You Choose, We Do It

St. JOSEPH'S COLLEGE OF ENGINEERING

(An Autonomous Institution)

St. Joseph's Group of Institutions

OMR, Chennai - 119

31 Years of Excellence

★ Since 1994 ★

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Newsletter

January 2025

VISION

To become a world class renowned department where dissemination and application of knowledge in design and analysis of electronic circuits in the field of communication is delivered and to synergistically balance through relentless pursuit of student success towards the economic prosperity of the society and the world at large.

MISSION

Professionalism: Achieve excellence in teaching, learning, and educational activities which ensure that each student has the opportunity to attain his or her fullest potential

Core Competence: Inculcate innovative skills, research aptitude, team-work, ethical practices in students so as to meet expectations of the industry as well as society.

Research: Provide research and intellectual resources that address problems facing the industry and the world, while advancing the boundaries of disciplinary and multidisciplinary research and its applications.

Industrial Interaction: Provide professional development opportunities for all by creating an open and accessible learning environment and incorporating appropriate technology through collaboration with industry

PROGRAM OUTCOMES

1. Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or process that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.

4. Conduct investigations of complex problems: Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to proceed valid conclusions.

5. Modern tool usage: create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM EDUCATIONAL OBJECTIVES

1.To enable graduates to pursue research, or have a successful career in academia or industries associated with Electronics and Communication Engineering, or as entrepreneurs.

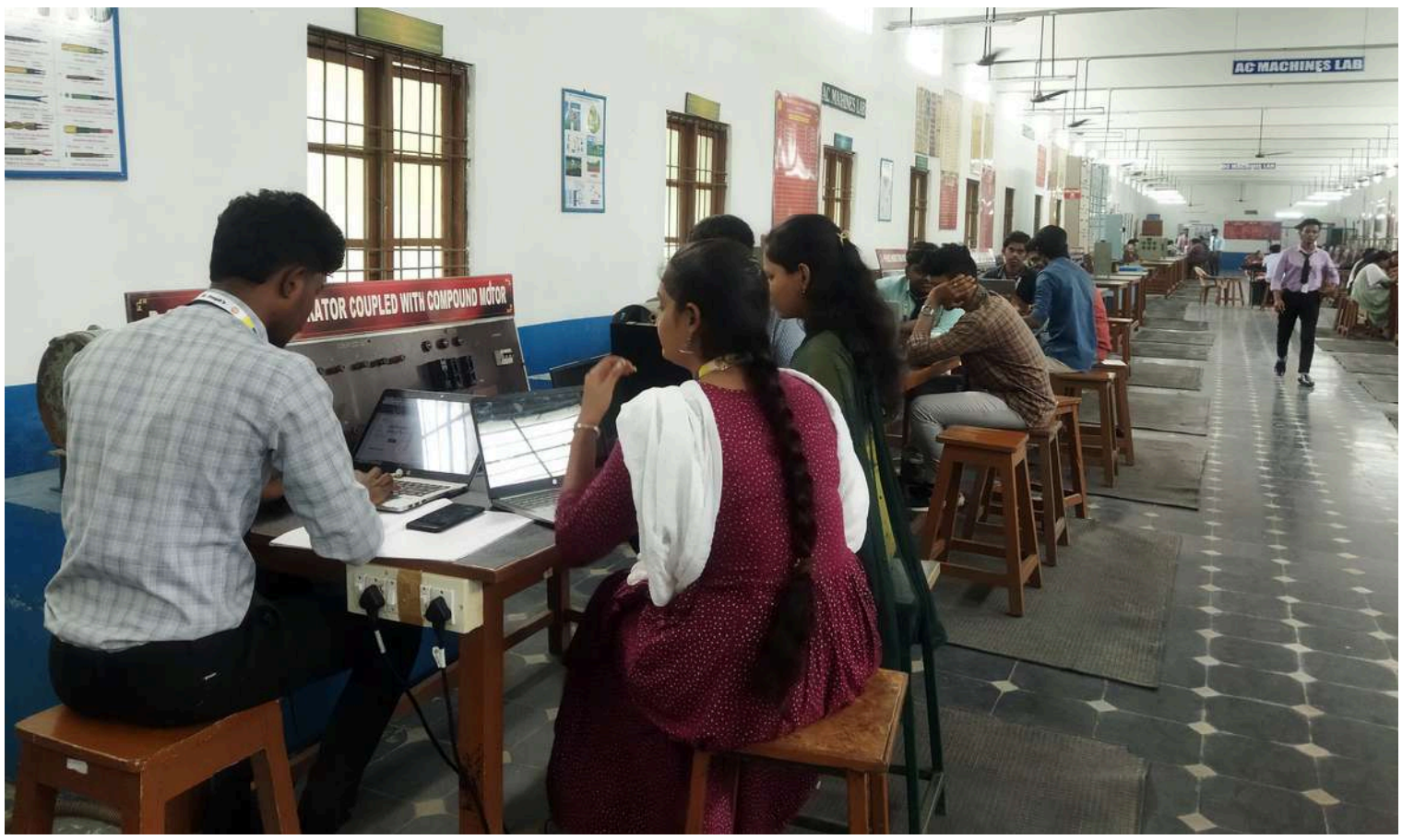
2. To provide students with strong foundational concepts and also advanced techniques and tools in order to enable them to build solutions or systems of varying complexity.

