

 **From Chairperson's Desk**



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

It is my great pleasure to extend heartfelt greetings to the readers of Spandan for issue of July-Sept 2022.

"We cannot always build the future for our youth, but we can build our youth for the future." Franklin D. Roosevelt

These words by Franklin D. Roosevelt perfectly provide the path of holistic learning in educational institutes.

Examination season is here and let me wish good luck to all the students appearing in the End Semester examination. "You don't have to be great to start, but you have to start to be great."

Please feel free to send your feedback to our hardworking editorial team to improve the content.

Best wishes.

 **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 2022. The department aims to stimulate knowledge sharing by conducting the following activities.

**LECTURE SERIES:**



**Lecture: Application of Mathematics in the Data Communication Security**

In the seminar series on 20 July 2022 expert talk was delivered by Dr. Shailender Gupta on the theme of "Application of Mathematics in the Data Communication Security" for the Faculty Members, Research Scholars, Workshop Staff, and PG Students of the Electronics department. He delivered his talk by exploring the use of mathematics for data communication security and how arithmetic is used to create ML Models. The lecture broadly covered the scopes and various benefits of Maths in the

domains, including AI, machine learning, data science, big data, cyber security, etc. The lecture was admired by diverse participants.

**Lecture: Advance Concepts in Digital Design**

In the Seminar series of the Department the expert lecture was delivered by Mr. Bharat Bhushan, in association with Dr. Nitin Sachdeva and Ms. Sangeeta Dhall, on the topic "Advance Concepts in Digital Design." on 9th September, 2022.

In his talk, Mr. Bharat Bhushan accentuated the concepts of Digital Design. He mentioned Digital Logic is rooted in binary code, a series of zeroes and ones, each having an opposite value. He explored the vast role of Digital Circuits in Circuit boards, ICs, Memories, and Microchip processors.



 **Mission**

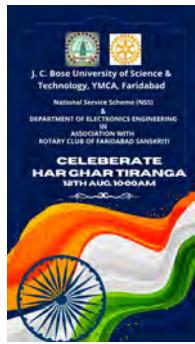
- To frame a well-balanced curriculum with an emphasis on basic theoretical knowledge as well as the requirements of the industry.
- To motivate students to develop innovative solutions to the existing problems for the betterment of society.
- Collaboration with the industry, research establishments,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

## WORKSHOP ON "GRAPH THEORY AND CODING"

A 3-day workshop on "Graph Theory and Coding" was hosted by the Electronics Engineering Department from 29th Aug - 31st Aug 2022 for the Faculty Members, Research Scholars, Workshop Staff, and PG Students of the Electronics department under the guidance of Chairperson Prof. Pradeep Dimri and Prof. Munish Vashishath. Prof. Ram Karan, Retd. Prof Kurukshetra University was the resource person. Workshop covered the Graph Theory and the importance and scope of Coding in the future. The event was coordinated by Dr. Rashmi Chawla.



## HAR GHAR TIRANGA

"Har Ghar Tiranga" is a campaign under the aegis of Azadi Ka Amrit Mahotsav to encourage people to bring Tiranga home, hoist it and mark 75 years of India's independence. Carrying forward the campaign, J. C. Bose University of Science and Technology, YMCA hoisted the Tiranga rally under the guidance of Prof. S. K. Tomar and Prof. Pradeep Dimri, Chairperson of the Electronic Department, where the NSS Team and students of the University, volunteered the campaign and distributed 500 flags in the adapted Villages who would further promote the spirit of India.

## ELECTRONIC PRASAR

The Department of Electronics Engineering, J. C. Bose University of Science and Technology, YMCA, Faridabad, organized a Skill Development Program, "Electronic Prasar," on 1st August 2022(Monday).

