NEW HORIZON
COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

CURRENTS - NEWSLETTER

JULY - DECEMBER 2023

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 global level.

VALUES:

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

ABOUT 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 started in 2001. 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-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 is highly qualified faculty members with expertise in various fields of electrical engineering, state of 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 field
- 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 the young minds beyond the curriculum by facilitating technical clubs in promoting technical events, community development/society impact and universal value/ethics programs. In supporting to this, Department of Electrical & Electronics Engineering has established Institute of Electrical and Electronics Engineers (IEEE) – Power Electronics Society (PELS) Student Branch Chapter IEEE PES IEEE IES which is the non- profitable, world largest technical professional organization for the advancement of technology. The students have a greater exposure and flexibility in campus placements in core industries, IT sectors and Public Sector Units (PSU).

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.

Program Outcomes (POs)

PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems in Electrical and Electronics Engineering.

PO2 Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems in Electrical and Electronics Engineering reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes of Electrical and Electronics Engineering that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments in Electrical and Electronics Engineering, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities in Electrical and Electronics Engineering with an understanding of the limitations.

PO6 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 in Electrical and Electronics Engineering.

PO7 Environment and Sustainability: Understand the impact of the professional engineering solutions of Electrical and Electronics Engineering in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.

PO8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 Communication Skills: 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.

PO11 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.

PO12 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 (PEOs)

PEO 1: To provide good learning environment to develop entrepreneurship capabilities in vari- ous areas of Electrical and Electronics Engineering with enhanced efficiency, productivity, cost effectiveness and technological empowerment of human resource.

PEO 2: To inculcate research capabilities in the areas of Electrical &Electronics Engineering to identify, comprehend and solve problems and adopt themselves to rapidly evolving technology.

PEO 3: To create high standards of moral and ethical values among the graduates to trans- form them as responsible citizens of the nation.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Graduates will be able to solve real life problems of Power system 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.

Dear all,

In our college, we and our faculty always think we need to teach beyond curriculum to make our students 'Industry Ready'. Recent observations made by many stalwarts in the industry indicate the fact that most Engineering Graduates out of colleges are not employable. NHCE has always been in the forefront in ensuring that students are employable. It gives me immense pleasure to write a few words as prologue to the in-house 2023 Newsletter of the EEE Department. The issue is designed to present the events that have occurred in the department makes this newsletter resourceful and informative. I congratulate all the contributors and the editorial board for bringing out such a nice issue. Happy Reading.

Dr. MANJUNATHA
PRINCIPAL, NHCE

Dear readers,

I feel happy to release Newsletter titled as "Currents" 2023. Our editorial team has done an appreciable job in reporting all the events which have taken place in the Department over a time period of six months. To all your notice, our Newsletter is presenting you the success of major events witnessed by students, faculty and external participants of Electrical Engineering fields. The objective of the Technical Newsletter is to provide information about involvement, inspiration and dedication in diversified areas of Electrical Engineering from students, faculty, parents and alumni with a timely and honest portrait of our Department activities. This has made an earnest attempt in this direction and all the credit for its success falls upon faculty and students who have worked with dedication and enthusiasm to bring this forward. I convey my regards to all the readers.

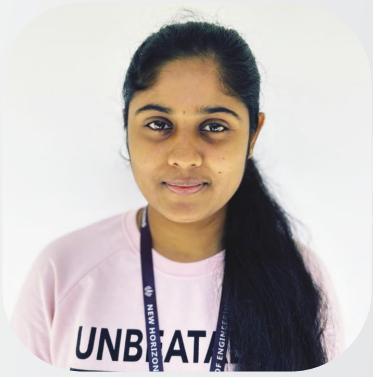
DR. SAKTHIVEL ARUCHAMY
Prof. & HOD EEE, NHCE

EDITORIAL TEAM FACULTY ADVISOR

DR. SAKTHIVEL ARUCHAMY
Prof. & HOD EEE, NHCE

PROF. SATISHKUMAR D
Senior Assistant Professor EEE, NHCE

STUDENT COORDINATORS



MS. KRUTHIKA B J
5 semester 'A' section
Electrical and Electronics Engineering
USN- 1NH21EE047

EEE DEPARTMENT ACTIVITIES

LECTURE PROGRAM IN ASSOCIATION WITH IEEE-PES NHCE

Guest Lecture on "Opportunities Overseas Education"

The Department of Electrical and Electronics Engineering of IEEE PES NHCE SBC, New Horizon College of Engineering Organized Guest Lecture on “Opportunities Overseas Education” in association with IEEE PES Bangalore Chapter on 28.07.2023 Tuesday from IST 10:00 AM to 01:00 PM.