3.To prepare students to critically analyze existing literature in an area of specialization and ethically develop innovative and research oriented methodologies to solve the problems identified.

EVENTS OF JANUARY-2025

- NIELET Bootcamp
- Professional Society Activities
- Workshop Organized
- ED Cell Competition - Idea Pitching
- Placement Empowerment Program
- NGO
- PhD Viva Voce
- Industrial Interaction
- Student Achievements
- Staff Achievements
- Pongal Celebration

NIELIT BOOTCAMP:IoT



NIELIT conducted a 40-hour blended (offline and online) bootcamp on IoT from January 6th to 10th, 2025, targeting 52 pre-final year students. The primary objective was to introduce students to the fundamentals of IoT, including IoT system architecture, hardware platforms (like Raspberry Pi), sensor interfacing, and communication protocols. The bootcamp aimed to provide hands-on experience and equip students with the practical knowledge necessary to work on real-world IoT applications and pursue careers in this burgeoning field. Upon successful completion, participants received a graded certificate that enhances their professional profiles.

NIELIT BOOTCAMP:Robotics

A 40-hour blended (offline and online) Robotic Process Automation (RPA) bootcamp was conducted from January 6th to 10th, 2025, targeting 53 pre-final year students. The program, organized by NIELIT, aimed to equip participants with the skills and knowledge necessary to understand, design, and implement RPA solutions. Upon completion, participants demonstrated a comprehensive understanding of RPA concepts and their applications. They gained proficiency in identifying and analyzing business processes suitable for automation, using leading RPA tools, and designing, developing, and deploying RPA bots. Hands-on projects and case studies provided practical experience, preparing them for a career in automation.

Professional Society Activities

OPTICA STUDENT CHAPTER

The OPTICA Student Chapter of St. Joseph's College of Engineering successfully organized an engaging outreach event at St. John's Matriculation Hr. Sec. School, New Perungalathur aimed at introducing advanced engineering concepts to students from classes 9 through 12. The event, held on 24th January 2025, focused on practical demonstrations and interactive projects to inspire and educate young minds about engineering and technology.

Professional Society Activities

OPTICA STUDENT CHAPTER

The primary objective of the event was to provide students with hands-on learning experiences in the fields of Industry 4.0, IoT (Internet of Things), and AI (Artificial Intelligence). The OPTICA team, comprising 50 enthusiastic and dedicated members, brought 20 diverse engineering projects to showcase to the students. Each project was carefully designed to highlight fundamental engineering principles in a hands-on, interactive manner. These included real-world applications of engineering, enabling students to witness firsthand how theory translates into practice.

