स्पंदन

Newsletter of Department of Electronics Engineering
J. C. Bose University of Science and Technology, YMCA, Faridabad

January-March 2022

Faculty and Staff Members

Message From Vice Chancellor

Prof. S.K. Tomar
Vice-Chancellor

I wish to congratulate the Department of Electronics Engineering of J.C. Bose University of Science and Technology, YMCA, Faridabad for bringing out its Newsletter '**स्पंदन**' which will showcase the events and activities of the Department.

Newsletters are testimony of all kinds of quality teaching and research events in any academic department. It is a commendable effort and I look forward to reading about the various activities and achievements of the Department and articles on latest advances and upcoming trends in the field of Electronics Engineering through this Newsletter.

My best wishes to the Editorial Team.

From Chairperson's Desk

Dr. Pradeep Dimri
Chairperson and Professor,
Department of Electronics Engineering

Dear friends and well-wishers of the Department of Electronics Engineering, I am happy to present the January-March 2022 issue of the department newsletter '**स्पंदन**' to you. This issue will give you glimpses of the various activities in the department. Your comments and suggestions are welcome to make the next issue of the newsletter even better.

Mission

- To frame a well-balanced curriculum with an emphasis on basic theoretical knowledge as well as the requirements of the industry.
- To motivate students to develop innovative solutions to the existing problems for the betterment of society.
- Collaboration with the industry, research establishments, and other academic institutions to bolster the research and development activities.

Vision

To be a Centre of Excellence for producing high-quality engineers and scientists capable of providing sustainable solutions to complex problems and promoting cost-effective indigenous technology in the area of Electronics, Communication & Control Engineering for Industry, Research Organizations, Academia, and all sections of society.

News & Events:

ACTIVITY REPORTS:

Department of Electronics Engineering of JC Bose University of Science and Technology, YMCA highlights its informative and innovative training programs/ expert lectures for the year 2022. The department aims to provide a stimulus to knowledge sharing by conducting the following activities:

CLOUD COMPUTING AND IOT: An AICTE-sponsored 6-days long, a short term training program that began on 7th February 2022, was conducted for faculty, industry persons, and research scholars under the coordination of Dr. Rashmi Chawla, Dr. Sheilza Jain, and Ms. Sangeeta Dhall with the expertise of twelve renowned experts. Cloud Computing and IoT are one of the most trending technologies in today's world. Although these are two different technologies, it is very interesting to learn about the interdependence of cloud computing and IoT. In this STTP, the close relation between the two was explained in detail.

CAREER OPTIONS AFTER B.TECH: On 31st January 2022, an expert lecture was hosted for the students of the first semester of branch EEIOT, ECE, and ENC under the guidance of Mr. Bharat Bhushan, Dr. Kalpana Sheokand, Dr. Sunil Kumar and Dr. Sonam Khera with the expertise of Mr. Vinay Yadav, an instructor from Unacademy. He presented webinar on career options after B.Tech for first year students.

RECENT CHALLENGES AND DEVELOPMENT IN SOLAR ENERGY TECHNOLOGIES: An AICTE sponsored 6-days long short term training program that began on 24th February 2022, was conducted for faculty, technical staff, PG students, and industry persons under the co-ordination of Dr. Rohit Tripathi, Dr. Sunil Jadhav, Dr. Prashant Kumar and Mr. Lalit Rai with the expertise of twenty renowned experts. This training program described the latest trends of Solar energy and mentioned about the expansion of the solar industry in latest times and also stress upon the fact that it is the need of an hour, to switch to the solar energy applications.

