BNM Institute of Technology

An autonomous Institution under VTU

IEEE Vehicular Technology Society (SBC 14831G)

List of Events Organized during 2024-25

Sl. No	Event Title	Date	No. of Participants
1	Roadmap to IITs and PSU Jobs through GATE	8th January, 2026	56
2	Circuit chase	14th October, 2025	60
3	IEEE Event Plan Discussion	29th September, 2025	25
4	IEEE Membership Drive	25th September, 2025	27
5	Graphical Programming and Real-Time Applications using LabVIEW	10th and 11th July, 2025	57
6	Industrial visit to BMRCL	9 th July, 2025	52
7	Internship on Electric Vehicle Design using MATLAB and Fusion 360	2nd to 20th June, 2025	56

8	Industrial visit to Hydro Project and Substation at Perigalkuthu, Kerala	11th and 12th April, 2025	38
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12	Technical talks on "Software Driven Vehicles" and "Design for Sustainability	14th September, 2024	95
13	Inaugural function of IEEE VTS SBC BNMIT	14th September, 2024	95

IEEE VTS BNMIT Office Bearers

Sl. No	Name	Position Held
1	Revanth BV	Chair
2	Sowmya M Kumarji	Vice-Chair
3	Sinchana R M	Secretary
4	Sai Rashmi	Treasurer
5	Sanjana Alladwar	Webmaster

Faculty Advisor : Dr. Madhu S

Roadmap to IITs and PSU Jobs through GATE

Event Date: 8th January 2026

Time of the Event: 12.00 PM

Participants: Students of Electrical and Electronics Engineering ,56

Venue: N205, BNMIT

Duration: 1.5 Hours

Overview:

The Department of Electrical and Electronics Engineering successfully organized a career guidance seminar titled "Roadmap to IITs and PSU Jobs through GATE". This session was conducted in association with IMS GATE Academy and the IEEE Power and Energy (PES). The program was aimed at fostering technical excellence and providing students with a platform to address real-world challenges through advanced technological education.

Objectives:

- To foster interdisciplinary collaboration among engineering students.

- To focus on enhancing practical skill development through competitive exam preparation.

- To strengthen academia-industry ties by bridging the gap between theoretical knowledge and industry needs.

- To promote a spirit of innovation and encourage students to think towards viable career solutions in energy and sustainability.

Event Structure:

- The session was led by expert speaker Mr. Vipin Kumar Mishra, Lead Mentor for IMS GATE Academy.

- Technical insights and academic guidance were provided by Dr. Madhu S, Associate Professor, Dept. of EEE.

- The event was organized under the leadership of HoD Dr. Venkatesha K and the senior management of BNMIT.

- The session focused on evaluating the feasibility and potential for real-world implementation of advanced engineering concepts through the GATE pathway.

Expected Outcomes:

- Enhanced technical knowledge and teamwork skills among participants.

- Strengthened collaboration between the BNMIT EEE department and industry mentors.

- Developed a clear understanding of the opportunities available for higher research and incubation at IITs.

- Improved student awareness regarding the requirements for securing positions in PSUs.

Conclusion:

The seminar provided a dynamic platform for participants to understand the application of advanced technologies in real-time problem statements. The inclusion of industry experts for mentoring further strengthened academia-industry connections, creating future opportunities for students. Beyond technical knowledge, the session played a crucial role in fostering soft skills such as project management and goal setting, inspiring students to think beyond academic boundaries.

Circuit chase

Event Date: 14th October , 2025

Time of the Event: 11 AM to 3 PM

Venue: A209, Auditorium Building, BNMIT3

No of participants: 60 participants.

Overview:

The circuit-based treasure hunt was organized as an innovative and interactive technical activity designed to combine electronics knowledge, logical reasoning, and teamwork in an engaging format. The event aimed to move beyond traditional learning methods by introducing a challenge-based environment where participants applied their understanding of electrical circuits, electronic components, and troubleshooting techniques while solving clues. By integrating a treasure hunt with circuit assembly tasks, the activity created a stimulating platform for students to think critically and apply theoretical concepts in a practical context.

The event encouraged participants to explore engineering concepts in a fun and competitive atmosphere. Teams were required to collaborate, analyze technical clues, and identify components accurately, which helped develop their analytical thinking, time management, and decision-making skills. The structured progression of the activity ensured that participants remained actively engaged while continuously applying their knowledge of electronics.

Event Proceedings:

The event was conducted as a technical treasure hunt consisting of multiple stages, where teams had to solve electronics-based clues to progress through the competition. Each clue was designed around basic electrical and electronic engineering concepts, including circuit components, symbols, connections, and fundamental principles.

At the beginning of the event, teams were provided with the first technical clue, which required logical interpretation and conceptual understanding to determine the next location. Upon successfully solving the clue, teams moved to the respective checkpoint where they collected a specific electronic component. This process continued across several checkpoints, with each solved clue guiding the teams toward another component required for the final circuit.

As teams progressed through the hunt, they accumulated essential components such as resistors, LEDs, capacitors, wires, and other basic circuit elements. The final stage of the competition required the teams to assemble the collected components into a functional circuit based on a given requirement or expected output. This stage tested participants' practical skills in circuit design, component identification, and correct electrical connections.

