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NEW HORIZON
COLLEGE OF ENGINEERING

Autonomous College Permanently affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

Department of
Electrical & Electronics Engineering

AUTUMN TRONICALS
JUNE-DECEMBER
2022

Message from The Chairman

I am delighted to have the opportunity to express my thoughts in the biannual EEE magazine. The Department of Electrical and Electronics Engineering has consistently maintained its reputation as one of the most dynamic and vibrant departments within our esteemed Institute, instilling a sense of immense pride in us over the years. As an institute, we have been undergoing substantial reforms, focusing on curriculum enhancements and course structure modifications.

The EEE Department has readily embraced these changes, anticipating their positive impact on student learning outcomes. In addition to implementing the revised course plans for first-year students, we have also extended their application to senior years in the undergraduate program. We eagerly await feedback from our students, as their valuable input will ensure that we are progressing in the right direction. It is truly gratifying to witness students channeling their creativity and unveiling their hidden talents in various forms. This magazine serves as the perfect platform for students within the Department to showcase their abilities.

Furthermore, this magazine will also serve as a suitable avenue for faculty and students to share technical articles pertaining to their respective research areas, fostering knowledge dissemination and academic collaboration. I extend my best wishes to all involved in this endeavor.

Dr. MOHAN MANGNANI

Message from The Principal

At New Horizon College of Engineering, we recognize the imperative of extending our educational efforts beyond the curriculum to equip our students with the necessary skills to excel in the industry. Recent observations from prominent industry experts highlight a concerning reality that a significant number of engineering graduates lack the employability quotient. New Horizon College of Engineering has consistently been at the forefront of addressing this issue, striving to ensure that our students are well-prepared and ready for the demands of the job market.

It brings me immense delight to offer a few words as a preface to the in-house magazine of the EEE department, "Spring Tronicles." This edition is thoughtfully curated to present an array of events and technical write-ups, rendering it a valuable resource of information. I extend my heartfelt congratulations to all the contributors and the esteemed editorial board for their efforts in producing this exceptional magazine.

May you find delight and enlightenment as you delve into the pages of this edition.

Dr. MANJUNATHA

Message from The Head of the Department

I am delighted to present my perspectives for the biannual EEE magazine, "Spring Tronicles 2023." The Department of Electrical and Electronics Engineering has consistently maintained its position as one of the most dynamic and vibrant departments within our esteemed Institute, instilling us with immense pride over the years. As an institution, we have been undergoing significant reforms in terms of curriculum updates and course structures.

The EEE Department has whole heartedly embraced these reforms, with the earnest belief that they will benefit our students. The implementation of new course plans extends not only to first-year students but also to senior undergraduate years. We eagerly anticipate receiving feedback to ensure that we are progressing in the right direction. Witnessing the students display their creative and hidden talents in diverse forms is truly gratifying, and this magazine serves as the perfect platform for showcasing the exceptional abilities of our department's students.

Moreover, it serves as an apt medium for faculty and students to share technical articles, thus facilitating the exchange of knowledge within their respective research domains. I extend my sincerest wishes for the success of this endeavor.

Dr. SUJITHA S

Message from The Faculty Advisor

Fostering creativity and stimulating innovation are fundamental pillars of a successful educational experience, and a college magazine epitomizes the harmonious fusion of both elements. It serves as a conduit for channeling the creative energies of the academic community, distilling the essence of their inspired ideas in the most brilliant manner imaginable. Consequently, it is with great privilege that I acknowledge the readiness for publication of "Spring Tronicles," the magazine of the EEE department at New Horizon College of Engineering.

"Spring Tronicles" provides a convergence of significant challenges and remarkable opportunities, inviting students to reflect on their efforts and assess their achievements across various realms of skill development. As technology evolves at a rapid pace, it may outpace the design of our traditional classrooms. In light of this, I extend my heartfelt congratulations to the dedicated team of students whose relentless endeavors have culminated in the creation of this magazine. I wholeheartedly wish it every success and aspire for this tradition, established by the current students, to be upheld by the future generations.