The Inaugural Ceremony was held in University Auditorium, and all the dignitaries of the university were cordially invited to grace the occasion with their benign presence. Prof. Pardeep Dimri, Chairperson Department of Electronics Engineering, welcomed the guest and the participants and briefed them about the workshop. He said the Department of Electronics Engineering is conducting a 30-hour workshop for school students. During the workshop, students will be imparted basic skills and knowledge about home appliances through the Godrej Disha Center set up in the university. Chairperson of Computer Engineering Department Prof. Atul Mishra, Dean (FET) Prof. M.L. Aggarwal

were also present. On this occasion, the Vice-Chancellor of JC Bose University of Science and Technology, YMCA, Faridabad, Prof. S.K. Tomar, urged the students to acquire the skills that make them capable of facing the challenges in life. The social worker and the Member of Rotary Club Faridabad, Sh. Sandeep Singh was the chief guest in the Program. He applauded the University's initiative to conduct a practical workshop for students. He said that JC Bose University has always been at the forefront of social causes and contributes a lot to the society by providing skill and practical-oriented education to the students. The event was organized to impart basic science and engineering knowledge to school students through a practical workshop. The workshop is being attended by the students of classes 11th and 12th from Shirdi Sai Baba School (SSBS) located at Sai Dham, Sector-86, Faridabad. The workshop is being coordinated by the student volunteers from MicroBird Club under the supervision of faculty coordinators Dr. Rashmi Chawla and Ms. Sangeeta Dhall. Electronics Prasar taught everyone the importance of skills, the market demand for different skills, and how to start, practice, and master the skill of one's own choice.



## INNOVATIVE ENGINEERING: Solutions for "Smart Engineering for a better world"

The department of Electronics Engineering of J.C. Bose University of Science and Technology, YMCA Faridabad, celebrated Engineer's day on 15th September 2022 under the theme INNOVATIVE ENGINEERING: Solutions for "Smart Engineering for a better world." During the Program, Vice-Chancellor Prof. Sushil Kumar Tomar, Ms. Aparajita, Additional Deputy Commissioner, Faridabad, and other dignitaries and members of the funding agency of the E-bin project, Rotary Club(Sanskriti) launched e-bins to be installed at identified places in the city of Faridabad for e-waste collection. The e-waste collected from different locations will be made available to the school students for reuse, recycling, and experimental work under the Commercial Skill Development Program being conducted by the University, which aims to impart commercial skills to students.

The Vice-Chancellor, Prof. Tomar, appreciated the initiative taken by the Department of Electronics Engineering, emphasized the importance of a systematic e-waste collection mechanism, and said there is a need to impart proper training for the disposal or recycling of e-waste.

An event titled "Techshaala" was also organized in which students presented their innovative ideas. Under this event, the University also organized various competitions for students to give their opinions and research work through Project and Paper presentations in crucial sectors of agriculture, healthcare, and upcoming technologies through the induction of intelligent technologies to achieve Sustainable Development Goals in a phased manner. The event was coordinated by Dr. Rashmi Chawla, Ms. Sangeeta Dhall, Ms. Manju Kumari, and Dr. Shailender Gupta.

### INNOVATIONS

#### Bright IQ

This project was developed by students of the Electronics Department under the headship of Microbird Club. This work controls the intensity of LED light strips, switching the LED bulbs ON/OFF using the fingers (hand gestures). The LED strip glows at low intensity when 1 finger is shown in the camera. And by showing the 2 fingers, the intensity increases and becomes maximum at 3. The LED bulbs glow when 4 fingers are offered, and at 5, the bulbs light with the LED strip at full intensity.

It is made using the microcontroller: Arduino UNO, Image-processing in Computer Vision, and Python programming language (pyfimata library). The intensity is controlled by taking different analog outputs through the PWM pins from the Arduino. Any appliance can be controlled, like controlling the fan's speed, the light's intensity, ringing a doorbell, etc., with hand gestures without touching the switches, even while away from home.



#### PiBraille

The PiBraille was developed by students of the Electronics Department under the headship of the Samarpan Club, with the idea to make cheap, affordable, and refreshable braille for the deaf and the blind that can be worn at all places like an intelligent accessory. The PiBraille uses edge devices that can produce braille output using object detection. The components used for making the PiBraille are:- Raspberry Pi 3b+, Raspberry Pi camera module, and 6 servo motors.



The project's work is pretty simple; whenever the camera module detects an object, e.g., an apple, the word is broken down into letters. Each letter is converted to braille code which is shown at the output at an interval of 1.5 seconds, i.e., apple is broken down into 'a','p','p','l','e', and each letter is produced at the braille board. The board was developed by Samarpan the Technophilia and won 1st prize at SPEED 2022.

## Real-time optimized Subway Surfers Model

This project was developed by students of the Electronics Department under the headship of Microbird Club. It uses body recognition technology which helps in Identifying critical marks of the body. The player stands against the screen. He can jump, dodge or move sideways to avoid the hurdles on his way, the same as in the Subway Surfers game. The game's objective is to pass through as many hurdles as possible to make a good score. This project can be used in surveillance. Suspicious movements can be tracked in army and border regions. It can be used as a source of entertainment in gaming parlors and hubs.