The performance of the teams was evaluated based on accuracy, efficiency, and the successful completion of the final circuit. The team that completed the circuit correctly in the shortest time while maintaining proper functionality was declared the winner.

Objective:

- To enhance students' practical understanding of electronic components and circuit assembly.

- To encourage critical thinking and logical reasoning through electronics-based clues and challenges.

- To promote teamwork and collaborative problem-solving among participants.

- To provide a hands-on learning experience that connects theoretical electronics concepts with practical implementation.

- To foster enthusiasm for circuit design, troubleshooting, and engineering innovation.

- To create an engaging environment that motivates students to explore electronics in a creative and interactive way.

Conclusion

The circuit-based treasure hunt proved to be an exciting and intellectually stimulating event that successfully blended technical learning with interactive problem-solving. Participants enthusiastically engaged in decoding technical clues, locating electronic components, and applying their knowledge to construct a functional circuit. The activity effectively encouraged students to think analytically, collaborate with teammates, and apply theoretical electronics concepts in a real-world scenario.

The event received positive feedback from both participants and faculty members, who appreciated the innovative concept, engaging format, and smooth coordination of the activity. Overall, the treasure hunt not only strengthened participants' understanding of electronic circuits

and components but also fostered team spirit, creativity, and curiosity for engineering problem-solving, reflecting the organizers' commitment to promoting active and experiential learning.

IEEE Event Plan Discussion

Event Date: 29th September 2025

Time of the Event: 10.30AM to 11.10 AM

Venue: A209, Auditorium Building, BNMIT

Overview:

The IEEE Week Event Discussion was held on 29th September 2025 with the primary agenda of finalizing the dates for the upcoming IEEE Week Celebration. During the meeting, members shared their views and deliberated on suitable options. After the discussion, the celebration schedule was confirmed. IEEE Week will officially be conducted from 8th October 2025 to 18th October 2025.IEEE Week Event Discussion was conducted on 29th September 2025. The main agenda was to discuss the dates for the IEEE Week Celebration which is to be held during 8th October 2025 to 18th October 2025.

Objective:

To finalize the dates for the IEEE Week events from 8th October 2025 to 18th October 2025

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IEEE Membership Drive

Event Date: 25th September 2025

Time of the Event: 1.00 PM to 2.10 PM

Venue: Ground Floor, Auditorium Building, BNMIT

Overview:

The IEEE Membership Drive was successfully conducted on 25th September 2025 for the students of the 2025–2029 batch. The event aimed to familiarize the newcomers with the IEEE organization, its vision, and its global presence in advancing technology for humanity. During the session, students were introduced to the different technical and non-technical societies under IEEE, each offering unique learning and networking opportunities. The drive highlighted how IEEE membership nurtures students' skills, not only in academics and research but also in leadership, teamwork, and innovation. It further emphasized the benefits of being part of a worldwide professional community, gaining access to resources, conferences, and collaborations that enhance personal and professional growth. Objective:

● To encourage students to become IEEE members

● To introduce the various IEEE societies

● To explain the role of IEEE in personal and professional growth

● To create awareness about global exposure and opportunities

● To motivate students to engage in collaborative activities.

Conclusion:

The IEEE Membership Drive not only introduced students to the wide range of opportunities offered by IEEE but also encouraged them to join a global community of innovators and leaders. The session motivated students to take part in future activities and to utilize IEEE as a platform for enhancing their academic growth, professional skills, and personal development

Graphical Programming and Real-Time Applications using LabVIEW

Event Overview:

Students were introduced to National Instruments (NI) LabVIEW, a premier system-design platform. The event focused on the 'G' (Graphical) programming language, demonstrating how to replace text-based coding with visual dataflow programming for faster application development .The workshop highlighted key aspects of Virtual Instrumentation (VI), including front panel design, block diagram logic, and data acquisition (DAQ) techniques. Furthermore, the session explored advanced real-time concepts, demonstrating how to deploy VIs to dedicated, deterministic hardware targets for reliable, time-critical, and headless operations.

Industrial visit to BMRCL

Number of Students participated : 52

Semester/Section : 5th semester EEE Students

Date and time : 9th July 2025 7:30 AM

Organized Under : IEEE VTS

Introduction

To offer practical insights into the intricacies of metro rail operations, infrastructure, communication systems, and control mechanisms in large-scale public transport, the Department of Electrical & Electronics Engineering, BNM Institute of Technology, arranged an industrial visit for its 5th-semester students to the Bangalore Metro Rail Corporation Limited (BMRCL) Byappanahalli depot on July 9, 2025.

About BMRCL

A behind-the-scenes visit to Namma Metro's Byappanahalli depot provided a valuable understanding of how a major metropolitan rail system is managed, monitored, and maintained for optimal efficiency and safety. This rapid transit system, serving Bengaluru, is implemented and operated by Bangalore Metro Rail Corporation Limited (BMRCL), a joint venture of the Government of India and the Government of Karnataka, with the depot serving as a critical hub for train maintenance, operation control, and power distribution**.**

Key Highlights of the Visit

Briefing Session: Students were introduced to the operational framework of BMRCL, including project implementation phases, challenges in urban rail systems, and safety protocols.

