2025	National Institute of Technology Surathkal
2	Dr. B. Gunapriya	AI and Data Science for Smart Healthcare	13days	16/06/2025 to 28/06/2025	Indian Institute of Technology (Indian School of Mines), Dhanbad
3	Mr. Sunil S K	Generative AI	5 days	10/05/2025 to 14/05/2025	Electronics & ICT Academy, C-DAC Hyderabad
4	Mr. Satishkumar D	Quantum Computing	23 days	03/05/2025 to 25/05/2025	Centre for Development of Advanced Computing, Hyderabad & Indian Institute of Technology, Roorkee
5	Dr. Sujoy Das	The Future of Wireless: Exploring 6G and Emerging Technologies	5 days	15/04/2025 to 19/04/2025	School of Engineering and Technology, CMR University, Bengaluru, Karnataka, India
6	Dr. Sujoy Das	Emerging Technologies in Electrical Engineering	6 days	21/04/2025 to 26/04/2025	B.S Abdur Rahman Crescent Institute of Science & Technology, Chennai

7	Mr. Satishkumar D	AI-Empowered Electric Vehicles in Smart Grid System: Challenges and Opportunities	5 days	10/02/2025 to 15/02/2025	Shri Vishnu Engineering College for Women
8	Dr. M Karthika	The Role of Artificial Intelligence and Machine Learning in Electric Vehicle Technology	6 days	10/02/2025 to 15/02/2025	K Ramakrishnan College of Technology (ATAL FDP)
9	Mrs. Kavita Chenna Reddy	Challenges of Autonomous, and Electric Vehicles	6 days	27/01/2025 to 01/02/2025	Madan Mohan Malaviya University of Technology
10	Mr. Sunil S K	Big Data Analytics	5 days	23/01/2025 to 27/01/2025	Electronics & ICT Academy, C-DAC Hyderabad
11	Mrs. Pooja Jose	Eco Innovation in Green Energy and Climate Resilience: Fueling for Economic and Industrial Advancement	6 days	20/01/2025 to 25/01/2025	Sir M. Visvesvaraya Institute of Technology (ATAL FDP)
12	Mrs. Surat Pyari Atti	Eco Innovation in Green Energy and Climate Resilience: Fueling for Economic and Industrial Advancement	6 days	20/01/2025 to 25/01/2025	Sir M. Visvesvaraya Institute of Technology (ATAL FDP)
13	Mrs.Ayyappan Subhadra Anitha Nair	Eco Innovation in Green Energy and Climate Resilience: Fueling for Economic and Industrial Advancement	6 days	20/01/2025 to 25/01/2025	Sir M. Visvesvaraya Institute of Technology (ATAL FDP)
14	Mrs. Soumya K V	Eco Innovation in Green Energy and Climate Resilience: Fueling for Economic and Industrial Advancement	6 days	20/01/2025 to 25/01/2025.	Sir M. Visvesvaraya Institute of Technology
15	Mrs. Anitha A	Research Potential in Advanced Power Electronics & Renewable Energy	12 days	13/01/2025 to 24/01/2025	National Institute of Technology, Warangal
16	Mr. Vinod Kumar S	Research Potential in Advanced Power Electronics & Renewable Energy	12 days	13/01/2025 to 24/01/2025	National Institute of Technology, Warangal
17	Mrs. Sangeetha CN	Research Potential in Advanced Power Electronics & Renewable Energy	12 days	13/01/2025 to 24/01/2025	National Institute of Technology, Warangal
18	Mrs. Surat Pyari Atti	Research Potential in Advanced Power Electronics & Renewable Energy	12 days	13/01/2025 to 24/01/2025	National Institute of Technology, Warangal
19	Mrs.Ayyappan Subhadra Anitha Nair	Research Potential in Advanced Power Electronics & Renewable Energy	12 days	13/01/2025 to 24/01/2025	National Institute of Technology, Warangal

Applications of Quantum Computing in Electrical Engineering

Harnessing Quantum Power for the Next Generation of Electrical Innovation

Introduction

The 21st century has witnessed the rapid convergence of quantum physics and computational technology, giving rise to a revolutionary field - Quantum Computing. Unlike classical computers, which process data as bits (0 or 1), quantum computers use qubits that can exist in a state of superposition, meaning they can be both 0 and 1 at the same time. Additionally, entanglement allows qubits to be correlated, enabling parallel computations that classical computers cannot match.

For Electrical Engineers, this technology opens up vast opportunities. From optimising Power Systems and Communication Networks to designing nanoscale devices and ensuring cybersecure communication, quantum computing promises to transform the foundations of Electrical Engineering.

1. Power System Optimisation and Smart Grids

Modern electrical grids are evolving into smart grids, integrating renewable energy sources, real-time monitoring, and Automation. Managing such systems involves solving complex optimisation problems — balancing supply and demand, minimising transmission losses, and forecasting energy consumption.