MINUTES OF MEETING WITH VC SIR: A meeting of faculty members of the Department of Electronics Engineering was held on 07.03.2022 with Hon'ble Vice-Chancellor Prof. Sushil Kumar Tomar. During the meeting, serious concern was raised by Hon'ble VC sir on the air quality of Faridabad city. Accordingly, the following decisions were taken up:

- Conduction of research on potential areas to provide technical solutions to improve the air quality.
- To encourage the faculty members to take up such projects which would address the social problems with technological solutions.
- Prof. Tomar urged the researchers to develop a device that could measure the number of nanoparticles in industrial smoke.
- It was apprised in the meeting that a team of researchers is already working on the project of '**IOT based Vertical Gardening**'.

CLUBS:

Microbird-The Techno Club conducted its yearly flagship project showcasing competition 'Pragyan' in which participants could submit their projects in two categories, hardware, and software. The combined prize pool was 8000 rupees. Along with this national-level competition, the club organized a hands-on workshop titled 'Decoding Smart Home,' which enabled the learners to understand the concept of a smart home by operating any appliance just by voice through a self-made application wirelessly over the internet by using various electronic components.

The students of Electronics Engineering under the headship of **Samarpan-The Technophilia** club hosted an electronics workshop between 5th Feb to 13th March. The sessions of workshops comprised of : E3-Elements of Electronics and Electrical workshop - This Online workshop dealt with electronics & electrical tools and their implantation in real life. **SCMaglev** Workshop and Quiz Competition - Online Session based on working and technology that was used in the Fastest Train in the World. The top 3 scoring contestants were awarded cash prizes. Solar Power Generation and BMS Circuits - In the 2 days offline workshop, students were taught about Solar Cells and Solar Panels, Solar Charge Controllers, and BMS.

IEEE: IEEE aims to organize events in diverse domains. It has organized various sessions related to the computer domain like Git and GitHub and Coding Competitions and the electronic domain like Embedded Systems. It has conducted competitions like **FIEEEGMA**, Cryptic Battle, and Technomania to help the students showcase their talent in their field. IEEE also organized an interactive session on "Roadmap to crack Internships and Placements" to help students figure out their career paths and make their journey toward dream companies easier. IEEE also organized a series of events under a project collaborating with IEEE DELHI SECTION and IEEE ASIA PACIFIC REGION 10.

SOCIAL ACKNOWLEDGMENT: Our notable university along with its alumni association – YMCA MOB started a '**Team उम्मीद**' comprising students and faculty members as volunteers of electronics and other departments. This team was formed amid the COVID-19 crisis to succor and support the people of Faridabad city. Its major contributions were:

- **THE OXYGEN REFILLING MANAGEMENT SYSTEM:** An initiative of the District Administration of Faridabad, supported by our '**Team उम्मीद**' at the back-end, to help home isolated COVID-19 patients struggling for oxygen supply in Faridabad. With the success of this system, Haryana Government has implemented this system with the '**Door-to-Door Oxygen Refilling System**' at the state level.

- **JIVISHA – TELE CONSULTATION HELPLINE FOR COVID-19:** In association with the District Administration of Faridabad, this helpline was a mode to connect different types of patients with their respective doctors virtually.
- **ROTARY BLOOD BANK:** Rotary Blood Bank of Faridabad started a social initiative to help Thalassemia patients with blood transfusion. They also organized a blood donation camp for the same.

India Semiconductor Mission (ISM)

by Rakshit Bajaj, EIC 3rd Year, Editorial Team

"India Semiconductor Mission (ISM)" is a particular and free Business Division inside the Digital India Corporation with a motive to assemble a vibrant semiconductor and present an ecosystem to empower India's rise as a worldwide center point for gadgets assembling and planning. The Hon'ble Minister of Electronics and Information Technology sent off the India Semiconductor Mission (ISM) 15 days after Cabinet Approval of the Program for Development of Semiconductors and displayed Ecosystem in India. Driven by worldwide specialists in semiconductors, the mission expects to act as a point of convergence for the extensive, lucid, practical, and smooth arrangement of the Program for Development of Semiconductors. A semiconductor is a material generally includes silicon, which conducts electricity more than an insulator, such as glass, but less than a pure conductor, such as copper or aluminum. At zero Kelvin, this material acts as an insulator and becomes a conductor with a rising temperature. It can be doped to make the semiconductor gadgets ideal for energy change, switches, and speakers because of their excellent electrical properties with low power losses. Also, they have resistivity higher than conductors and lower than insulators. As the mercury rises, the resistance of semiconductor materials diminishes, and the other way around. The dominance of semiconductor assembling and supply ability amassed in a modest bunch of nations, including Taiwan, South Korea, the U.S, Japan, and China. And as a fact – by 2025, Semiconductors are supposed to be a $75 billion industry. The mission is approved to deal with candidates under the semiconductor fab and display fab scheme.