WORKSHOP ORGANISED

Virtual Workshop

St. Joseph's College of Engineering (Chennai), in association with IIT Kharagpur and supported by the Ministry of Education, successfully conducted a one-day virtual workshop on January 24, 2025, from 1:00 PM to 3:00 PM for students of Electronics and Communication Engineering (ECE). The workshop provided participants with hands-on experience using advanced virtual lab platforms developed by IIT Kharagpur, allowing them to conduct experiments remotely and explore concepts in a dynamic environment. Sessions focused on the impact of virtual labs on modern education, emphasizing their potential to enhance learning outcomes, improve accessibility to resources, and bridge geographical limitations for students. The collaboration with IIT Kharagpur ensured participants received high-quality instruction and insights into the latest advancements in virtual laboratory technology.

WORKSHOP ORGANISED

DRONE TECHNOLOGY

The ED Cell and OPTICA, in association with Vaayusastra Aerospace Ltd, organized a 2-day workshop on Drone Technology for second-year ECE students on 27th and 28th January 2025. The workshop provided hands-on training and theoretical insights into drone design, assembly, and programming. Students actively engaged in practical sessions, gaining expertise in flight mechanics and control systems. Industry experts from Vaayusastra shared their knowledge, inspiring students to explore the rapidly evolving field of drone technology. The event concluded with a demonstration of drones developed during the workshop, receiving positive feedback from participants.

WORKSHOP ORGANISED

DRONE TECHNOLOGY

WORKSHOP ORGANISED

Industrial Automation

Mr. E. Nikilan
Automation Engineer
Pumo Technovations
Chennai

The Entrepreneurship Development (ED) Cell and Optica, in collaboration with Pumo Technovations, organized a one-day workshop on Industrial Automation, 7th January 2025. The event was held exclusively for the II-year ECE students, aiming to enhance their understanding of automation technologies in modern industries.

Mr. E. Nikilan, Automation Engineer at Pumo Technovations, Chennai served as the resource person for the workshop. His sessions were insightful and focused on the latest trends in industrial automation, including the integration of sensors, actuators, and control systems in manufacturing processes. The workshop provided students with exposure to cutting-edge automation tools and software, fostering practical knowledge and problem-solving skills.