The session was handled by Mr.Suman Goutham, Director, Global Nexus and Mr. Vikram Reddy, Director, Global Nexus Bengaluru.

The outcome of the programme is to bring the researchers and academic experts from reputed institutes of our country to a collective gathering for exchanging and sharing the knowledge about the recent developments and procedures in overseas education.

The entire session is very informative and enthusiastic manner in the area of power electronics industry. The eminent expert from the Industry delivered the lecture and his talk has been very well received by the 104 participants. 104 Students are benefitted.

National Level Workshop on "New Product Management"

The Department of Electrical and Electronics Engineering of IEEE PELS and IES NHCE SBC, New Horizon College of Engineering Organized National Level Workshop on "New Product Management" (Make & Own Your Product) in association with IEEE PELS and IEEE IES Bangalore Chapter on 25.07.2023 Tuesday from IST 10:00 AM to 01:00 PM.

The session was handled by Mr.S.V.Sreeraj, Director, Emcog Solutions, Chennai. The objective of this workshop is to make the students to understand various stages in product development process, selection of appropriate tools and methods for validation of final prototype.

The program co-ordinator is Ms Karthika M, Senior Assistant Professor, Department of EEE, NHCE, Bangalore. The eminent expert from the Industry delivered the lecture and his talk has been very well received by the participants.

Accelerators/Incubation- Opportunities for the students and the Faculty- Early Stage Entrepreneurs

Department of Electrical and Electronics Engineering had made all the arrangements to conduct this event for 4th semester students at B-203 in offline mode.

The resource person Dr. Vinoth kumar K, Dr. Piyush Kumar Soni (Coordinator – NISP, NHCIIE), Dr. Agalya V (President – IIC 5.0), Dr. S Sujitha, and 77 students from 4th Sem EEE have participated in the event.Discussed about the;

- Contributing to the creation of jobs and services with added value is an integral part of our mission.
- Cultivating and nurturing the entrepreneurial spirit is a fundamental objective.
- Speeding up the commercialization of research and development outputs is a central function.
- Developing new tools to facilitate the transfer of technology is a priority.
- Offering mentoring and consulting services to aspiring innovators and entrepreneurs is a crucial aspect of our support system.
- Moreover, the resource person has showcased various products and elucidated how ideas were transformed, enabling students and faculty members to recognize different types of intellectual property rights (IPRs).

INDUSTRIAL VISIT

VALEO INDIA PRIVATE LIMITED , ECOWORLD

An Industrial Visit was organized for EEE and ECE students of New Horizon College of Engineering on 28/09/2023 to the Valeo India private limited, which is located in Eco-world, Bellandur, Bangalore. Valeo is an automotive supplier and partner to all automakers worldwide. As a technology company, Valeo proposes innovative products and systems that contribute to the reduction of CO2 emissions and to the development of intuitive driving.

The Valeo India private limited, which is located in Ecoworld, Bellandur, was visited by the EEE and ECE students from New Horizon College of Engineering. The visit was organized and led by Ms. Karthika M, Senior Assistant Professor, and was accompanied by Ms. Kavitha ch Reddy, Senior Assistant Professor, EEE and Mr. Rajesh, Lab Instructor, EEE. Both Dr. Sakthivel Aruchamy, HoD-EEE, and Dr. Mohan Das, Associate Professor attended the occasion.

As a technology company and partner to all automakers and new mobility players, Valeo innovates to make mobility cleaner, safer and smarter. Valeo is a technological and industrial leader in electrification, driving assistance systems, reinvention of the interior experience and lighting everywhere. These four areas, vital to the transformation of mobility, are the Group's growth drivers. Valeo in figures: 20 billion euros in sales in 2022; 109,900 employees at December 31, 2022; 29 countries, 183 plants, 21 research centers, 44 development centers, 18 distribution platforms. Valeo is listed on the Paris Stock Exchange.