With genuine optimism for a bright and prosperous future,

Mr. VINOD KUMAR S

EDITORIAL TEAM

Dr. SUJITHA S

(Head of The Department)

Mr. VINOD KUMAR S

(Faculty Advisor)

Mr. Dayas A Dixen

Ms. Tejashree T

Mr. Srinivas Abhinay Gandla

Mr. Rahul B

Mr. Abhay Shetty

Ms. Jhansi Priya

Ms. Tantapureddi Haritha

ABOUT DEPARTMENT

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 (Geo-Code: SBC66131)
Industrial Electronics Society (IES) Student Branch Chapter (Geo-Code: SBC66131B)
Power & Energy Society (PES) Student Branch Chapter (Geo-Code: SBC66131D)
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)

MISSION AND VISION

DEPARTMENT VISION

To evolve into a center of excellence in Electrical and Electronics Engineering for bringing out contemporary engineers, innovators, researchers and entrepreneurs for serving nation and society

DEPARTMENT 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

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- To provide good learning environment to develop entrepreneurship capabilities in various areas of Electrical and Electronics Engineering with enhanced efficiency, productivity, cost effectiveness and technological empowerment of human resource.
- To inculcate research capabilities in the areas of Electrical and Electronics Engineering to identify, comprehend and solve problems and adopt themselves to rapidly evolving technology.
- To create high standards of moral and ethical values among the graduates to transform them as responsible citizens of the nation.

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: 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.

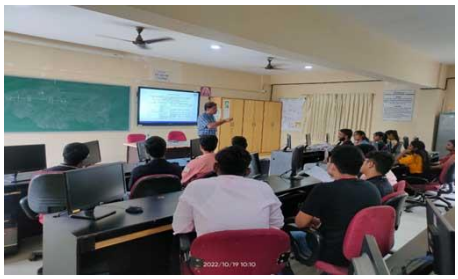
PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1: Graduates will be able to solve real life problems of Power system and Power Electronics using MiPower, PSPICE and MATLAB software tools and hardware.

PSO 2: Graduates will be able to develop and support systems based on renewable and sustainable Energy sources.

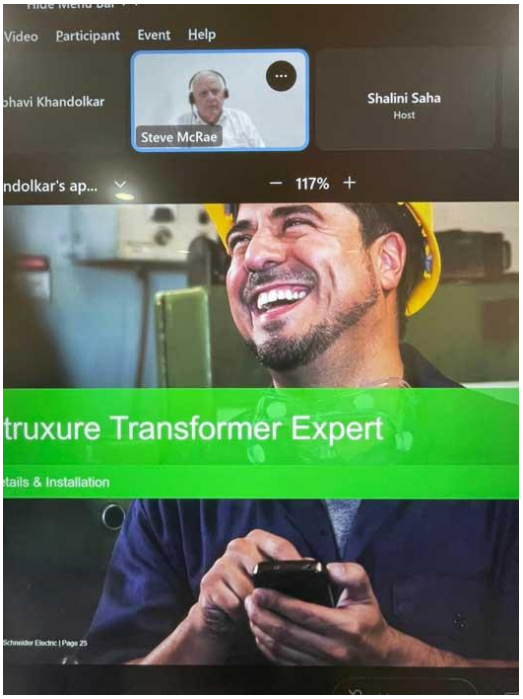
SEMINARS AND WORKSHOPS

Guest Talk on "VTU Regulations on BE Honours Degree"



Date: 20.10.2022
Timings: 10.15 am-12.15pm
EEE Dept conducted guest talk on VTU BE Honours Registration applications are invited for the academic year 2021-22. Eligible students can apply for registration to B.E./ B.Tech. Honours Degree Programme for the academic year 2021-22. Students may refer to the below eligibility criteria before applying for the BE Honours Degree Programme. The Colleges are requested to advice and mentor the students with reference to the conditions prescribed by the University in its Regulations Governing the Degree of B.E./B.Tech. Honours 2020-21.