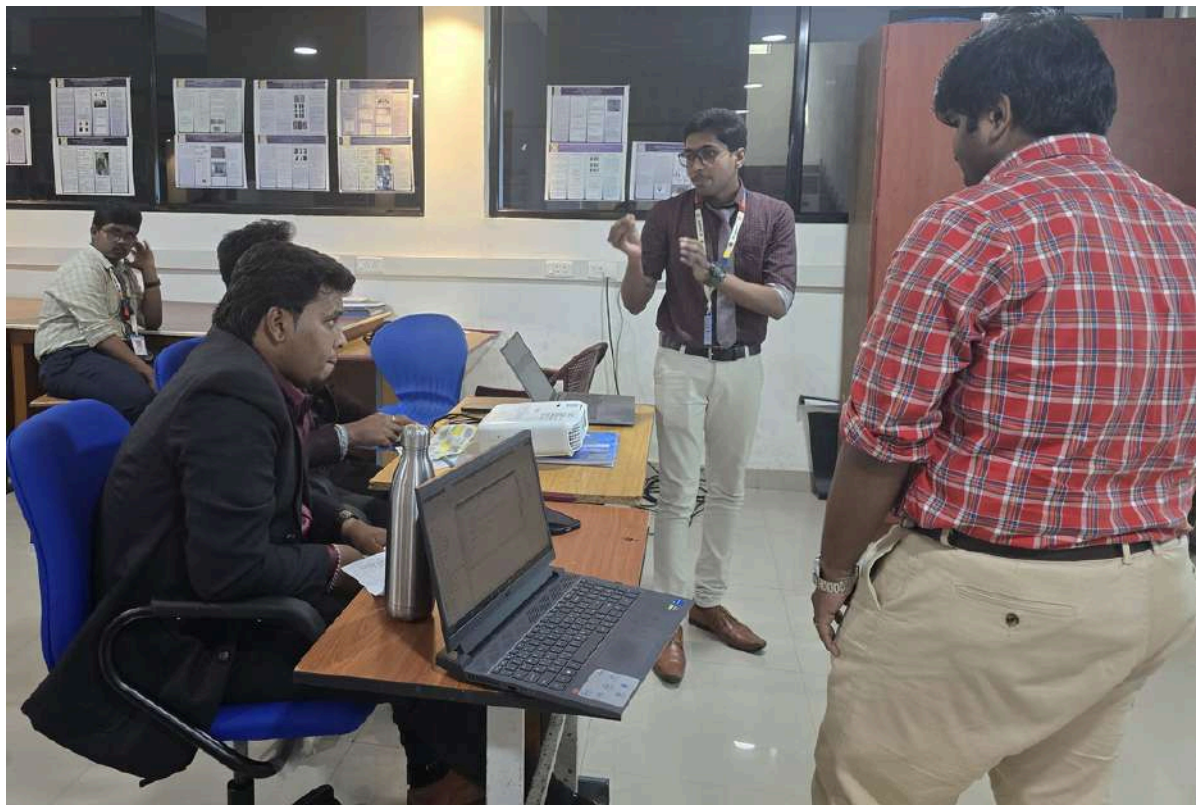
ED CELL COMPETITION – IDEA PITCHING

VENTURE VISION

The VENTURE VISION - Idea pitching event for II ECE students was held on January 29th, 2025. The event aimed to foster innovation and entrepreneurship among second-year Electronics and Communication Engineering students. Participants presented their ideas focused on solving real-world challenges through technology. The pitches were evaluated based on creativity, feasibility, and technical depth. A diverse range of ideas was presented, including advancements in IoT, communication systems, and wearable tech.

ED CELL COMPETITION – IDEA PITCHING

VENTURE VISION



The students engaged in Q&A sessions, defending their concepts and gaining valuable feedback from the judges. The event encouraged critical thinking and enhanced presentation skills. Faculty members and industry experts were present as judges. Overall, it served as an excellent platform for students to showcase their innovative solutions. The event concluded with recognition of the top pitches and feedback for further development.

PLACEMENT EMPOWERMENT PROGRAM

Shaik Aleem Ur Rehaman, an ASIC Design and Verification Engineer at Microsoft (formerly AMD and Intel), delivered an insightful session on ASIC design and semiconductor technology advancements at Periwinkle, placement block, on January 25, 2025, from 11:00 AM to 1:00 PM. The session covered key topics including the cost-effectiveness of ASICs versus FPGAs, the intricacies of CISC and RISC processor architectures, a deep dive into AMD's chipset architecture, and the importance of AI accelerators like TPUs and DPUs. Shaik also explained the ASIC design flow, the differences between CPU and GPU processing along with memory types, and the latest developments in AI chips, including TPUs, DPUs, NPUs, IPUs, and AMD-Xilinx AI engines.

NGO

On January 9th, 2025, the students of III ECE A section have engaged in community service by visiting Kaikoduppom charitable trust in Kovilambakkam. During their visit, the students actively participated in various activities, such as conducting educational sessions for children and assisting with the daily operations of the trust. This experience provided valuable insights into the challenges faced by underprivileged communities, emphasizing the significance of community service and fostering a sense of social responsibility among the students.

NGO

On January 9th, 2025, the students of III ECE B from our college participated in community service at Holy Heart Home Mission Trust in Avadi. They engaged in meaningful activities such as providing companionship to the elderly, assisting with daily tasks, and organizing recreational programs. This experience fostered empathy among the students and highlighted the profound impact of small acts of kindness. Each group returned with a sense of fulfillment and a renewed perspective on social responsibility. Their contributions were greatly appreciated by the NGO, and the students gained invaluable life lessons from their community service endeavor.