A ROUND OF APPLAUSE!

Only those who have the patience to do simple things perfectly ever acquire the skill to do difficult things easily, conquering great heights. A moment of elation, pride, and honor for the Department of Electronics Engineering, as students of our department have been awarded in the following arenas:

Ministry of Heavy Industries and Power appreciated '**Team उम्मीद**' with **The Lilavati Award** for its obliging contribution to the initiative – **'Oxygen Refilling Management System'** to help home isolated COVID-19 patients. This award was received by the team member, Dr. Rashmi Chawla.

HIGHER STUDIES and PLACEMENTS:

The Department of Electronics Engineering has always been decked with abundant awards and achievements and it gives us a great sense of exhilaration as we present our qualifiers for competitive examinations as well as our placement statistics for the academic year 2021-2022.

- Ashutosh Kumar, Divya, Kunal Bhatia, Shivani, and Vicky of the Department of Electronics Engineering qualified for the GATE examination. Muskan Raina, Sakshi Raina, and Yogya Arora qualified for the IELTS examination with flying colors.
- Students passing in 2022 have shown an impeccable placement record. more than 60% students from ECE and EIC have grabbed the best of opportunities by getting placed in top companies like Samsung, Yamaha, TCS, Accenture, Cognizant, IBM, Airtel, and Lutron, and many more.

The Average package of this year for ECE students is 10 LPA and the average package offered to EIC students is 6 LPA.

- **YAMAHA MOTOR SOLUTION INDIA PVT. LTD.** provided placements to 2 students of ECE and a student of EIC.
- **COGNIZANT TECHNOLOGY SOLUTIONS** provided placements to 12 students of ECE and 16 students of EIC.
- **HARMAN CONNECTED SERVICES** provided placements to 2 students of ECE and a student of EIC.
- A student of ECE and a student of EIC earned placement in **AMAZON WOW** respectively.
- 5 students of ECE and 4 students of EIC got placed in **ACCENTURE GRADUATE HIRING**.
- **TT CONSULTANTS** extended placement offers to 2 students of ECE and a student of EIC.
- A student of ECE and 2 students of EIC secured placements in **MARUTI SUZUKI**.
- 2 students of ECE and a student of EIC were placed in **SAMSUNG NOIDA**.
- 7 students of ECE and 4 students of EIC were offered placements by **TCS**.
- **QSPIDERS** offered placement to a student of ECE and 2 students of EIC.
- **UNITED LEX** hired 1 student of ECE and a student of EIC respectively.
- **SAMSUNG R&D DELHI** offered placements to 4 students of ECE.
- A student of ECE bagged a placement in **L&T TECHNOLOGY**.
- A student of ECE got a placement in **HMCMM AUTO LIMITED**.
- A student of ECE was placed in **BNY MELLON TECHNOLOGY**.
- **COGNEAU(VERDIS)** offered placements to 2 students of ECE.
- **KEKA, HYDERABAD** offered placements to 2 students of ECE.
- A student of ECE got placed in **JOSH TECHNOLOGY**.
- **AIRTEL** offered placements to 2 students of ECE.
- **IFB INDUSTRIES** gave placement to a student of EIC.
- **IBM INDIA** offered placement to a student of EIC.
- A student of EIC accepted the offer from **ZENSAR**.
- **ZSCALER** extended the placement offer to a student of EIC.
- **DECIMAL TECHNOLOGIES** offered placement to a student of EIC.
- 2 students of EIC were placed in **JSW TALENTECH**.
- A student of ECE received an offer from **INVESTWELL**.
- **NAGARRO** offered placements to 2 students of EIC.
- 3 students of EIC got placed in **LUTRON INDIA**.
- **SYNORIQ** extended placement offers to 2 students of EIC.
- **LEARNING ROUTES PVT. LTD.** offered placements to 2 students of EIC.
- A student of EIC was placed in **SMS INDIA PVT. LTD**