LECTURE PROGRAM IN ASSOCIATION WITH IEEE-PELS NHCE

EXPERT LECTURE ON "HIGH VOLTAGE EQUIPMENT AND TECHNOLOGIES"

The Department of Electrical and Electronics Engineering of IEEE PELS and IES NHCE SBC, New Horizon College of Engineering Organized National Level Workshop on "High voltage equipment And Technologies" in association with IEEE PELS and IEEE IES Bangalore chapter on 04-10-2023 Wednesday from IST 2:30 PM-4:30 PM.

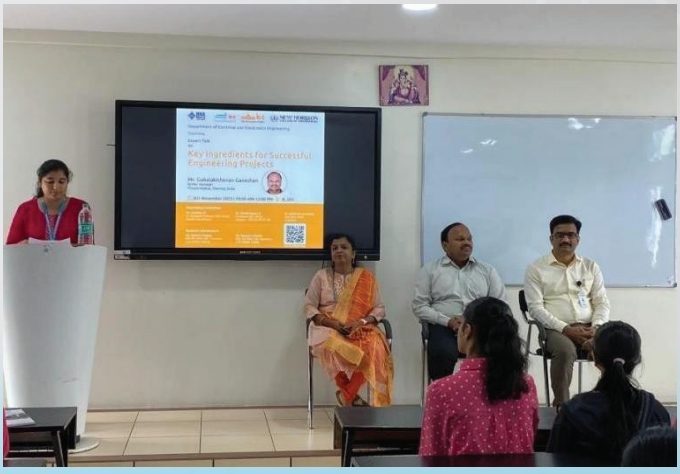
The session was handled by Dr. Z.H.Sholapurwala , Managing Director,Zeonics Systech Defence & Aerospace Engineers, Bangalore. The Objective of this seminar is to make the students to understand about the High voltage equipments and their usage.

The program coordinator is Ms. Kavitha Chenna Reddy (Sr.Assistant Professor), Dr.Vinoth Kumar K (Professor), Dr.Sakthivel Aruchamy(HOD,EEE).

This session was helpful for understanding the concept about the pulse modulators, pulse resistors, impulse generators, high voltage trigger generator, highvoltage high power resistors, high voltage nanosecond high repetition rate generator etc. He also shared about the products generated at his laboratory and their usage. He also shared the real time and experimental videos with the students which was very informative.

It was found that the guests lecture as an excellent event and found the information imparted to them as relevant. The students expressed their satisfaction towards the event organized in falconary hall, NHCE.

LECTURE PROGRAM IN ASSOCIATION WITH IEEE IES STUDENT BRANCH CHAPTER



EXPERT LECTURE ON " KEY INGREDIENTS FOR SUCCESSFUL ENGINEERING PROJECTS"

The Department of Electrical and Electronics Engineering, New Horizon College of Engineering, Bengaluru organised an Expert talk on "Key ingredients for successful Engineering Projects" on 30th November 2023, Thursday from 10:00 AM to 12:00 PM in associationwith IEEE IES Student Branch Chapter of NHCE. One of the most effective and beneficial ways by which engineering students can learn, understand, remember and apply engineering concepts, is through project-based learning.

The objective of the talk is to make the students to understand the necessity of doing engineering projects. The entire session is handled by a resource person Mr. GOBALAKICHENAN GANESHAN, Senior Manager, Thryve Digital,Chennai, India.

He has delivered his lecture which emphasize the necessity and importance of engineering projects and the steps involved in the process of engineering projects. The entire session is very informative and students gained knowledge on how to do successful Engineering Projects. The expert talk was organized by MsM Karthika, Senior Assistant Professor, EEE, NHCE. The eminent expert talk has been very well received by the 50 participants.

INDUSTRIAL VISIT

ZEONICS SYSTECH DEFENCE AND AEROSPACE ENGINEERS PVT.LTD

The IEEE IES NHCE Student Branch Chapter from Department of Electrical and Electronics Engineering, New Horizon College of Engineering, Bengaluru has organized an industrial visit on " Zeonics Systech Defence and Aerospace Engineers Private Limited" 7th & 8th December 2023, Thursday and Friday , between 9:30 AM to 1:00 PM in NHCE Bengaluru in two different batches.

The objective of the visit is to know the working of high voltage equipments where different innovative ideas can come up by visiting the real time applications .

The managing director Dr. Zarir H Sholapurwala along with his team guided us and showed the various high voltage equipments and their working as well as the usage in the real life.

We were then taken to the tesla coil which produces the high voltage upto 42000 volts. He also showed us its working as well as real time usage. Then we were taken to the pulse generators, electromagnetic wave coil, impulse generators, drone shooters, high voltage trigger generators.