NGO

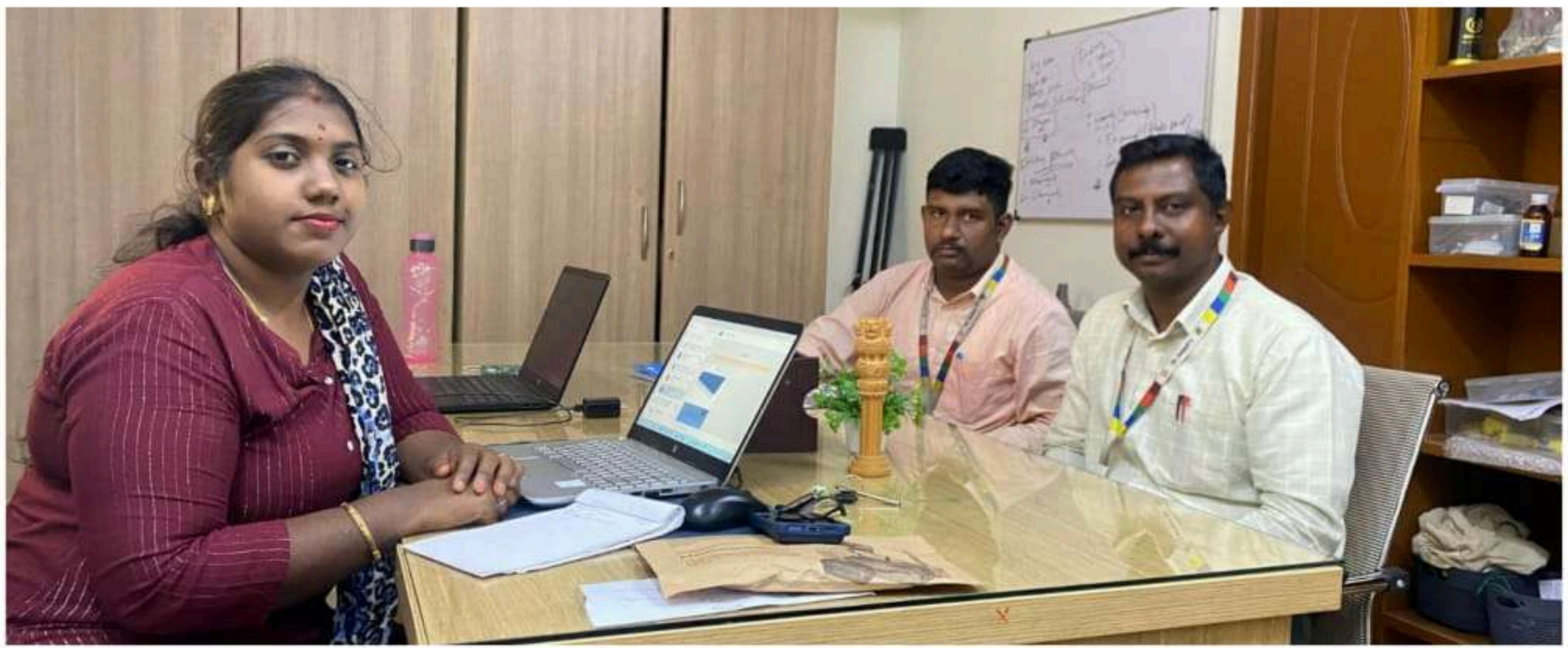
The III ECE C students at our college dedicated January 9th, 2025, to community service at Love Care Centre in Alwarpet. They actively participated in various tasks, including childcare, organizing enriching educational and recreational activities, and providing essential support to the center's staff. This valuable experience instilled in the students a profound appreciation for the importance of giving back to society and the profound joy of positively impacting the lives of those in need. Upon returning, each student carried a renewed sense of fulfillment and a strengthened commitment to social responsibility. The NGO deeply appreciated the students' contributions, and the students themselves gained invaluable life lessons from their meaningful engagement.

PhD Viva Voce

On January 10, 2025, Mrs. Thendral N, a Part-Time External Research Scholar, successfully defended her thesis during her viva voce exam. The thesis, supervised by Dr. D Lakshmi, focused on the application of Machine Learning (ML) and Deep Learning (DL) techniques for developing computer-aided diagnosis systems aimed at cervical cancer classification using colposcopy images.The research presents an innovative approach to improving the accuracy and efficiency of cervical cancer detection, which is crucial for early diagnosis and treatment.

The examination was conducted under the guidance of Dr. D Lakshmi, and the scholar's presentation was followed by a rigorous questioning session. The thesis was evaluated for its academic merit, practical applicability, and potential impact on the field of medical imaging and diagnostic systems.