INTERNSHIPS

- 2 students of ECE earned internship opportunities in **MV ELECTRONICS**.
- **CADENCE DESIGN SYSTEM NOIDA** offered internship to 2 students of ECE.
- **AMANTYA TECHNOLOGIES** offered internship to 1 student of ECE.
- A student of ECE interned in **SMART SEWA**.
- 2 students of EIC got internship in **DABUR INDIA**.
- **LOGICLADDER** offered internship to 1 student of EIC.

13 students of ECE and 12 students of EIC received multiple placements offers.

Wishing all these achievers the best and plenty of success as they embark on a new journey of their lives!

Research & Innovations:

- Nisha Yadav, Sunil Jadav, and Gaurav Saini published their work entitled "Geometrical Variability Impact on the Performance of Sub 3 nm Gate-All-Around Stacked Nanosheet FET", in Silicon Journal, 2022.
- Nisha Yadav, Sunil Jadav, and Gaurav Saini presented their work entitled "DC and Analog/RF Performance Analysis of Multi-Bridge Channel FET with Variation in Gate Work Function," at the International Conference for Advancement in Technology (ICONAT), IEEE 2022.
- Sunil Jadav and Shubham Tayal published their work entitled "Gate Stack Optimization of a Vertically Stacked Nanosheet FET for digital/ Analog/ RF Applications" in Journal of Computational Electronics, Springer, 2022.
- Chhaya Grover published her work titled "Advance Fault Diagnosis of Power - Plant Components using Vibration Signature Analysis" in University Grants Commission approved journal.
- Sandeep Handa published his work titled "Study of Issue Related to Green Manufacturing" in University Grants Commission approved journal.
- Usha Dhankar, Sunita Dahiya, Rashmi Chawla, Prashant Kumar, and Neeraj Gupta published their work entitled "Numerical Simulation of Temperature Dependency on Performance of Solar PVC" in Silicon Journal, 2
- Taruna Sharma, Gaurav Varshney, R. S. Yaduvanshi, and Munish Vashishath published their work entitled "Modified Koch borderline monopole antenna for THz regime" in Optical and Quantum Electronics, 2022.
- Sonam Khera published her work titled "Analysis and Implementation of an Energy-Efficient Wireless Sensor Networks" in the University Grants Commission approved journal.
- Dushyant Kumar Shukla published his work titled "Investigation into Noise Analysis of Electronic Circuit" in the University Grants Commission approved journal.
- Prashant Kumar published his work titled "Analytical Study of MOS Device for Leakage Reduction in Low Power Circuit" in the University Grants Commission approved journal.
- Sonia Setia published her work titled "Design of a Semantic Prefetching System for Web using Low-Cost Prediction Methods" in the University Grants Commission approved journal.
- Kalpana Sheokhand published her work titled "Effects of Time-Varying and Constant Detection Methods of Electrical Machines" in the University Grants Commission approved journal.
- Nitin Sachdeva published her work titled "Modeling, Estimation and Reduction of Total Leakage in Scaled CMOS Logic Circuits" in University Grants Commission approved journal.
- Ritesh Sharma published her work titled "Correlation of Surface Finish and Process Parameters in Laser Sintering Rapid Prototyping Technique" in the University Grants Commission approved journal.
- Suresh Kumar published her work titled "Stress Evaluation Technique of Helical Spring with Modified Design Parameters" in the University Grants Commission approved journal.
- Priyanka published her work titled "Magnetic Field Analysis for Health Monitoring of Induction Motor using Search Coil" in University Grants Commission approved journal.
- Bhupender Singh published his work titled "Radioactivity Assessment in Air, Soil and Water Samplesin Southern Haryana, India" in University Grants Commission approved journal.
- Sunil Jadav edited/translated the book titled "Op-Amp Practical Applications: Design, Simulation and Implementation" published by NPTEL.