Visit to Operation Control Centre (OCC):

Students observed how the metro's real-time operations are monitored, including train movement tracking, signal control, and power supply management.

Communication and Signaling Systems:

Experts explained the Automatic Train Control (ATC), Signaling, and SCADA (Supervisory Control and Data Acquisition) systems, which play a crucial role in train scheduling and passenger safety.

Train Maintenance Facility:

Students toured the depot's workshop and learned about preventive and corrective maintenance

procedures for metro coaches.

Energy and Power Systems:

An overview of the third rail electrification system, energy optimization techniques, and backup systems was provided by technical staff.

Student Learning Outcomes

Through this visit, students:

Gained exposure to real-world applications of electronics and communication in the field of transportation and public infrastructure.Understood the integration of embedded systems, communication protocols, and automation in a metro system.

Learned about project planning, execution, and systems engineering in a large-scale urban mobility solution. Enhanced awareness about career opportunities in transportation technology and infrastructure planning.

Conclusion

The industrial visit to BMRCL, Byappanahalli was a highly enriching and informative experience. It bridged the gap between theoretical knowledge and practical implementation in the domains of automation, embedded systems, and communication engineering. The Department expresses gratitude to BMRCL officials for their warm welcome and detailed technical sessions.

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Internship on Electric Vehicle Design using MATLAB and Fusion 360

Event Date: 2nd June to 20th June 2025

Time of the Event: 9.30 AM to 4.00 PM

Participants: 5th sem EEE Students (2023-2027 Batch)

Venue: N004, New Building, BNMIT

Target Audience / Number of Participants: 56- 5th Sem

Duration: 3 weeks

Resource Persons: R. Sasikumar (Jr. R&D Engineer), Sudhakar V (Junior Project Engineer), A. Arun Praveen Raj (Project Engineer)

Overview:

The Department of Electrical and Electronics Engineering organized a three-week internship program for the 5th semester students in collaboration with *Pantech Solutions India Pvt. Ltd.* The training focused on **Electric Vehicle (EV) Design and Simulation**, integrating industry-relevant tools such as **MATLAB**, **Ansys**, and **Fusion 360**. This program aimed to bridge the gap between academic learning and industrial applications by providing students with practical exposure to modern engineering design and analysis tools.

The internship was structured to combine theoretical knowledge with extensive hands-on sessions, including problem-solving tasks, collaborative group activities, and software-specific hackathons.

Objectives

- To introduce students to the fundamentals of Electric Vehicle systems and design.
- To familiarize students with professional tools like MATLAB, Ansys, and Fusion 360 used in EV modeling and simulation.
- To provide practical exposure through hands-on sessions and software-based design challenges.
- To encourage teamwork and innovation through group tasks and hackathons.

- To enhance problem-solving and design-thinking skills relevant to modern engineering practices.

Event Structure

The internship was divided into three weekly modules, each focusing on one primary software platform:

Week 1 – MATLAB for EV Simulation

- **Concepts Covered:** Modeling of electric vehicle systems, control algorithms, battery simulation, power electronics.
- **Activities:** Theoretical sessions, hands-on MATLAB Simulink exercises, problem-solving, mini project and a MATLAB hackathon.

Week 2 – Ansys for Thermal and Structural Analysis

- **Concepts Covered:** Motor thermal analysis, battery heat management, structural integrity under load.
- **Activities:** Ansys Workbench demonstrations, simulation tasks, real-time case studies, group-based problem-solving and Ansys hackathon.

Week 3 – Fusion 360 for Mechanical Design

- **Concepts Covered:** 3D modeling of EV components, assembly design, dynamic simulations.
- **Activities:** Design tasks using Fusion 360, component modeling challenges, team-based activities and a design hackathon.

Resources Required

- Licensed software access for MATLAB, Ansys, and Fusion 360.
- High-performance computers for smooth execution of simulations.
- Projectors, whiteboards, and technical manuals for concept delivery.
- Resource persons/trainers from Pantech Solutions with domain expertise.
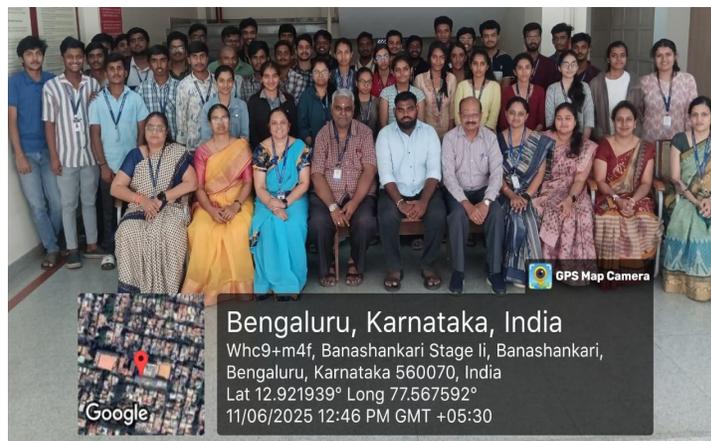- Workspace for collaborative group activities and hackathons.