ECOSTRUXURETRANSFORMER An Expert lecture from Schneider Electric



The Schneider Electric has conducted a international Webinar on Ecostruxure Transformer on October 12th 2022 from 11.45 am – 1.00 pm through Google Meet The Objectives of the Webinar were: 1) to provide a platform for an open discussion about the shifting paradigm of smart grid t 2) to have a discussion about the role and function of Transformers in smart grid pilot project implementation with converter transformer, and 3) to throw light on the need and significance of integrating modern power system . Webinar included three distinguished keynote speakers. Total number of 110 participants was attended in this Webinar.

IEEE PELS NHCE

Technical Event on "PRAUDYOGEEK.2.0"

Date: 19.10.2022 To 20.10.2022

Timings: 06:00 PM TO 09:30 PM

The event aimed to familiarize B.E/B.Tech students with basic electrical core concepts and inspire group discussions on technology trends. Participants also aimed to improve their technical knowledge and soft skills like time management and decision-making. The event included three rounds: Training and Quiz, Group Discussion, and Rapid Fire.

Technical Event on “SIMULATE WITH US”

Date:17/11/2022

The E-SOFT club and IEEE PELS Bangalore Chapter organized a Student Technical Event on November 17, 2022, for B.E Students of NHCE. The event aimed to familiarize participants with basic electrical core concepts using simulation software like LT-Spice, Proteus, and MATLAB/SIMULINK, while also teaching applications

INDUSTRIAL VISITS

Industrial visit to "BEML [Bharat Earth Movers Limited] – Mysore

The Department of EEE organized the Industrial Visit for sixth semester students on 28.5.2022 to "BEML- Mysore". BEML is the largest Defence, Mining & Construction and Rail coach manufacturer in India. Students visited the Truck division, Equipment division and Electrical substation thoroughly and gained the practical knowledge on manufacturing and assembling of components and in substation about switchgear, insulation and transformers.

RenXSol Ecotech Private Limited – Industrial Visit

The Department of Electrical and Electronics Engineering of the New Horizon College of Engineering organized an industrial visit to RenXSolEcotech Private Limited on 13th and 14th September 2022, which is one of the 400 solar companies in Bengaluru, Karnataka, India. This was done as a part of the Global Program that offers value courses to students to enhance their knowledge and skills. This industrial visit was organized as a part of a course Solar PV System Design.

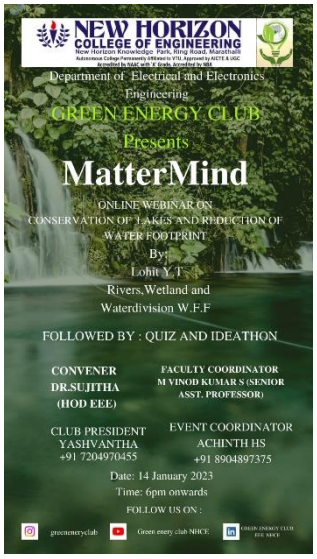
Kiaga Atomic Power Station – Industrial Visit

The Department of Electrical and Electronics Engineering of the New Horizon College of Engineering had organized an industrial visit on 10th November, 2022 to the Kaiga Atomic Power Station, for the 3rd year and 4th year students of B.E Electrical and Electronics Engineering.

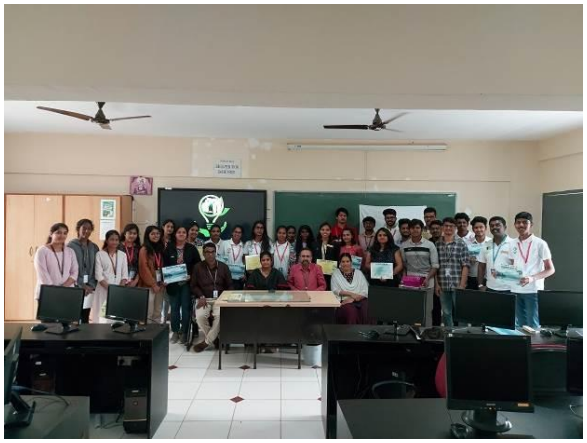
CLUB ACTIVITIES

GREEN ENERGY CLUB

Matter mind Event (Seminar + Quiz)