Our Department contains many innovative and creative minds, few instances are described here:

The students of the Department of Electronics Engineering under the headship of various clubs developed following innovative creations.

Microfit Buddy: With Microbird The Techno Club

Microfit buddy is an all-in-one health assessment machine that tells your **heart rate, blood oxygen saturation, temperature, weight, BMI, fat saturation, and height** by usingby using different sensors and processing algorithms. The machine employs the concept of IoT and makes all this data available live on a **web dashboard** which the user can easily access just by scanning a QR code.

SMART MIRROR: With SAMARPAN The Technophilia

The "Smart Mirror" is a two-way mirror with an LCD behind it. It can display helpful information like the date and time, weather, calendar, news, and many others in real-time because it is always connected to the internet. What's significant about a two-way mirror is that one side allows light to pass through, and the other side is reflective. The creative part about the Smart mirror is that it can be customized to one's needs; you can add proximity sensors for motion control, a microphone, and a speaker for voice control, almost anything you need. Connect it with Amazon's Alexa or google home, customize it to read Unread emails, play some music, then the list goes on and on. Moreover, you can also control it with your smartphone, using it as a remote to display.

Red Light green light: With IEEE

It is a game inspired by one of the games of the popular web drama "The squid games."In this, the camera connected to the main computer detects your step motion using computer vision and graph tracing algorithm and accordingly progress/score in your progress bar advances. You are supposed to move when the game commands "green light" and should stop when the game commands "red light."

A Brief Insight into PhD Research Area

Graduate research programs in our university are an important driver of research output. The Ph.D. Scholars of the University are engaged in various forms of research activity in different domains. Few of them are receiving scholarships through Govt. Schemes too. Here is insight of current research projects of our industrious students:

Name: Amir Mansoori
Supervisors: Prof. Munish Vashishath, Prof. Shamim Ahmad and Dr. Sonia
Topic: Design and Fabrication of Low Cost Printed Sensors using 2D Materials

His work on printed sensors and electronic devices on a low-cost substrate like coated paper, plastics, and textiles using 2D materials and their nanocomposites as ink. He tried to explore the transduction properties of nano-coating on the substrates by fabricating the cantilevers with printed patterns for the applications like humidity sensing, force sensing and many others.

Name: Ritika Thusoo
Supervisor: Dr. Sheilza Jain, Dr. Sakshi Kalra
Project Title: Analysis and control of Unmanned Aerial Vehicle for Path Planning using IoT

Her work is based on designing a control technique for the control and planning a path of UAVs. The UAVs have gained a lot of buzz in the near past due to their use in many applications like delivering medicines in COVID- contained zones, and spraying pesticides in agricultural fields. Her project work concentrates on designing and controlling the part of UAVs in terms of its stability and tracking its path.

Are you okay ?

by Mohit Gautam, ENC 3rd Year, Editorial Team

We must have listened to the quote “Modern Problems require Modern Solutions”. What even are these problems? The number of problems is just beyond our heads to count and there exist such struggles which go unnoticed and ignored. These problems have always existed in our countries, in our society, and in our heads.