Expected Outcome

By the end of the internship, students were expected to:

- Understand the fundamental and applied aspects of Electric Vehicle design.
- Gain proficiency in simulation tools and design software relevant to the EV industry.
- Apply theoretical knowledge to real-world problems through structured activities.
- Demonstrate team collaboration, creativity, and technical problem-solving skills.
- Develop prototypes or simulation models using industry-standard tools.

Conclusion:

The internship program provided an immersive learning experience, combining theoretical foundations with real-time applications. It enabled students to enhance their software proficiency, technical understanding, and innovation mindset, aligning with current trends in EV technology.

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Bengaluru, Karnataka 560070, India
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Industrial visit to
(A) Small Hydro Electric Project, Poringalkuthu, Kerala
(B) KSEB Nemmara 110 kV Substation, Kerala

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Start Date: 10/ 04 / 2025 to 13 / 04 / 2025

Duration of Activity (in Hrs): 4 days

No of Students Participated: 36, **No of Faculty Participated**: 2

No of External Participants: 02,

Expenditure Amount: Rs. 1, 81, 217 (One Lakh Eighty One Thousand Two Hundred Seventeen)

Mode of Session Delivery: Offline

Objective:

To provide students with practical exposure to the operation, layout, and equipment of a high-voltage electrical substation and enhance their understanding of power transmission and distribution systems.

Benefit in terms of Learning / Skill / knowledge obtained:

Students gained hands-on understanding of substation components, protection systems, and real-time power distribution operations, bridging the gap between theoretical concepts and practical applications.

About the Industrial Visit:

(A) Small Hydro Electric Project, Poringalkuthu, Kerala

Contact Person: Mr. Aravind, Sub-Engineer, KSEB, Poringalkuthu, Kerala

An industrial visit to the Small Hydro Electric Project at Poringalkuthu, Kerala was organized on on 11 / 04 / 2025, for the VI sem students of Electrical & Electronics Engineering Department, BNMIT. The objective of the visit was to enhance students' understanding of renewable energy systems,. particularly hydroelectric power generation, and to provide them with real-world exposure to the operation of a hydroelectric power station. The Poringalkuthu Hydro Electric Project, operated by the Kerala State Electricity Board (KSEB), is situated in the Thrissur district and utilizes the tailrace water from the Sholayar Hydro Electric Project. With an installed capacity of [insert capacity, e.g., 32 MW], this small hydro project plays a crucial role in Kerala's green energy initiatives by harnessing the hydropower potential of the Chalakudy River. Upon arrival, the students were briefed by the project engineers about

the history, significance, and technical specifications of the plant. The visit included a guided tour of the power house, control room, turbine section, and switchyard. The students were able to closely observe the operation of Francis turbines, generators, excitation systems, and the governor mechanism used for regulating water flow and speed. The control room staff explained the automation system used for monitoring and controlling plant operations, including the protection schemes, synchronization with the grid, and energy metering systems. The role of civil structures like dams, spillways, and penstocks in the overall plant performance was also elaborated. A key takeaway for the students was the sustainable and eco-friendly nature of small hydroelectric projects and their contribution to the state's renewable energy targets. The interactive session that followed gave students the opportunity to ask questions about efficiency improvements, load dispatching, environmental impacts, and maintenance practices in hydropower stations. This industrial visit proved to be a valuable learning experience, bridging theoretical knowledge with field application and giving the students insight into the challenges and opportunities in the renewable energy sector. It also inspired discussions around careers in sustainable energy and the future scope of small-scale hydropower in India.

**Group Photo-1: Students of VI sem EEE, BNMIT with faculties
at Small Hydro Electric Project, Poringalkuthu, Kerala**

**Group Photo-2: Students of VI sem EEE, BNMIT with faculties at Small Hydro Electric
Project, Poringalkuthu, Kerala**

(B) KSEB Nemmara 110 kV Substation, Kerala

Contact Person: Mr. Sreejith, Executive Engineer, Nemmara, KSEB

An industrial visit to the 110 kV Nemmara Substation, located in Palakkad district, Kerala, was conducted on 12 / 04 / 2025 for theVI sem students of Electrical & Electronics Engineering Department, BNMIT. The visit aimed to provide students with hands-on exposure to electrical power transmission and distribution systems and to supplement their academic curriculum with real-world engineering practices. The Nemmara Substation is a vital node in the Kerala State Electricity Board (KSEB) transmission network, facilitating the regulation and distribution of electricity to surrounding rural and semi-urban areas. On arrival, the students were welcomed by the substation engineers and staff, who gave a brief introduction to the operational importance of the substation and its role in grid stability. The students were then taken on a guided tour of the substation, where they observed and learned about critical components such as:

- Power Transformers (110/11 kV step-down),
- Current and Potential Transformers for protection and metering,
- Circuit Breakers and Isolators for fault handling and maintenance isolation,
- Busbars, Lightning Arrestors, and Earthing systems,
- SCADA Systems and Relay Panels inside the control room.