The entire visit is very informative and interesting manner in the area of high voltage equipments and had a wonderful experience with Dr. Zarir who was the founder of this company very friendly with us and answered all our doubts as well as gave us a lot of knowledge about the high voltage equipments as well as its career scope.

CLUB ACTIVITY

ROLE OF RENEWABLE ENERGY IN SUSTAINABLE DEVELOPMENT

The seminar was inaugurated on 14 Dec 2023 in the Falconry seminar hall in the presence of the honorable Hod. Dr. Sakthivel Aruchamy of Electrical and Electronics department Dr.Pruthviraj P who is in the charge of the co-curricular club activity, our Green Energy Club faculty coordinator Vinod Kumar, and the guest of the day Dr. Boddapathi Venkatesh who is the assistant professor in BMS college of Engineering.

The main objective is to know the importance of renewable energy sources which play a crucial role in saving our environment from pollution or the harmful effects of using conventional energy. In a very superflous manner without thinking about the future generations ,furthermore considering health it is more important to think on new ideas or new technologies to use renewable energy more effectively. It is mainly considered with the sustainable goals which are proposed by the united nation among 17 main goals the one we are interested in is the 7th which deals with formidable and clean energy.

The 17 Sustainable Development Goals provide a comprehensive framework for addressing the world's most pressing challenges . Achieving these goals requires collaborative efforts from governments,businesses,civil society,and individuals . Through this seminar, we aim to increase awareness and inspire action towards building a more sustainable , inclusive and equitable future for generations to come.

"Awareness Session on Pollution & Control"

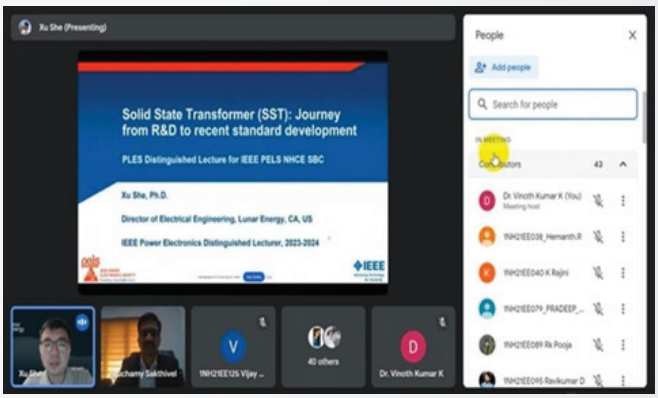
The NHCE Instituitions Innovation Council and Department of Electrical and Electronics Engineering, New Horizon College of Engineering, Bengaluru organized an Outreach Program at Government Primary School, Varthur on 9thDecember, Saturday, 2023 between 9:00 AM to 12:00 PM .

The objective of the programme was to create awareness among the students about pollution and how it can be prevented. The resource person was Savitha KL, HM of the school. The students were shown a presentation on how Pollution can be prevented.

Delivered about how to reduce the pollution;

- Encourage the use of public transportation, carpooling, biking, and walking to reduce the number of vehicles on the road.
- Support the use of electric or hybrid vehicles.
- Planting trees helps absorb carbon dioxide and release oxygen, contributing to cleaner air.
- Create and maintain green spaces in urban areas to improve air quality.

LECTURE PROGRAM IN ASSOCIATION WITH IEEE PELS STUDENT BRANCH CHAPTER



IEEE PELS NHCE Student Branch Chapter from Department of Electrical and Electronics Engineering, New Horizon College of Engineering, Bengaluru is organized the Distinguished Lecture Program on “Solid state transformers: journey from R&D to recent standard development” on 13th December 2023, Wednesday from 10:00 AM to 12:00 PM in association with IEEE PELS Bangalore Section Chapter. Dr. Xu She, Distinguished Lecturer – IEEE Power Electronics Society & Director of Electrical Engineering, Lunar Energy Mountain View, California, USA acted as a resource person.

The outcome of the programme is to bring the researchers and academic experts from reputed institutes of our country to a collective gathering for exchanging and sharing the knowledge about the recent developments and research challenges in Solid state transformers: journey from R&D to recent standard development. In this presentation, Dr. Xu She will explore about the solid state transformer is an emerging technology that replaces the traditional line frequency transformer with additional functions and intelligence.It has gained

significant attention in the past 10 years with number of publications increased by more than 25x. Around the world, there are many on-going demonstration projects for different applications, such as smart grid integration, EV fast charger, wind and solar power conversion, etc. This lecture provides an overview of development effort of solid-state transformers, a journey starting from early-stage R&D to recent standard development effort (IEEE P3105) within IEEE power electronics society. The entire session is very informative and enthusiastic manner in the area of power electronics industry.