INDUSTRIAL INTERACTION



Our ECE faculty members, Mr. G.D. Vignesh and Dr. R. Niruban, visited Glonix Electronics Private Limited,Velachery & Pumo Technovations Tambaram specailzed in PCB design, testing, and Industrial Automation. During this visit, they engaged in a productive discussion with Mrs. K. Agalya, Managing Director and Mr. E. Nikilan, Automation Engineer to explore potential collaborations aimed at bridging the gap between academia and industry.

INDUSTRIAL INTERACTION

The meeting focussed on providing valuable exposure and learning opportunities for students through the following measures:

- **Memorandum of Understanding (MoU)**
- **Offering Paid internships**
- **Conducting industrial training and workshops**
- **Facilitating Placement Opportunities.**

STUDENT ACHIEVEMENTS

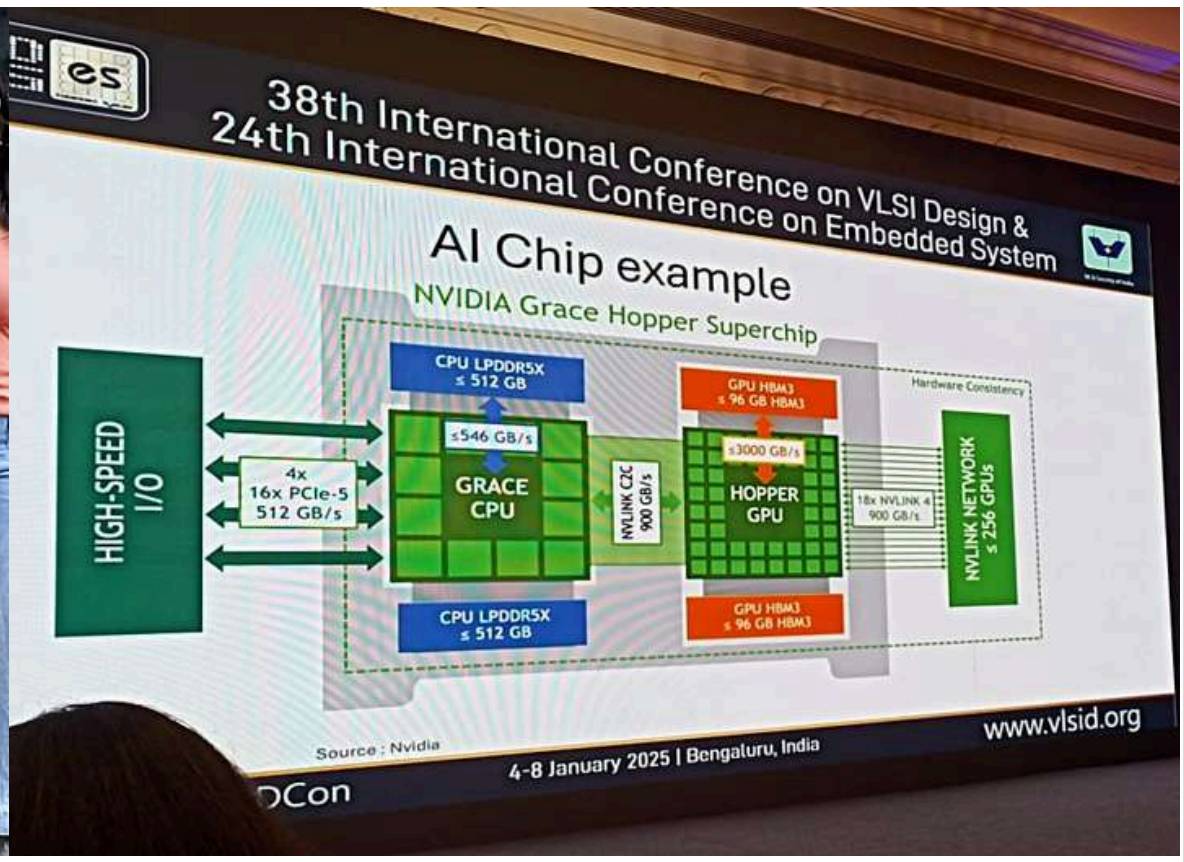
Motheeswaran K and Nikhisha Vibhitha R, Electronics and Communication Engineering students from the 2021-2025 batch, have secured internships at Candela Technologies, a network testing solutions company. Each student will receive a monthly stipend of Rs. 20,000 during their internship, providing them with valuable practical experience in a real-world setting and the opportunity to learn from industry professionals. This experience will allow them to apply their academic knowledge, develop new skills, and gain insights into the field of network testing, ultimately giving them a competitive edge as they begin their careers in electronics and communication engineering.