The engineers explained the power flow path from transmission to distribution, fault detection methods, system automation, and safety protocols followed during maintenance operations. Students were also introduced to substation layout planning and the significance of clearances and insulation in high-voltage environments. The visit concluded with an interactive Q&A session, where students clarified their doubts and discussed career opportunities in power sector utilities. The experience proved immensely beneficial in enhancing the practical understanding of electrical power systems and gave students a clearer perspective on how theoretical knowledge is applied in field operations. Overall, the industrial visit to the Nemmara Substation was a highly educational and enriching experience for the students, providing them with valuable insights into the functioning and management of modern electrical substations.

VTools Reporting

Event Overview:

A training session was conducted by Anaghaa R, former IEEE BNMIT Student Chair, for office bearers and society chairs. The session provided guidance on the effective usage of IEEE vTools, including updating event details and tracking analytics. Participants were also introduced to various types of events that can be organized under different IEEE societies. The workshop aimed at strengthening event management and administrative efficiency within IEEE BNMIT. Overall, the session focused on enhancing operational effectiveness and equipping members with the necessary skills to efficiently perform their respective roles.

Mathemagikz

Event Date: 14th March 2025

Time of the Event: 2.00 PM to 4.30 PM

Participants: 123

Venue: N004, BNMIT

- ## Overview:

The event was designed to challenge participants' mathematical knowledge, logical reasoning, and pattern recognition abilities through an engaging and competitive format. Conducted in two rounds, the competition combined traditional mathematics questions with creative puzzle-solving tasks to encourage analytical thinking and quick decision-making. Each round had a time limit of 30 minutes, ensuring that participants applied their problem-solving skills efficiently under time pressure.

- ## Event Proceedings:

Round 1 – Mathematics Quiz

In the first round, each participating team was given 30 mathematics questions covering fundamental concepts such as arithmetic, algebra, and basic problem-solving. The participants were required to solve the questions and mark their answers on an OMR sheet within the allotted time.

This round tested the teams' speed, accuracy, and conceptual understanding of mathematics. Based on their performance and the number of correct responses, the top teams were shortlisted to advance to the second round.

Round 2 – Mathematical Sudoku Challenge

In the second round, 15 selected teams advanced to solve a unique Sudoku puzzle in which the missing numbers were represented by letters instead of digits. To determine the correct numbers, participants had to solve a set of mathematical questions related to arithmetic, algebra, trigonometry, and other fundamental concepts.

By solving these questions, the teams could identify the correct numbers corresponding to the letters and

complete the Sudoku grid. The first two teams that successfully solved the Sudoku puzzle were declared the winners of the competition.

- **Objective:**
    - To strengthen participants' mathematical problem-solving and logical reasoning abilities.
    - To encourage analytical thinking and pattern recognition through engaging puzzles.
    - To provide a platform for students to apply mathematical concepts in an interactive and competitive environment.
    - To develop quick decision-making and time management skills under pressure.
    - To promote teamwork, collaboration, and enthusiasm for mathematics beyond classroom learning.

- **Conclusion:**

The mathematics competition proved to be an engaging and intellectually stimulating event that successfully encouraged participants to apply their logical reasoning, analytical thinking, and mathematical problem-solving skills. The combination of traditional mathematics questions and the innovative Sudoku-based puzzle created a balanced challenge that tested both conceptual understanding and creativity. The time-bound rounds further enhanced participants' ability to think quickly and work efficiently as a team.

The event received positive feedback from participants and faculty members, who appreciated the interactive format, challenging problem sets, and smooth organization of the competition. Overall, the event fostered greater interest in mathematics, encouraged collaborative learning, and highlighted the importance of logical thinking and problem-solving skills among students

Current crisis

Event Date: 16th October 2024

Time of the Event: 1.00 PM to 4.00 PM

Participants: 25

Venue: N004, BNMIT

Overview :

The competition was designed to test and enhance participants' knowledge of circuit analysis, logic gates, and electronic circuit design through a structured, multi-stage challenge. The event encouraged students to apply theoretical concepts to practical problem-solving scenarios. By incorporating troubleshooting, circuit reconstruction, and component identification tasks, the competition aimed to simulate real engineering challenges that require analytical thinking and quick decision-making.

Each round had a time limit of 30 minutes, ensuring that participants worked efficiently under pressure while demonstrating their understanding of electronic circuits. The progressive difficulty of the rounds ensured that only the most skilled and analytical teams advanced to the final stage.

Event Proceedings :

The competition was conducted in three rounds, with each round designed to evaluate different aspects of circuit analysis and electronic problem-solving.

Round 1 – Fault Identification and Logic Gate Analysis

In the first round, each participating team was provided with three logic gate circuits that contained faults in their connections. The teams had to carefully analyze the circuits, identify the incorrect connections, and determine the correct logical functioning of the circuits.

Along with identifying the faults, the teams were also required to answer a set of multiple-choice questions related to logic gates and their operations. This round tested the participants' fundamental understanding of digital electronics, Boolean logic, and circuit interpretation.

Based on their accuracy and the number of correct responses, teams were evaluated and the top-performing teams were shortlisted for the second round.