The eminent expert from the Lunar Energy delivered the lecture and his talk has been very well received by the 126 participants.

WEBINAR IN ASSOCIATION WITH IEEE PELS STUDENT BRANCH CHAPTER

"Improving Electric Drive Train Efficiency with Multi physics Simulation"

IEEE PELS NHCE Student Branch Chapter from Department of Electrical and Electronics Engineering, New Horizon College of Engineering, Bengaluru is organized the Webinar on "Improving Electric Drive Train Efficiency with Multiphysics Simulation" for the benefit of students, research scholars and faculties of NHCE and other External Institutions on 15th December 2023 from IST 03:00 PM to 04:00 PM. in association with IEEE PELS Bangalore Section Chapter and COMSOL. Mr. Sharath B N, Technical Specialist, COMSOL acted as a resource person.

The outcome of the programme is to bring the researchers and academic experts from reputed institutes of our country to a collective gathering for exchanging and sharing the knowledge about the recent developments and research challenges in Improving Electric Drive Train Efficiency with Multiphysics Simulation. In this presentation, Mr. Sharath B N will explore about the Electric Drive Train Efficiency details. The entire session is very informative and enthusiastic manner in the area of power electronics industry. The eminent expert from COMSOL delivered the lecture and his talk has been very well received by the 64 participants.

ACHIEVEMENTS

Project Expo “OXYIGNITE 2023”

The students of New Horizon College of Engineering took part in the Project Expo “OXYIGNITE 2023” on 22.12.2023, conducted by The Oxford College of Engineering, Bangalore.

The Department of Electrical and Electronics Engineering, New Horizon College of Engineering bagged first place at the project presentation event. The project’s title was ‘Therapeutic Treadmill,’ represented by P. Vamshi Krishna (1NH21EE075), Raksha K (1NH21EE092), Suprith U (1NH21EE115), Sreejesh S (1NH21EE111) under the guidance of Dr. Sujitha S

Three students from the 7th semester of the EEE department—Sneha S.A (1NH20EE111); Dheeresh Vijay Devadiga (1NH21EE402); and SHASHANK JOSHI (1NH20EE101)—underwent a Study Abroad program at France universities, including two campuses of CESI and one of ESIGELEC, from September 2023 to January 2024. They have successfully completed their internship. On behalf of the New Horizon College of Engineering management, we congratulate them.

SPORTS ACHIEVEMENT

Men's basketball game at New Horizon College of Engineering, Bangalore

Rakshan L (USN: 1NH21EE093) participated in the men's basketball game at New Horizon College of Engineering, Bangalore. The basketball team won the runners-up trophy, and a cash prize of 15k was awarded to the team. This event took place from December 27th to December 29th, 2023, at New Horizon College of Engineering.

Women's basketball game at New Horizon College of Engineering, Bangalore

Simran Kanwar (USN: 1NH20EE110) participated in the women's basketball game at New Horizon College of Engineering, Bangalore. She was awarded the "Best Player" trophy in the women's category, and the basketball team received the runners-up trophy. Additionally, a cash prize of 15k was awarded to the team. This event took place from December 27th to December 29th, 2023, at New Horizon College of Engineering.

STATE LEVEL TOURNAMENT IN JUDO WEIGHT

Darshan Suresh Shetty 1NH20EE028 represented New Horizon college of Engineering in JUDO weight category of 60 Kg men Intercollegiate State level tournament held at KLS'S VDIT, Haliyal by VTU on 20/11/2023 and secured second place.(Silver Medal)

IEEE Industrial Electronics Society NHCE Student Branch Chapter – Achievement

IEEE Industrial Electronics Society NHCE Student Branch Chapter (Geo-Code: SBC66131B) of the Department of EEE has won the "Highest Membership Award" for a dedicated voluntary contribution to the chapter and the highest number of members for the year 2023 in IEEE PELS and IES Bangalore Section Chapter AGM – 2024 (Annual General Meeting) at Amrita School of Engineering, Bengaluru held on 21.01.2024