The Department of Electrical and Electronics Engineering of the New Horizon College of Engineering organized a Matter Mind Event of Green Energy Club on 14th January 2023. During this event HOD of the department Dr. Sujitha S presided and introduced the green energy club. And gave the welcome message to the club board members and participants. Yashvantha P. President of the Green Energy Club honored the Guest Speaker Mr. Lohit Y to the event & honoured by Infancia Pragna, Secretary of Green Energy Club. Around 80 students participated around different colleges and different department honoured. Green Energy club Co-coordinator Mr. Vinod Kumar S gave the vote of thanks.



Cleanliness Drive at Jakkur Lake

The event 'AWARENESS CAMPAIGN AT JAKKUR LAKE' was conducted by GREEN ENERGY CLUB on 28th of November 2022 from 9:00 am to 12:00 pm. The objective of this event was to spread awareness about cleanliness in surroundings specifically near water bodies because the garbage pollutes water which harms the aquatic life. We left from college and reached the venue for event and was informed about what we were going to do. We were divided in groups and was cleaning the allotted area focusing mainly on plastic and related materials, after cleaning we dumped the garbage and we distributed templates and also had conversation about cleanliness with the people present there. At the end we planted some plants.

E SOFT CLUB

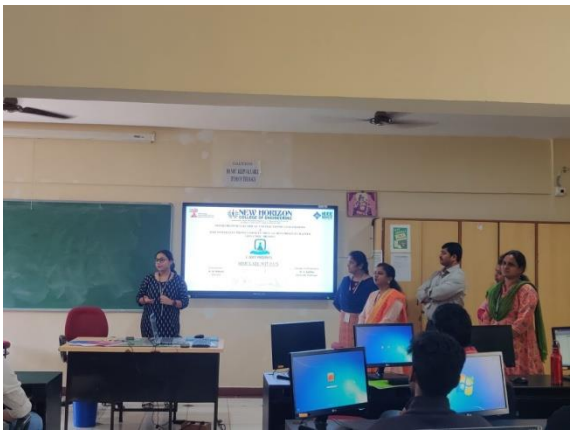
Event Photo

Event Name and Details

Simulate With Us on 17th November 2022

- DATE: 17/11/2022
- TIME: 12:00 PM ONWARDS

E-SOFT club of Electrical & Electronics Engineering Department, NHCE & IEEE PELS Bangalore Chapter jointly organized the Student Technical Event on "SIMULATE WITH US" on 17th November 2022 for the benefit of B.E Students of NHCE. The aim of the event was to help the participants get familiarized with basic electrical core concepts, with a few simulation software like LT-Spice, Proteus and MATLAB/SIMULINK. Along with improving their technical knowledge, participants were able to learn a few applications of these software's



Quizcode

- DATE: 13/07/2022
- TIME: 12:10 PM ONWARDS

This event focused on encouraging students to become skilled at the basics of coding. The event was the continuation of the last event. This event tested participant on the concepts taught in the event CODOPIA “A Future Prospective”.

Around 30 students participated in the event and were benefitted from the event.

SPORTS ACHIEVEMENTS


Visvesvaraya Technological University
" Jnana Sangama ", Belagavi- 590 018, Karnataka, India.
Department of Physical Education & Sports
Inter Zone / Single Zone Tournament : 2022 - 2023
Certificate
This is to certify that Sri./ Kum. Darshan Suresh Shetty
USN 1NH20EE028 Representing NEW HORIZON
has Secured Winners / Runners - up / Third / Fourth Place in JUDO [-60 Kg]
Inter Collegiate / Inter Zone / Single Zone Tournament / Competition
held at VVCE, Mysuru
from 12-12-2022 to 13-12-2022
Director of Physical Education VTU, Belagavi.
Principal organizing college
Vice Chancellor VTU, Belagavi.