Round 2 – Circuit Reconstruction

In the second round, 10 shortlisted teams advanced to the next level of the competition. Each team was given an electronic circuit diagram with missing connections and certain components removed. Additionally, the expected or confirmed output of the circuit was provided to guide their analysis.

Participants had to carefully study the circuit configuration, analyze the function of the given components, and determine how the missing connections and components should be arranged to achieve the expected output.

This round focused on logical reasoning, circuit design skills, and practical electronics knowledge. The teams had to work quickly and accurately to reconstruct the circuit within the allotted time. The first five teams that successfully completed the circuit correctly were selected to move forward to the final round.

Round 3 – Circuit Completion and Conceptual Questions

The final round consisted of the remaining five teams, who competed to demonstrate their advanced understanding of electronic circuits. In this round, participants were given descriptions of two circuits along with details about the main components involved.

Using this information, the teams had to:

- Identify the additional basic components required to complete the circuits.
- Determine the correct configuration and connections of the components.
- Analyze the circuit's expected behavior and functionality.

In addition to completing the circuits, the teams were required to answer five conceptual questions related to the circuits, testing their understanding of electronic principles, circuit functionality, and component roles. The performance of the teams in both circuit completion and question responses was evaluated to determine the final rankings.

Objective :

The primary objectives of the competition were:

- To strengthen students' understanding of digital and electronic circuit concepts.
- To develop problem-solving and analytical thinking skills in identifying and correcting circuit faults.
- To encourage participants to apply theoretical knowledge of electronics to practical circuit problems.

- To improve students' ability to interpret circuit diagrams and understand component interactions.
- To promote teamwork, technical discussion, and collaborative problem solving.
- To expose participants to real-world engineering challenges that involve troubleshooting and circuit design.

Conclusion

The circuit analysis competition proved to be an intellectually engaging and successfully conducted event. It effectively achieved its objective of providing students with a platform to demonstrate their technical knowledge, analytical thinking, and problem-solving skills in the field of electronics. The structured three-round format challenged participants to identify faults, reconstruct circuits, and apply their conceptual understanding of electronic components and circuit behaviour.

Each round of the competition highlighted the participants' enthusiasm, creativity, and logical reasoning abilities, while the progressively challenging tasks encouraged critical thinking and quick decision-making. The hands-on nature of the activities enabled students to bridge the gap between theoretical concepts and practical circuit analysis, making the learning experience both interactive and meaningful.

The event received positive feedback from both participants and faculty members, who appreciated the well-organized structure, innovative problem statements, and smooth coordination by the organizing team.

Overall, the competition not only fostered technical curiosity and collaborative learning among students but also reflected the organizers' commitment to promoting innovation, teamwork, and deeper understanding of electronic systems among aspiring engineers.

Technical talks on "Software Driven Vehicles" and "Design for Sustainability

Event Date: 14th September 2024

Time of the Event: 11.30 AM to 1.00 PM

Participants: 3rd sem EEE & ME Students.

Venue: Auditorium Block Seminar Hall (A215), BNMIT

Number of Participants: 75(EEE) + 20(ME)

Objectives of the Technical Talks

The main objectives of conducting technical talks on "Software Driven Vehicles" and "Design for Sustainability - An Approach" during the IEEE VTSoC event inauguration are

To Inspire and Educate Students and Professionals by bringing in industry experts, these talks aim to inspire attendees and deepen their understanding of cutting-edge topics in automotive technology and sustainability, both of which are rapidly evolving fields within engineering.

To highlight Emerging Technologies: Discussing software-driven vehicles introduces the audience to crucial advancements in vehicle autonomy, AI, 5G connectivity, and IoT applications, showcasing how software innovation is transforming traditional automotive design and functionality.

To Promote Sustainable Engineering Practices: Design for Sustainability emphasizes the importance of eco-friendly engineering and product lifecycle management.

To Bridge Academia and Industry: These talks provide insights into real-world challenges and solutions in modern engineering fields, creating a platform for knowledge exchange between academia and industry, and helping students and researchers align their skills with industry needs.

To Encourage IEEE Membership Engagement: These events serve to strengthen the IEEE community by demonstrating the value of IEEE societies, particularly the Vehicular Technology Society (VTSoC), in supporting professional growth through technical learning and networking opportunities.

To Spark Interest in Sustainable and Technological Innovation: Both topics underscore the role of technology in driving sustainable development and innovation, aiming to motivate attendees to contribute to the future of transportation and sustainable design solutions.

Introduction to Software Driven Vehicles – A Brief Summary

The technical talk offered valuable insights into the transformation of vehicles into complex, software- driven systems, particularly focusing on Autonomous electric cars. The key points included

1. **Autonomous Electric Car and Mobility Evolution**: The speaker emphasized the shift in mobility patterns and user behaviours, driven by the rise of autonomous technology. This includes customizable in-car settings and experiences tailored to individual preferences.

2. **Regulatory, Safety, and Sustainability Changes**: Increased focus on safety, security, and sustainability is transforming regulatory requirements, aiming to meet the evolving needs of modern transportation.

3. **Shifting Business Models**: New revenue streams for OEMs were highlighted, including ride-sharing, ride-pooling, vehicle re-marketing, re-using, and infrastructure servicing, catering to sustainability and maximizing vehicle value.