The Mental Health of mankind has seen a rapid deterioration in the recent past and the situation doesn’t seem to get any better with time. Pandemic like COVID-19 exacerbates such issues. We chose to be ignorant even though one in four people in the world are affected by mental or neurologist disorders such as bipolar disorder, Schizophrenia, Dementia, OCD, PTSD, Adult ADHD, and many more.

Around 450,000,000 people currently suffer from such conditions worldwide. One's family, friends, and even a stranger could play a major role in helping someone introspect their mental health. In any step of life, just take a small step like asking “are you okay?” and let them know that it's totally okay not to be okay. Getting counseling and help from professionals should be encouraged. Ask yourself and others if they feel okay now and then because everyone deserves to be.

Alumni Relations

N. Kishor Narang
Principal Design Strategist & Architect
Narnix Technolabs Pvt. Ltd.
1973-1977 (Electronics & TV)

Q: After passing from YMCA, how did you proceed in your career?

When I passed out from YMCA in 1977, though most of my colleagues were inclined towards generic technical profiles that shall lead them to entrepreneurship sooner or later, I for a change, was only interested in becoming a Design Engineer and nothing else. The journey from 1977 till now (about 45 years) has been a real roller coaster, to say the least, but truly gratifying. After a brief stint of four years in Design & Teaching jobs decided to set up India's first Independent Design House in 1981. 45 years back when I chose design as my profession, and later in 1981 when I started my design and technology advisory & support (Narnix Technolabs) instead of an industrial or commercial enterprise, the real driver was my passion for new technologies and design.

Q: What is your success mantra at NARNIX?

We celebrate our design, research, and innovation Mentees - the real torch bearers of the ethos of Narnix "LEARNING CONTINUUM".

The Mantra "Innovation led Design; Design-led Manufacturing" seems to be the only way forward to realize the vision "Designed & made in India for the World".

Q: Please share your major learning in life?

An engineer is an enabler of change. He is equipped with the ability to take society's grand vision or magnificent concept and literally make it work.

Passion is the lever that helps lift the mundane to extraordinary, the mediocre to excellent. Passion is everything. So, "Go with your passion, no matter what. Go study, knowledge is power, and use it to make a positive change in this fragile world."

We humans need to radically change our relationship, not just with the planet, but with the objects with which we fill our lives. We need to change how we think about technology and innovation. It should help us build bridges between the worlds we inhabit now and the ones we imagine for tomorrow.

Q: What are your major contributions to the upliftment of society?

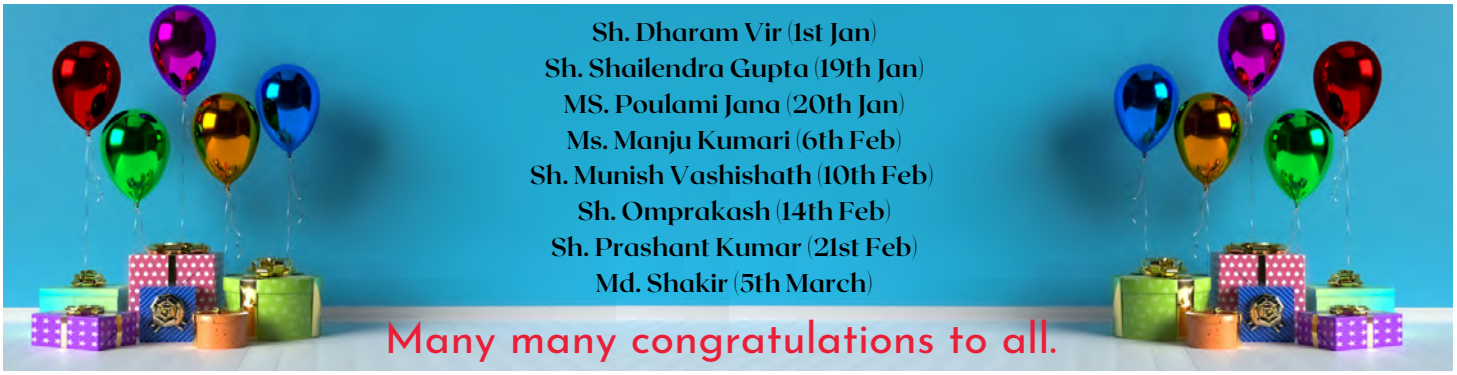
For the last 10 years, I have been deeply involved in standardization in the electrical, electronics, communications, information technology, cyber security, sustainability, and circular economy domains with a focus on identifying gaps in standards to bring harmonization through standardized interfaces to ensure end-to-end Interoperability.