### Future of Semiconductor

By : Chirag Tyagi (EEIOT, 2nd yr)

On 13th September 2022, History was created in the spectrum of the Indian Manufacturing Industry. Vedanta and its partner, Taiwanese electronics manufacturing giant Foxconn, signed a pact with the Gujarat government to set up a semiconductor factory in Gujarat. This project cost around 20 Billion dollars but more significant than that, what matters is this project will create more than 1 lakh job opportunities for the country with the highest working population in the world right now and will boost the Indian manufacturing sector, which will eventually help us to meet our demands as well as export it to the world. Hence, increasing the Indian economy.

Until now, Taiwan has been a significant global semiconductor exporter and accounts for almost 60% of global exports. China's interest in Taiwan is a major cause of worry for the entire world. That's why the world is looking for an alternative, and the Indian Government is aware of that opportunity. So under the mantra of "Made in India," we are exploring all the options to boost our manufacturing sector.



Vedanta is the third company to announce a chip plant location in India after international consortium ISMC and Singapore-based IGSS Ventures, which are set up in the southern states of Karnataka and Tamil Nadu, respectively. Still, there are a lot of challenges in front of us to achieve our dreams, like Requirement for High Investments, Low Availability of Fabrication Capacities, and sufficient Resources. But we will tackle all challenges to transform INDIA into a developed country.

As said by our honorable Prime Minister, Mr. Narendra Modi, "Our aim is to make India a hub for semiconductors for the World."

### A Brief Insight into PhD Research Area

Graduate research programs in our university are an essential 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 Government schemes too. Here is an insight into the current research projects of our industrious students:



**Name:** Mayank Nehra

**Topic:** Design and analysis of solar photovoltaic systems for sustainability

**Supervisor:** Dr. Sheilza Jain

**Work:** Energy is an essential factor for the socioeconomic development of any nation. With the growing focus on green energy and efforts to mitigate climate change at the global and national levels. My research is an effort in this direction to estimate and analyze the potential of various renewable sources in Haryana. Among different available renewable energy, solar photovoltaic energy has massive potential in Haryana. I am trying to address the following questions in my research What are the issues and barriers to its deployment? What are its applications? How can green energy ease the life of rural people? How the irregular and low-voltage power supply problem can be addressed? How can a framework be developed for the deployment of solar photovoltaic systems?



**Name:** Reema Ganatra

**Supervisor:** Dr. Shailender Gupta

**Topic:** Analysis and design of neurodegenerative disorder detection mechanism.

**Work:** Neurodegenerative disorders like Alzheimer's and Parkinson's disease are leading causes of dementia in the elderly population. These diseases cause progressive memory and cognition loss, creating a socioeconomic burden on the patient and caregiver. For this purpose, machine learning algorithms are combined with neuroimaging techniques to segregate the control group from the patient with neurodegenerative disorders and to identify the brain regions affected by these disorders.



### Research publications:

- "BITA- Based Secure and Energy-Efficient Multi-Hop Routing in IoT-WSN", Published in "Cybernetics and Systems" by Lalit Kumar and Pradeep Kumar in September 2022.
- "Low-cost inkjet-printed humidity sensor using nanoporous surface on coated paper", Published in "Sensors & Actuators B. Chemical" by Amir Mansoori, Shamim Ahmad, Sonia Bansal, Munish Vashishath, and Dinesh Kumar, July 2022.
- "Development of paper biosensors using enzyme immobilized nanostructures using printing electronics", Book chapter published in Multifaceted Bio-sensing Technology © 2023 Elsevier Inc. by Afsana, Amir Mansoori, Smita S. Kumar, Sonia Bansal, DOI: <https://doi.org/10.1016/B978-0-323-90807-8.00007-5>.
- "Capacity of Space Time Data Transmission Scheme on colocated massive MIMO", accepted in 3rd International Conference on Smart Electronics and communication (ICOSEC 2022), by Pratibha Rani, Arti M. K., and Pradeep Kumar Dimri in July 2022.
- "Channel Estimation and Detection with Space Time Transmission Scheme in colocated MIMO system", Published in Electronics and Telecommunication Research Institute (ETRI) journal by Pratibha Rani, Arti. M. K., and Pradeep Kumar Dimri in November 2022.
- "Numerical modelling of Cu<sub>2</sub>O based gas sensor for detection of volatile organic compounds in human breath" presented in 2nd Emergent Converging Technologies and Biomedical Systems (ETBS 2022) organized by the Department of Electronics and Communication Engineering, Department of Physics and Materials Science, Jaypee University of Information Technology, Waknaghath, India by Rahul Gupta in September 2022.