4. **Advanced Technology**:

o Key technologies such as **cloud infrastructure**, **5G connectivity**, **Advanced Driver Assistance Systems (ADAS)**, **sensors**, **AI/ML**, **actuators**, and **Big Data** enable personalization, efficient data processing, and real-time decision-making.

o The talk also covered **cybersecurity**, **standardization**, and the role of **e-commerce** in vehicle services.

5. **In-Vehicle Architecture**: The **CAN protocol** and **domain-based architecture** were discussed, focusing on the communication systems enabling functionality integration. Modern cars have over **100+ ECUs**, underscoring the electronic complexity involved.

6. **Vehicle as a Computer System**: Modern cars are powerful computational systems, featuring computer architectures like **System on Chip (SoC)**, which layers hardware, middleware, and application software. Autonomous cars also require robust **real-time operating systems** to handle vast lines of code.

7. **Compliance and Regulatory Adherence**: The presentation also covered the importance of adhering to stringent compliance and regulatory standards for autonomous vehicles, focusing on both safety and environmental sustainability.

The session highlighted how cutting-edge technology and evolving regulations are shaping the future of software-driven, autonomous vehicles.

Design for Sustainability – An approach – A Brief Summary

The technical talk provided a comprehensive look into the importance of sustainability in addressing environmental challenges and reducing the carbon footprint. Here are the key points discussed:

1. **Understanding Sustainability and Carbon Footprint**: The speaker explained the concept of sustainability and how reducing our carbon footprint can help mitigate environmental harm. They highlighted the impact of greenhouse gases and the urgent need to lower emissions to protect the environment.

2. **Historical and Current Carbon Footprint**: A comparison of per capita carbon emissions from 1970 to the present was presented, noting that emissions per person were approximately 0.54 metric tons per person in 1970, a figure that has since increased significantly.

3. **Individual Contributions to the Carbon Footprint**: The talk covered methods for calculating one's personal contribution to carbon emissions, emphasizing how individual and household choices can influence overall emissions.

4. **Strategies for Reducing Carbon Footprint**:
   - **Recycling and Waste Management**: Encouraging recycling and the re-use of materials to minimize waste.
   - **Green Diet Choices**: Adopting a diet with a lower environmental impact as part of a sustainable lifestyle.
   - **Goal Setting**: Defining personal and collective goals to drive sustainable actions.

5. **UNESCO's 17 Sustainable Development Goals (SDGs)**: The talk referenced these global goals, focusing on how they can guide sustainability efforts toward carbon neutrality and renewable energy adoption.

6. **Carbon Neutrality and Renewable Energy**: An exploration of renewable energy options and strategies to achieve carbon neutrality, helping individuals and organizations contribute to a greener future.

7. **Personal Social Responsibility (PSR)**: Emphasis was placed on the role of personal responsibility in sustainable practices, urging everyone to take steps to reduce their environmental impact.
   This insightful talk underscored the critical role of sustainable design and personal accountability in reducing carbon emissions and fostering a healthier planet.

Outcomes

The technical talk promoted the understanding of Industry standards and compliance, enhanced awareness of sustainability and carbon footprint, motivation for personal and social responsibility, the sessions empowered attendees with knowledge of innovative technologies, sustainable practices and regulatory frameworks, preparing them to actively participate in and contribute to sustainable engineering and smart mobility solutions in the evolving global landscape.

About the resource Person – Dr. Anish Cheriyan Vice President, Test (Intelligent Cockpit), Harman International, Bengaluru

Dr. Anish Cheriyan is a distinguished leader in software engineering, with over two decades of experience spanning product and platform software development. He is serving as Vice President of Testing at Harman Automotive, and is an authority in Quality Assurance, Cyber Security, Agile methodologies, and DevOps coaching. His expertise in leading large-scale ICT and automotive teams has been pivotal in driving modern software engineering practices across global organizations. Dr. Cheriyan is a Senior IEEE member, a

recognition bestowed on only a select few for their substantial contributions to the global engineering community. He also serves as Chair of the American Society for Quality (ASQ) Bangalore LMC for IT, where he has been an instrumental force in raising awareness about Industry 4.0 technologies such as IoT, Big Data, AI/ML, and Cloud Computing. In addition to his professional accomplishments, Dr. Cheriyan holds a doctorate in Computer Science for his groundbreaking research in Continuous Delivery and DevOps. He is the proud author of Every Step Matters, a book that delves into the discipline of running, and is currently co-authoring a book on Software for Industry 4.0, which promises to reshape our understanding of software technologies in the digital age. Throughout his career, Dr. Cheriyan has held key leadership roles at companies like Huawei, where he led Quality, Cyber Security, and Open-Source initiatives, and has earned numerous accolades, including the prestigious Huawei Individual Gold Medal. He continues to inspire the industry through his frequent talks at forums such as IEEE, ASQ, and QCI, sharing his deep knowledge in Agile, Continuous Delivery, and Software Engineering.