Quantum Algorithms such as the Quantum Approximate Optimisation Algorithm (QAOA) and Quantum Annealing are being used to tackle these challenges.

Applications include:

- Load Flow Optimisation: Quantum Algorithms can compute optimal load distribution in milliseconds, enhancing grid stability.
- Renewable Energy Integration: Predicting solar and wind energy fluctuations with quantum-enhanced forecasting models.
- Fault Detection: Quantum Machine learning helps identify grid anomalies faster and more accurately.

Example:
Companies like IBM and Siemens are experimenting with quantum-assisted grid simulation tools to improve efficiency in large-scale energy networks.

2. Control Systems and Quantum Signal Processing

Control Systems form the heart of Automation, Robotics, and Industrial Engineering. The precision of control algorithms depends on accurate data processing and prediction.

Quantum Computing contributions include:

- Quantum Fourier Transform (QFT): Offers exponentially faster computation than classical FFT for spectral analysis.
- Quantum Kalman Filters: Can enhance precision in noisy environments like autonomous vehicles and radar systems.
- Quantum Reinforcement Learning: Used in adaptive control and Robotics for real-time decision-making.

Example:
In Aerospace and Robotics, quantum-enhanced controllers can help drones and robotic arms perform path corrections faster under uncertain conditions.

3. Electronic Circuit Simulation and VLSI Design

Designing Integrated Circuits (ICs) involves solving an enormous number of nonlinear equations, which becomes computationally expensive for nanometer-scale transistors.

Quantum Computing can help in:

- Device Modeling: Simulating electron behavior at the atomic level for semiconductor research.
- VLSI Layout Optimisation: Using Quantum Genetic Algorithms (QGA) to find efficient circuit layouts.
- Fault Diagnosis: Detecting defects in ICs through pattern recognition powered by Quantum Machine Learning.

Example:
Research groups at MIT and Intel Labs are exploring quantum-inspired algorithms for chip design and reliability testing, cutting design cycles significantly.

4. Quantum Communication and Cryptography

In an increasingly digital world, data security is paramount. Quantum Computing influences communication systems in two contrasting ways - it poses a threat to classical encryption but also provides a solution through Quantum Cryptography.

Applications:

- Quantum Key Distribution (QKD): Uses photon entanglement to create unbreakable encryption keys.
- Quantum Error Correction: Improves the accuracy of data transmission over noisy channels.
- Quantum Network Simulation: Helps design ultra-secure global communication systems.

Example:
China's Micius satellite demonstrated successful long-distance quantum key distribution, enabling secure data exchange between ground stations thousands of kilometers apart.

5. Materials and Device Innovation

Quantum simulation allows Engineers to study materials at the atomic level, predicting electrical, optical, and magnetic behaviours before physical experiments.

Applications:

- Superconducting Materials: Designing materials that conduct electricity without resistance.
- Quantum Dots and Sensors: Enhancing sensitivity in biosensors, medical imaging, and environmental monitoring.
- Photovoltaic and Battery Design: Predicting molecular behavior to create efficient solar cells and energy storage devices.

Example:
Quantum simulations have accelerated the discovery of new battery cathode materials with higher energy density and stability - A major breakthrough for electric vehicles.

6. Quantum Computing Hardware and Control Systems

Interestingly, Quantum Computing itself relies on Electrical Engineering for its physical implementation.
Engineers design the cryogenic control circuits, microwave systems, and error-correction architectures that make quantum processors function.

Core Engineering Contributions:

- Microwave Electronics: Used to control and read out superconducting qubits.
- Cryogenic Systems: Maintain qubits at near absolute-zero temperatures to prevent decoherence.
- Quantum Interconnects: Enable data transfer between quantum and classical processors.

Example:
Companies like Rigetti Computing and Google Quantum AI rely on electrical engineers to design the control electronics for superconducting quantum processors.

7. Future Prospects and Challenges

While the potential of Quantum Computing in Electrical Engineering is immense, there are challenges:

- Hardware Limitations: Qubits are prone to noise and decoherence.
- High Cost and Scalability Issues: Maintaining stable quantum systems is expensive.
- Need for Skilled Workforce: Engineers must develop cross-disciplinary expertise in Physics, Computing, and Electronics.

Despite these challenges, the progress is rapid. Quantum Computing is expected to become a core part of Electrical Engineering curricula and industrial R&D in the coming decade.

Conclusion

Quantum Computing is not merely an academic curiosity — it is a technological revolution. As quantum hardware becomes more practical, Electrical Engineers will find themselves at the center of this transformation, leading innovations in energy, communication, computation, and device design.

By merging the precision of Electrical Engineering with the possibilities of Quantum Mechanics, we are stepping into a future where computation reaches truly quantum heights.

References

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