STUDENT ACHIEVEMENTS

Bhagwanthi Manavalan, an Electronics and Communication Engineering student from the 2021-2025 batch at St. Joseph's College of Engineering (Chennai), has secured an internship at 4i Apps Solutions with a monthly stipend of Rs. 20,000. This internship will provide Bhagwanthi with valuable work exposure in the field of software development, allowing her to apply her academic knowledge to real-world projects. She will gain practical experience in areas such as software design, development, testing, and deployment, enhancing her technical skills, problem-solving abilities, and preparing her for a successful career in the software industry.

STAFF ACHIEVEMENTS

OUTREACH PROGRAM



Dr. P. Latha, Associate Professor in the Department of ECE, attended the VLSI Design Conference 2025 held at Leela Palace, Bangalore, on 4th and 5th January 2025. The event featured insightful sessions, inspiring speakers, and excellent networking opportunities.

Dr. Latha interacted with several industry veterans, including:

- **Dr. Satya Gupta, President of VLSI Society of India**
- **Dr. Indranil Sengupta, Professor at IIT Kharagpur**
- **Experts from leading companies like Intel, Synopsys, NVIDIA, Cadence, and Tata Electronics**

The conference provided a platform to gain knowledge in Challenges and Opportunities of Applying AI/ML in VLSI Design and build valuable connections in the VLSI field.

STAFF ACHIEVEMENTS

OUTREACH PROGRAM

Mr.M.Lingeshwaran, Assistant Professor, Department of ECE has participated in the Faculty Development Program on " Current Trends and Future Evolution in Telecom" from January 8-10 at Nokia in Chennai

STAFF ACHIEVEMENTS

Inspirational Educator Award

G D Vignesh ,Assistant Professor, Department of ECE, St. Joseph's College of Engineering, Chennai, Tamil Nadu, India. have received Inspirational Educator Award from NTL Technology, Tamil Nadu, India, for his academic contribution in innovative teaching practices under the category of "Inspirational Educator Award", having been adjudicated during the academic year 2024-2025. NTL Technology congratulates G.D.Vignesh for his outstanding performance and wishes him many more laurels in the years to come, which will, in turn, contribute significantly to the promotion of higher education in India.

STAFF ACHIEVEMENTS

PUBLICATIONS

- **Latha, P., "Multicast On-Route cluster propagation to detect network intrusion detection systems on MANET using Deep Operator Neural networks", Expert Systems With Applications (Elsevier Journal with Impact Factor:7.5).**
- **Mrs. P. Thenmozhi, Assistant Professor, Department of ECE has published a book titled "Biomedical instrumentation". ISBN number: 978-81-981910-7-6**

PONGAL CELEBRATION

The ECE department successfully organized a vibrant Rangoli competition on 11th January 2025 as part of the annual Pongal celebrations at our College. Fourteen teams comprising students from various branches, including ECE, EEE, CSE, IT, Biotechnology, Chemical Engineering, and MBA-Integrated, participated enthusiastically. The competition, held behind VII block, encouraged creativity and teamwork as students designed Rangolis themed "Tamizhar Marabu," symbolizing gratitude and prosperity. The event showcased a diverse range of artistic expressions, from traditional motifs to modern interpretations, using a variety of materials. The Rangoli competition was a resounding success, fostering unity, cultural expression, and a vibrant festive spirit across the institute

PONGAL CELEBRATION

PONGAL CELEBRATION

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