About the resource Person – Mr. Sripathy Ramachandran, Founder, Qualitude Solutions, Bengaluru

Mr. Sripathy Ramachandran is a highly accomplished professional with over 28 years of experience, including more than 18 years in the automotive industry. He holds an MBA in Systems, is a PMP certified professional since 2008, and has expertise as an ASPICE Principal Assessor since 2021, and a FuSA certified engineer since 2015.

<p align="center">*B N M Institute of Technology*</p>

<p align="center">**An Autonomous Institution under VTU**</p>

<p align="center">## Inaugural Function of IEEE VTS STUDENT BRANCH CHAPTER BNMIT</p>

Event Date: 14th September 2024

Time of the Event: 10.00 AM to 11.00 AM

Participants: 3rd sem EEE & ME Students.

Venue: Auditorium Block Seminar Hall (A215), BNMIT.

Number of Participants: 65(EEE) + 20(ME)

Objective

The primary objective of the conducting the inauguration of the IEEE VTSoC Student chapter are to formally start with the activities under IEEE VTSoC chapter, to raise awareness of IEEE VTSoC Chapter among the students, to promote professional development, to encourage student participation in Global IEEE VTSoC activities, to foster innovation, research culture. The chair of IEEE VToC chapter, Bangalore Section and the Staff Advisor ensures the chapter's sustainability and growth while aligning with the goals of IEEE and its Vehicular Technology Society.

About the Chief Guest of the Event: Dr. T Srinivas, Chief Guest, Prof. ECE, IISc, Chair- IEEE Bangalore Section

Dr. Srinivas T obtained B.Sc (Hons) from New Science College, Hyderabad, and ME (integrated) and Ph D from IISc under Prof. A Selvarajan. He was a post-doctoral research fellow at Toyohashi University of Technology, Japan during 1992-1996. His main area of research interest is photonic integrated circuits with application to optical communication, optical sensors, and quantum communication and computing. He guided 24 Ph D students and 5 M. Tech (Res)/M.Sc (Engg) students, and published 60 journal papers. He served as the chairman GATE (IISc zone) during 2010-13. He is a member of working group on photonics of the BRICS Countries, and DST working group on Photonics. He is a senior member of IEEE and served as Execom member of IEEE Bangalore Section, Chair of IEEE Photonics Society and Chair of IEEE Communications Society, and branch counselor of IEEE-IISc Student Branch.

About the Guest of Honour the Event: Dr. Navin Kumar, Chairperson, ECE, Amrita School of Engg., Chair -IEEE VTS Chapter

Dr. Navin Kumar serves as Chairperson and Professor at the Department of Electronics and Communication, School of Engineering, Amrita Vishwa Vidyapeetham, Bengaluru.

Dr. Navin obtained his Ph.D. in Telecommunication Engineering from the University of Porto, Aveiro and Minho – Portugal, Europe (2007-2011) and M.Tech in Digital System Engineering from Motilal National Institute of Technology, Allahabad, India in the year 2000. He did his bachelor's degree in Engineering from the Institution of Electronics and Telecommunication Engineers, New Delhi in 1996. He has over 24 years of working experience in Government, Industry and academia in IT and Telecommunication area. He has over 10 years of overseas experience in teaching, research and development. Navin has over 100 publications in peer-reviewed international journals and IEEE conference proceedings. In addition, he has also authored a book, edited books and book chapters.

Dr. Navin has been awarded the Fraunhofer Challenge award (Portugal-EU) in the academic year 2010-2011 for the best PhD thesis work. He also received a research grant from Govt. of Portugal towards his Ph.D. research work. Navin is the recipient of the Gowri Memorial award, India in the year 2009 for the best journal paper and many best international conference papers. He is Fellow of Institution of Engineers (FIE-India), Charter Engineer (IE-India), Fellow European Association for Innovation (F-EAI), Sr. Member of IEEE, Life Member IETE-India, Life Member AIENG (HK). Dr. Navin has been giving tutorial at IEEE flagship conferences like ICC, WCNC. He regularly speaks and delivers talks as keynote, invited speakers in conferences and workshops. He has successfully guided 3 PhD and 6-PhD scholars are working with him, most of them in 5G Wireless Technology. He leads 5G India Forum (5GIF) at ITU towards evaluation of IMT 2020 candidate technology. His research area includes 5G (mmWave, Architecture and Massive MIMO), Intelligent Transportation Systems, Visible Light Communication, Optical Wireless Communication, IoT& Smart City and Wireless/Mobile Communications & Networks. He is very active in organizing workshops (local and international), conferences etc. He is the Vice Chair Membership Activity in IEEE Bangalore Section and Chair, IEEE VTS Bangalore.

Outcomes

The inauguration of the IEEE VTSoC Student chapter formally led to the start of various activities under IEEE VTSoC chapter, raised awareness of IEEE VTSoC Chapter among the students, promoted professional development, encouraged student participation in Global IEEE VTSoC activities, The chair of IEEE VToC chapter, Bangalore Section and the Staff Advisor assured for the chapter's sustainability and growth while aligning with the goals of IEEE and its Vehicular Technology Society. The Bangalore Section Chair Dr. T Srinivas assigned the task of conducting a conclave with the VTSoC student branches of the Bangalore Section, which was welcomed by the management and the BNMIT VTSoC chapter.