I am leading national standardization initiatives at BIS, the Indian national standards development organization (SDO), in smart cities, smart manufacturing, smart energy, and active assisted living as the founding Chairman of the Smart Infrastructure Sectional Committee LITD 28, along with contributing to multiple other SDOs and initiatives. Globally, I am Vice Chair-Strategy and Project Leader of two international standards in IEC SyC Smart Cities, Convenor of Communication Technologies Work Group in IEC SyC Communication Technologies & Architectures, Member, IEC SMB/SG12 - Digital Transformation and Systems Approach, Co-Editor in ISO/IEC JTC1/WG11 Four Standards, and Chair of Advancing Research Work Group & member Steering Committee of OCEANIS, Member UL STP 3600 - 'Measuring and Reporting Circular Economy Aspects of Products, Sites and Organizations', beyond proactive contributions in many committees in global SDOs. Also, I am Standards Column Editor in IEEE IoT Magazine.

Goodbye and Welcome !

Coming and going is part of a life journey. This trend is seen in our department also; Dr Rohit Tripathi joined as Assistant Professor last year. Welcome, Sir! Prof. S. K. Aggarwal, senior professor of the department, got the farewell the previous year after giving precious 33 years of service to the department. Ms Veer pal Kaur joined the department as a data entry operator and transferred soon. Following her, Mr Kapil Tyagi joined the same designation and is presently working. Welcome, sir!

Birthdays of The Quarter



Message From Editorial Team

Members of Editorial Team

"The greater danger for most of us lies not in setting our aim too high and falling short, but in setting our aim too low and achieving our mark."

Dear Readers, you have in your hands "**स्पंदन**", the official newsletter of the Electronics Engineering Department of J.C. Bose University of Science and Technology, YMCA.

It captures a small dimension of the Department and we, the members of the Student Editorial Board of the Department have tried our best to capture this in the most suited way possible.

A few months ago, handed to us was the responsibility to bring this idea of a "Department Newsletter" to fruition.

We are humbled to announce that we successfully fulfilled this endeavor with the able and effective guidance of Bharat Bhushan sir, Sangeeta Dhall ma'am, and Nisha Yadav ma'am for which we are extremely obliged. In publishing the first edition of this Newsletter, we faced a lot of hurdles, none of us had any idea how we would go about this, but we persisted; the result was "**स्पंदन**" and a plethora of knowledge and skills that we acquired in the process. We are extremely grateful to the Department for judging us able and for giving us the opportunity to present ourselves in this form.

We hope the readers will like our work, acknowledge our efforts and give us valuable feedback to improve further.

We will be back with the subsequent editions soon.

Signing off, The Editorial Team

For any suggestions and feedback, get in touch with us at: **spandan.eee@gmail.com**

Editorial Team:- Bharat Bhushan (AP), Sangeeta Dhall (AP), Nisha Yadav (AP), Abhishek Kumar(ENC), Preksha Gupta(ENC), Mohit Gautam(ENC), Ishika Pandita(ENC), Yashika Kataria(ENC), Roopali Chauhan(ENC), Rakshit Bajaj(EIC), Gaurav Pathak(EIC), Eshita Juneja(EIC), Advitya(EIC), Priya(ECE), Jasmeet Singh Sethi(ECE), Khushi Singh(ECE)