Darshan Suresh Shetty of EEE department was runner up in Judo single zone tournament held at VVCE, Mysore.

Date:12/12/2022-13/12/2022

Location: VVCE Mysore

Achievement: Runner up in JUDO (60 kg) Single Zone Tournament VTU


Visvesvaraya Technological University
" Jnana Sangama ", Belagavi- 590 018, Karnataka, India.
Department of Physical Education & Sports
Inter Zone / Single Zone Tournament : 2022 - 2023
Certificate
This is to certify that Sri./ Kum. M. Rohith Kumar Reddy
USN 1NH19EE066 Representing New Horizon college of Engineering
has Secured Winners / Runners - up / Third / Fourth Place in Weight Lifting (61 kg)
Inter Collegiate / Inter Zone / Single Zone Tournament / Competition
held at Global Academy of Technology
from 28-10-2022 to 29-10-2022

Rohith Kumar Reddy of EEE department secured third place in weight lifting competition held at Global Academy of Technology.

Date:28/10/2022-29/10/2022

Location: Belagavi, Karnataka

Achievement: Third Place in WEIGHT LIFTING (61kg) Single Zone Tournament VTU

TECH-INSIGHT

ANTENNA DESIGN

Antenna design plays a crucial role in the field of electrical and electronics engineering, as antennas are fundamental components for wireless communication systems and radio frequency (RF) devices.

Antennas are essential components in wireless communication systems, including cell phones, Wi-Fi routers, satellite communication, and more. They transmit and receive electromagnetic waves to enable wireless data transfer. The design of antennas directly impacts the range, signal quality, and data throughput of these systems.

Radio Frequency Identification (RFID) systems use antennas to communicate with RFID tags. Antenna design affects the reading range and reliability of RFID systems, making it crucial for applications like inventory management, access control, and asset tracking.

Antennas are used in broadcasting systems for radio and television. The design of broadcast antennas determines the coverage area, signal strength, and clarity of the transmitted content. Engineers must optimize antenna designs to provide reliable broadcasting services.

In applications like IoT (Internet of Things) and industrial automation, wireless sensor nodes communicate with each other and a central controller using antennas. Antenna design affects the network's range, energy efficiency, and data reliability.

Antennas on satellites are designed for communication with ground stations and other satellites. The efficiency and coverage of satellite communication systems depend on the performance of

these antennas. Radar systems use antennas to transmit and receive radio waves for various applications, including weather monitoring, air traffic control, and military surveillance.

In modern electronics, especially in portable devices like smartphones and wearables, there is a need for compact and miniaturized antennas. Antenna design in these applications must consider space constraints while maintaining good performance.

Antenna arrays consist of multiple antennas arranged in specific configurations. These are used in beamforming, phased-array radar, and MIMO (Multiple-Input, Multiple-Output) systems to improve signal directionality, interference rejection, and data throughput.

Antenna designs are often tailored to specific frequency bands or applications. Different antennas are needed for VHF, UHF, microwave, and millimetre -wave frequencies. Engineers must select or design antennas that match the desired frequency range.

In summary, antenna design is a fundamental aspect of electrical and electronics engineering, as it directly impacts the functionality and performance of a wide range of wireless communication and RF systems. Engineers work to optimize antenna designs for specific applications, frequencies, and environmental conditions to ensure reliable and efficient wireless connectivity and data transfer.

ALUMNI FEEDBACK

I am Bindhu V, from Electrical and Electronics Engineering Department. As a student of New Horizon College of Engineering, I can say that the college provides a great learning experience. The faculty is highly experienced and knowledgeable, and they are always ready to help the students in any way possible. The college has a good mix of academic and extracurricular activities, which helps in the overall development of the students. The campus has a friendly and vibrant atmosphere, which makes it a great place to study and learn. The placement cell of the college is very active, and they work tirelessly to provide opportunities for the students to kick-start their careers. Overall, NHCE is a great college that provides a conducive learning environment, and I would definitely recommend it to anyone looking for a quality engineering education.