### A ROUND OF APPLAUSE!

#### Appreciations

Team Umeed was felicitated by the District Administration with 'Award of Appreciation' for their contribution in implementation of Oxygen Refilling Management System during the Covid-19 Pandemic.



During the program, the student volunteers also presented two projects namely 'Smart Dustbin' and IoT for Urban Primary and Community Health Centers. Similarly, the student volunteers surveyed 2-3 Health Centers and identified innovative and smart solutions to reduce the rush of patients.

The Deputy Commissioner, impressed by the ideas presented by the student volunteers, asked the students to implement these projects on a small scale near the university campus area.

#### Placements and Internships

The department of Electronics Engineering has been creating impeccable records year after year, giving us an immense sense of elation and contentment as we share our placement and intern statistics for the academic year 2022-2023. The selections for the final year batch of ECE ENC and EIC, 2023, showed a tremendous response. Students are getting internship opportunities with invites from top companies like Samsung, Sonar Tech., TCS, Accenture, Cognizant, IBM, Expertlancing, and many more.

- The Highest Package offered for this year is 41 LPA for ENC students, 18 LPA for ECE Students and 9 LPA for EIC Students.
- Total students placed for this year are 40 from ENC, 32 from ECE, and 23 from EIC.
- One of the students from Electronics and Computers got selected for the ADOBE package of 40 lacks.

**Wishing all these achievers the best of luck for their fantastic future and plenty of success as they write a new chapter of their lives!!**

## CRIMSON ACHIEVEMENTS



BML Munjal University and management organized a fest in which Bhagyesh (2nd year, EE IoT) and his team (MB Arena) participated in path following bot and bagged 2nd position along with the cash prize of INR Rs. 5000/-

Khushi Verma (ENC, 4th year), with her team (Auroras), participated in a technical competition named Lunathon at ISRO. Auroras secured first position and a cash prize worth 1 lakh. Best wishes to the entire team.



A technical competition named Circuit Mania was held at Aravali Group of colleges for Management. A team of students of a University led by Kush (ECE, 3rd year) secured 2nd position and a cash prize of INR 500. Congratulations, keep going!



Himanshu (ENC, 3rd year) and his team secured 3rd position in a technical competition named AIIMS Delhi pulse held at AIIMS Delhi. They also received a cash prize of INR 3000. Congratulations to the entire team.



Dev Rishi Chaudhary (EE IoT 2nd year) participated in "ESCALADE 11.0" organized by "IIT GUWAHATI" with his team "Technocrats" and ranked in the top 5 out of 24 teams.



Aryan, one of the students from B.Tech ECE (Batch 2019-23), was shortlisted by the Indian Institute of Science (IISc)-Bangalore to attend their summer school organized during the first week of July, revolving around Electrical Engineering and concepts of latest technologies.



Chirag Tyagi (EE (IOT), 2nd year) brought laurels to our college by securing a second position and a cash price of INR 1500 at a cultural competition named Inter-College Declamation competition hosted at Janki Devi Memorial College, Delhi University. You nailed it!



Himanshu (ENC, 3rd year) participated in the competition "Speed 2022" organized by G.D. Goenka with his team Samarpan and bagged 1st position along with the cash prize of INR 5000



Rakshit and Aryan from EIC and ECE (2019-23 Batch) respectively were felicitated with Outstanding Achievement Award in Technical category and brought laurels to the Electronics Engineering Department on 16th September, 2022, 54th Foundation day of the University.



"Emotions make our lives exciting, unique, and vibrant."

Emotions are compelling, and how we deal with them tells a lot about us. Handling our emotions well will help us become mentally stronger. Is the process of controlling our feelings sounds complicated? No, it is not.



It definitely requires one to practice mindfulness. Still, once it is achieved, our life will be more peaceful and happy. If we consider carefully, we will realize that it is not the person or circumstances that upset us as much as the emotions they trigger. By all means, we should allow ourselves to feel our emotions but then go back to finding our peace and love. When we embrace anger, fear, hatred, etc., we add that negative energy to the energy that provoked our response in the first place. In short, we are adding strength and power to what we do not want to see happening. However, when we stop and refocus on ourselves and our emotions and work on re-establishing

our calm and peace of mind, we take away power from what we do not want to see in progress. We add power and high vibrational energy to what we want to improve. Energy by itself is not emotional. It is attracted to similar energy and builds and adds to it. The only way to overpower low vibrational energy is with more high vibrational energy, which is automatically added when we are in a calm state of mind. When overwhelmed with negative emotional energy, we contribute to the problem rather than the solution. If someone provokes anger in us, rather than thinking they are a terrible human being and need to change their way of thinking, try to see them with humanity in your heart.

It is obviously easier said than done, but the first step is wanting to change and observing ourselves when we get angry at someone or something, so we can correct our course, feel our emotions, and retrieve our peace and calm. The more we practice doing this, the easier it gets. We must set a positive example and shine our light rather than fall back into the darkness around us.

### Alumni Relations

Q. What is the most important life skill one needs to do well professionally?

Clear Concepts and deep knowledge of your subject are of Paramount importance, giving the confidence to take on challenges and opportunities.

Hard work and honesty in your dealings are essential to be accepted.

Pursue till each and every small or big assignment is concluded to its logical end.

Q. After passing out from YMCA, what was the roadmap you followed to reach where you are today? And what are the obstacles you faced in your journey and how did you overcome them?

Took every assignment seriously and put in all efforts to exceed the expectations of the seniors or professional associates.

Kept myself updated with the latest developments and technologies

Did not hesitate to take Risks and initiative to try new alternative solutions.

Q. If you had to give one advice to college students, what would that be?

Make full use of each and every moment of your time as a student to grab as much knowledge as possible.

Try to understand the basics and the application of whatever is being taught.

Keep in mind that your parents are spending their hard earned money on you with some aspirations and expectations. Do justice to them by being serious and sincere towards your studies.



**Mahesh Sachdeva**

CEO of Fuji Gemco Pvt Ltd  
Director of Gemco Energy Ltd  
Scholars Pride ( formerly Gita Convent School )  
1972-1976 (Electronics & Controls)

## Birthday Celebration

Teachers are those who transform human resources into human capital. They are role models and influential figures who give society the tools to grow and succeed. To facilitate and provide a token of thanks and gratitude to them,



the department celebrates the birthdays of all the faculty members, workshop staff, and supporting team. One day in a month is dedicated to a birthday celebration for all those members whose birthday lies in that particular month, and they all are felicitated by presenting planters and formal wishing letters to them.



## Birthdays of The Quarter

**Ms. Sangeeta Dhall (19th July)**

**Ms. Sonam Khera (23th July)**

**Ms. Nitin Sachdeva (24th July)**

**Sh. Balkrishan Kadiyan (26th July)**

**Ms. Archana Aggarwal (1st August)**

**Ms. Sheilza Jain (22th August)**

**Sh. Vinod Rathore (4th September)**

**Sh. Vijay Kumar (5th September)**

**Sh. Virender Singh (22th September)**

**Sh. Bharat Bhushan (26th September)**

## Message From Editorial Team

"All outstanding work in art and science results from immense zeal applied to a great idea." Our dear readers, we, the students of the Student Editorial Board, are elated to share a minor aspect of our department through "स्पंदन," the official newsletter of the Electronics Engineering Department of J.C. Bose University of Science and Technology, YMCA.

We are grateful beyond measure to Bharat Bhushan Sir, Sangeeta Dhall Ma'am, and Nisha Yadav Ma'am for their capable and effective leadership in helping us complete this task. We are thankful to our seniors for leading us and answering our questions as we proceeded with the work.

The best thing about the process is the knowledge & skills that we learned and enhancing our creative side to a fair degree – something we all need to reconnect with. We are incredibly appreciative that the Department thought we were capable and gave us a chance to express ourselves this way.

We hope the readers will be pleased with our work, appreciate our efforts, and provide us with insightful criticism so we may improve.

The Editorial Team



For any suggestions and feedback, get in touch with us at: [spandan.eee@gmail.com](mailto:spandan.eee@gmail.com)

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